

Research Article

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Effect of Massage and Compression with Abhaibhubejhr Herbal Recipe on Milk Ejection Performance of Postpartum Mothers

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Abstract

Background: Breast milk feeding is a national policy to improve baby health status; nevertheless, an important problem of postpartum mothers is insufficient milk for their babies corresponding with our data. Chaophraya Abhaibhubejhr Hospital as one of the leaders in herbal medicine has used breasts massage and compression with herbal regimen for a long time to encourage milk secretion; however, the result has not been evaluated.

Objectives: To assess the effectiveness and latency time of breasts massage and compression with Abhaibhubejhr herbal regimen to milk production compared with non-massage control group.

Methods: Quasi-experimental study was conducted at Chaophraya Abhaibhubejhr Hospital, Prachinburi Province Thailand from June to November 2012. 60 Caesarian section mothers were purposively selected into 2 groups. 30 mothers' breasts in experimental group were massaged twice daily with Abhaibhubejhr herbal recipe on the second day after delivery. Breastmilk from two groups was pumped at 24, 48 and 72 hours after delivery for volume comparing. Data was analyzed by regression analysis and non-parametric statistics.

Results: Milk volume from two groups was not different at 24 and 48 hours (Mann-Whitney U test: $p > 0.05$), but statistically different at 72 hours (Mann-Whitney U test: $p < 0.05$). Milk volume from massage group was statistically more increased than non-massage group. (Regression analysis: $p < 0.05$).

Application: Breasts massage and compression with Abhaibhubejhr herbal regimen could increase milk production comparing to non-massage group, but the effect of this technique could take time more than 2 days after delivery. Breasts massage with Thai herbal method is an alternative technique to support mothers' success in long term breast feeding.

Keywords: abhaibhubejhr herbal recipe; breast massage; milk production

Introduction

Breast milk contains complete nutrients. Breast-feeding has a positive effect on maternal and infant survival in good health both of cognition and development [1]. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) have campaigned to promote breastfeeding in all countries of the world. In Thailand, there is a campaign to promote exclusive breastfeeding since the 4th National Economic and Social Development Plan. The Ministry of Public Health of Thailand has a policy recommending that mothers exclusively breastfeed their babies for at least 6 months and continue with age-appropriate nutritional supplements. Despite the increasing number of breastfeeding campaigns, the successful rate of exclusive breastfeeding for 6 months is unsatisfactory increasing. The Department of Health

has set a target that infants should be exclusively breastfed for 6 months at least 50% by the year 2013 [2]. Data from Obstetrics and Gynecology Department, Chaophraya Abhaibhubejhr Hospital, Thailand found that infant mothers exclusively breastfeed for 6 months in 2010, 2011 and 2012, accounting for 23.44, 28.45 and 31.61 percent, respectively. Although the rate of breastfeeding tends to increase, it still does not meet the criteria set by the Department of Health, which is 50 %. From the interviews with postpartum mothers, 50% reported that they had less milk flow, insufficient milk, and lack of milk [3]. The problem of milk not flowing is the first priority problem [4]. The incidence of delayed milk was found in 33-44 % of the first mothers, 5-8 percent of later mothers and 36.1 percent in overall [5]. However, almost all mothers expect to have milk after delivery. which will result in stress cause the milk to come delayed even more [6]. A study found that

35% of postnatal mothers stopped breastfeeding during the first week after birth because they felt that the milk flow was insufficient for their babies [7]. If this problem can be solved, it will result in the success of breastfeeding. Guidelines for effective care to promote milk secretion in postpartum mothers include: Encouraging infant sucking by 3 sucking principles, which are sucking fast, sucking often and sucking properly, including encouraging the mother to get enough rest, receiving adequate food and water according to their needs as well as mental care [8].

Chaophraya Abhaibhubejhr Hospital is a tertiary level hospital accountable for national leader in Thai traditional medicine. There are doctors and personnel specializing in Thai traditional herbal medicine providing integrated health services to health care providers in the area of responsibility and referral patients from community hospitals. According to the hospital policy promoting breastfeeding that mother exclusively breastfeed for 6 months and continue until the baby is 2 years old. The research team is therefore interested in studying the effects of breast compression with herbal compression in Abhaibhubejhr Thai traditional medicine formula on the amount of milk secretion solving the problem of less flowing milk according with promoting longer breastfeeding.

Methods

Study setting and population

This study was conducted at Chaophraya Abhaibhubejhr Hospital, the only general public hospital serving Prachinburi Province in Thailand.

The hospital follows the World Health Organization's guidelines for establishing breastfeeding, including facilitating skin-to-skin contact.

Population were postpartum mothers who gave birth at Chaophraya Abhaibhubejhr Hospital, Prachinburi Province between June and November 2012. The sample group were mothers totaling 60 people, divided into an experimental group of 30 people and a control group of 30 people from the calculation of the sample size of 26 people per group with effect size = 0.8. Selected sample according to the specified characteristics as follows:

- Being a mother who gave birth by caesarean section
- Gestational age 37-41 weeks
- No complications during pregnancy and no postpartum hemorrhage
- Single birth
- Normal nipple appearance
- Never allergic or contraindications to herbal usage which are ingredients in the compress ball
- Intention to breastfeed and willing to participate in the study

Study design

This Quasi-experimental study was done between June to October 2018. Population were postnatal mothers who gave birth at Chaophraya Abhaibhubejhr Hospital, Prachinburi Province.

Study materials

Traditional massage and herbal compression pattern with Thai Abhaibhubejhr traditional medicine and Electrical breastmilk pump.



Figure 1: Breast compression and pumping.

Collect data forms included mother's general information questionnaire and postnatal milk secretion record form.

Study method

1. Sample groups were selected according to the specified qualifications.
2. The samples were divided into an experimental group of 30 people and a control group of 30 people.

3. Experimental group began daily breast compression massage on day two after delivery by trained professional nurses two times daily with Thai Abhaibhubejhr traditional regimen.

4. Breast pumping with an electrical pump was performed in both groups of mothers at 24, 48 and 72 hours after birth and the milk volume was measured in milliliters.

Results

Table 1: Maternal and infantile factors.

Predictors	Breast compression group [n (%)]	Non-breast compression group [n (%)]
Age in years		
20-30	20 (66.7)	23 (76.7)
31-40	10 (33.3)	7 (23.3)
Mean age [year (SD)]	29.1 (5.7)	28.9 (4.1)
Order of pregnancy		
First pregnancy	17 (56.7)	17 (56.7)
Second pregnancy	12 (40.0)	12 (40.0)
Third pregnancy	1 (3.3)	1 (3.3)
Birth weight		
2,500-2,999 grams	6 (20.0)	6 (20.0)
3,000-3,499 grams	18 (60.0)	18 (60.0)
> 3,500_grams	6 (20.0)	6 (20.0)
Mean birth weight [grams (SD)]	3,260.0 (407.9)	3,255.3 (321.5)

It was found from table 1 that mothers in the experimental group and control group had almost equal mean age of 29.1 years and 28.9 years respectively. First pregnancy was found at 56.7% in both groups by overall caesarean section. Infants of

- Data analysis
- Descriptive statistics: percentage, mean and standard deviation
 - Inferential statistics: Regression analysis with postestimation Wald test and Mann-Whitney U Test.

both groups had almost equal mean birth weight of 3,260.0 grams and 3,255.3 grams respectively. Therefore, the general characteristics are similar for both groups.

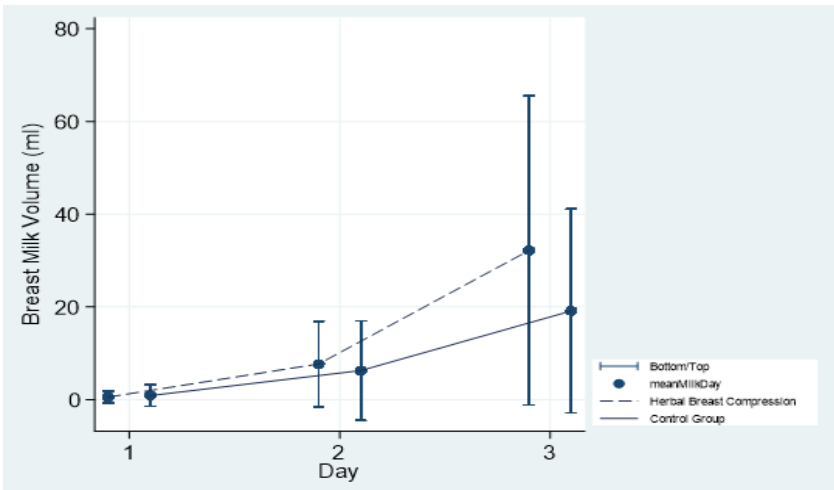


Figure 2: The amount of mother's milk (ml).

Table 2: The amount of mother's milk (ml).

		Day 1	Day 2	Day 3'
Control group (Non-breast compression group)	Mean (SD)	0.9 (2.3)	6.3 (10.7)	19.1 (22.0)
	Median	0	1.75	13.75
Experimental group (Breast compression group)	Mean (SD)	0.6 (1.3)	7.7 (9.2)	32.2 (33.4)
	Median	0	4.75	23.5

* The breast compression group had more milk secretion at 72 hours postpartum than the group that did not receive breast compression. Statistically significant at the 0.05 level. (p = 0.047: Mann-Whitney U test).

It was found from table 2 that mothers in the group that received breast compression had more milk secretion in Day 3 after delivery than those in the

group that did not receive breast compression. There was a statistical significance at the 0.05 level. Both groups had an increase in milk production over time.

Table 3: Regression table.

Breast milk volume	Coef.	Std. Err.	t	P > t	95%Conf. Interval
Treatment	8.66	6.91	1.25	0.21	-4.98, 22.30
Breast compression group	15.81	2.26	6.99	0.00	11.35, 20.28
Non-breast compression group	9.13	2.26	4.03	0.00	4.66, 13.59
Constant	-26.79	10.93	-2.45	0.02	-48.36, -5.22

Linear regression was used to test if herbal breast compression significantly predicted breast milk volume. The overall regression was statistically significant [$R^2 = 0.28$, $F(3, 176) = 22.79$, $p < 0.01$]. It was found that herbal breast compression significantly predicted breast milk volume ($\beta = 15.82$, $p < 0.01$). Postestimation Wald test found that herbal breast compression method significantly predicted breast milk volume more than non-breast compression method [$F(1,176) = 4.37$, $p = 0.038$]

Discussion

This study has been shown that traditionally Thai herbal Abhaibhubejhr breast compression massage can increase the amount of breast milk secretion. This is due to breast compression massage could improve blood circulation that stimulates milk-producing cells, milk ducts and milk pockets resulting in better milk flow mechanism. The heat from the compression causes the smooth muscles to relax, then dilated blood vessels in the breast reducing blood viscosity, resulting in increased blood flow to the breast and milk production cells (Lactocyte). All of those could stimulate the milk production process, resulting in increased milk supply, according to past studies, massage and warm compress alone can improve milk flow [8-11].
The policy of Thai Ministry of Public Health emphasizing the provision of Thai traditional medicine services in hospitals at all levels. Chaophraya Abhaibhubejhr Hospital has developed a

formula for compressing the breasts to stimulate the secretion of milk and encourage network hospitals to use it appropriately according to the context. Important chemicals from some herbs that are absorbed through the skin could help reducing muscle spasms, sprains, and pain. In addition, the smell of essential oils from herbal plants help mothers to relieve stress, decrease anxiety making the milk flow more as well correspondent to the past study of Chutimaphon who studied the effect of milk flow in postpartum women who received breast massage with hot water bags and herbal compression [12-14]. That study found that and the milk flow after massage and herbal compression was significantly higher than the milk flow after massage and hot water bag compression alone. Therefore, herbal compression may produce better results than heat compression alone by creating relaxation with aromatherapy and allowing mothers to have conveniently satisfaction throughout the treatment resulting in being able to raise a child with breast milk for a longer time [12,15]. However, from this study, it was found that the amount of milk secreted by mothers who received breast massage was significantly higher than those who did not receive breast massage in 3 days after delivery indicating that this compression regimen would take a certain amount of time to take effect. From the lactation chart, milk secretion started to differ from 2 days after birth, nevertheless, the sample may be too small making it statistically insignificant. However, it can be considered that the results of this study are important information in providing advice

to patients and creating an opportunity to further develop the massage and compress regimen.

The results showed that breast massage with herbal compresses in Abhaibhubejhr Thai traditional medicine formula in postpartum mothers could stimulate milk to secrete more than not massaging the breast. Ensuring breast massage might be applied after delivery to ensure that the milk supply is sufficient. If this regimen was used continuously producing enough milk to raise children for a long time. That might result in healthy babies and reduce the cost of purchasing milk mixtures. Promotion and support for network hospitals to use this regimen may need appropriate and sufficient training. It is necessary for every hospital that has a Thai traditional medicine clinic to practice the correct massage and herbal compress. Further studies should have a larger sample size, to have more statistical computational power along with developing more effective regimen. That may adjust the herbal compress formula to be more effective along with a survey of patient satisfaction including complications that could occur. It would also develop a form of use so that it can be used conveniently and inexpensively, or can be done by patients themselves by some forms of action research in the future.

Conclusions

This study shows that traditional breast massage and herbal compression pattern with Thai Abhaibhubejhr regimen could improve breast milk volume more than non-compression method. Breast milk secreted by mothers who received this breast massage regimen was significantly higher than those who did not receive breast massage in 3 days after delivery. Every hospital should apply this regimen to support breast milk feeding policy in long-term improving infants' health status and cost reduction. Further studies in developing compression regimen for every infant's mother should be enforced in the future.

Declarations

Funding

None.

Availability of data and materials

The datasets created and analyzed in the current work are not publicly available due to patient confidentiality issues, however they are obtainable

from the corresponding author upon justifiable request.

Declarations

The study was approved by the Ethics Committee of Chaophraya Abhaibhubejhr Hospital. The authors declare that they have no competing interests.

How does this paper make a difference in general practice?

- Understanding how to increase milk ejection allows primary care practitioners to promote breast feeding in rural area country in long term.
- Traditional herbal breast massage can increase milk supply for newborns in general practice.
- Present study can be used for comparative analysis with future research, enabling a better understanding of breastfeeding promotion and its impact on primary care and public health.

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