Saudi Journal of Nursing and Health Care

ISSN: 2616-7921 (Print)

Abbreviated key title: Saudi J. Nurs. Health. Care.

ISSN: 2616-6186 (Online)

A Publication by "Scholars Middle East Publishers", Dubai, United Arab Emirates

Effect of Olive Oil Application to Nipples during late Pregnancy on Prevention of Postpartum Nipple Trauma

Asmaa Abd Allah Ahmed[1*], Yousseria Elsayed[2], Gehan Elghonemy[2], Ahmed Samy Ashour[3]

[1]Clinical instructor, Faculty of nursing, Cairo University, Egypt

[2]Professor, Faculty of nursing, Cairo University, Egypt

[3]Lecturer, Department of Obstetrics and Gynecology, Faculty of Medicine, Cairo University, Egypt

Original Research Article

***Corresponding author**

Asmaa Abd Allah Ahmed

Article History

Received: 15.05.2018

Accepted: 27.05.2018

Published: 30.08.2018

Abstract: Nipple trauma is a common complaint among breastfeeding women and it is one of the main reasons why some women decide to stop breastfeeding. It confronts nursing women 3-6 days after birth, especially primipara. Nipples become painful and start to show small cracks, which may bleed. This study aimed to test effect of olive oil application to nipples during late pregnancy on prevention of post partum nipple trauma .Subjects and methods (One group time series) quasi-experimental design was adopted in this study to achieve the stated aim. Purposive sample of 100 pregnant women who met inclusion criteria were recruited for the study from antenatal clinic of Obstetrics and Gynecology Hospital. Data were collected through 4 tools (I) Maternal structured interview questionnaire, (II) Nipple soreness rating scale (NSR),(III) Nipple trauma score (NTS), (IIII) WHO B-R-E-A-S-T Feed observation form. Procedures were carried out through four phases Interviewing, Pretest, Intervention, Posttest. Results The study finding revealed that 67% of the study sample had no nipple trauma (score 0) according to nipple trauma score assessment at 3rd day after starting breastfeeding, it was also revealed that their is a highly significant relation between period and frequency of application of olive oil to the nipples during late pregnancy and incidence of nipple trauma with breastfeeding (p=.000).This study concluded that Olive oil is effective for prevention and treatment of nipple trauma. The study recommended that application of olive oil during late pregnancy is beneficial in prevention of nipple trauma.

Keywords: Olive oil application, prevention, nipple trauma.

INTRODUCTION

Despite the advantages of breastfeeding, many complications hinder the success of this practice. One of these complications is nipple trauma. Nipple trauma has been identified as pain sensation in friction and suction lesions of nipple ranging from uncomfortable feeling to severe pain with physical trauma [1]. The most common attributed cause of nipple trauma was incorrect positioning and attachment, followed by infection, palatal anomaly, flat or inverted nipples, mastitis and vasospasm, according to WHO 90% of nipple trauma caused by improper holding and positioning of baby during breastfeeding [2-4] .

Treatment of cracked nipple dates back to the seventeenth century, but there is no explicit statement on the most suitable topical treatment for cracked nipples, many studies investigated the using of herbals in management of cracked nipples as lanolin, tea bag compress, expressed breast milk and alovera oil [5, 6]. Other studies used olive oil for management of nipple trauma as it had been used for sore nipples in the Mediterranean countries for many years [7]. Also it has been tested for various skin disorders, such as atopic dermatitis, diaper rash and skin care of premature babies and it is a safe and may be beneficial choice for preventing sore nipples [8]. Olive oil is an easily accessible and relatively cheap substance, also hydrophilic phenols are the most abundant antioxidants in virgin olive oil with both antioxidant and anti-inflammatory attributes [9].

The above review studies tested the effect of a variety of materials applied to nipples to prevent or treat nipple problem, the majority of these studies took place during postpartum period. Few scattered studies were carried out in relation to application of olive oil to prevent nipple trauma when applied during antenatal period. So that this study aimed to test effect of olive oil application to nipples during late pregnancy on prevention of nipple trauma among lactating women.

Significance of the study

Nipple trauma is one of the most common reasons given by mothers for ceasing exclusive *breastfeeding* [10]. Nipples trauma possess threats to mothers, infants and societies. The most common

consequences of traumatic nipples include infants' deprivation of breast milk benefits and it may lead to maternal stress and mothers' dissatisfaction. It is a painful condition that can also cause psychological distress and interfere with general activity, mood, sleep, and bonding between mother and infant [11].

Worldwide, It is estimated that 34 to 96% of breast feeding women experience some nipple soreness, with 26% progressing to cracks and extreme nipple pain Furthermore, up to be one third of the mothers who experience these symptoms may change to alternate methods of infant nutrition within the first six postnatal weeks [12].

The study will help uncover a critical problem that leads to unsuccessful breastfeeding which is nipple trauma .Most of studies discuss the use of alternative methods to prevent nipple trauma during immediate postpartum period however this study will be applied during late pregnancy to investigate the effect of nipple preparation with olive oil application on prevention of nipple trauma. So the aim of the study was to test effect of olive oil application to nipples during late pregnancy on prevention of postpartum nipple trauma, research hypothesis was application of olive oil to the nipples in late pregnancy will prevent nipple trauma among lactating women.

SUBJECTS AND METHODS

Research Design

One group pre-posttest quasi experimental time series research design was adopted to achieve the study's aim.

Sample

Purposive sample of 100 pregnant women who met inclusion criteria was recruited for the study, 8 subjects failed to follow up and were replaced. The study sample was recruited according to the following criteria, Pregnant women who completed 36 weeks gestation, have normal nipple skin, free of any nipple disorders such as flat or inverted nipples, not using any medication, ointment or oils to the nipples.

Setting

The study was conducted at the antenatal clinic of Obstetrics and Gynecology Hospital affiliated to Cairo University Hospitals.

Tools for Data Collection

Five tools were used to collect the necessary data:

Maternal structured interview schedule: was developed by the investigator to collect the information from the mother& It consisted of:

Demographic data such as name, age, and level of education, occupation and obstetric data, medical history, previous breast surgical history, history of breast feeding and nipple trauma.

Nipple Soreness Rating Scale (NSR)

Nipple Soreness Rating Scale was adopted [13, 14] (to assess nipple condition in both normal and abnormal conditions. This Nipple Soreness Rating Scale (NSR) included six items that describe nipple soreness and those items are; 1:nipple color as normal and no tenderness,2: nipple slightly red and\or tender for first 5-10 seconds after feeding, 3: nipple is red and tender for longer than first 5-10 seconds of feeding , 4: nipple is tender between feedings, makes me grimace when baby starts feeding , 5: nipple is beginning to crack and make me involuntary gasp of pain when baby starts feeding, 6: nipple cracked and feels sore "down to my toes when baby starts feeding.

Those items scored by Likert scale from Zero to 5 for each item, Zero refers to no nipple pain or discomfort as the score increase it refers to increase discomfort and pain.This tool has been used in various studies inside and outside Egypt as used by Abd-Elsalam, Hamido, Abd el Hameed and its validity have been confirmed by Storr [13]. The reliability of the Storr 2008, scale was measured using the test-retest method (r>0.7) [14].

Nipple Trauma Score (NTS)

Nipple Trauma Score was adopted [14] to identify and score nipple trauma. This Nipple Trauma Score (NTS) related to 6 items that describe nipple trauma and those items are, 1: no visible skin changes, 2: erythema or edema or combination of both ,3: Superficial damage with or without scab formation of less than 25% of the nipple, 4: Superficial damage with or without scab formation of more than 25% of the nipple ,5: Partial thickness wound with or without scab formation of less than 25% of the nipple surface, 6: partial thickness wound with or without scab formation of more than 25% of the nipple surface. Those items scored by likart scale from Zero to 5 for each item, Zero refers to normal nipple skin as the score increase it refers to increase trauma and discomfort.

This tool has been used in various studies inside and outside Egypt as used by Abd-Elsalam, Hamido, Abd el Hameed and its validity have been confirmed by Champion. The reliability of the Champion scales was measured using the test-retest method (r>0.7) [13].

WHO B-R-E-A-S-T Feed observation form: was adopted [5. It is a checklist used to observe the breastfeeding process for 5 minutes. It contains:

mothers and infant's positions as well as the latter's attachment to the breast.

Criteria for grading mother and infant position will be as the following:

Criteria	Grade	Score
Observing one criterion from mother's position and one criterion from infant's position or both from mother's position	Poor	0-2
Observing at least one criterion from mother's and two or three criterion from infant position	Average	3-4
Observing at least two criteria from mother's position and three or fourth criteria from infant's position	Good	5-6

Criteria for grading will be according the following:-

Criteria	Grade	Score
Presence of any one of four criteria	Poor	1
Presence of any two of four criteria	Average	2
Presence of any three of four criteria	Good	3-4

WHO B-R-E-A-S-T Feed observation has been used in several studies inside and outside Egypt as used by Essa &Ebrahim [5] and its validity had been established.

Follow up sheet

It included questions about degree of compliance with intervention, period of using olive oil before starting breastfeeding and if breast engorgement occurred during breast feeding.

Procedure

Data were collected through a period of six months from first of July 2016 till the end of December 2016. Data were collected through four phases: interviewing, pretest, intervention, posttest.

After getting the acceptance of the research ethics committee, an official permission to conduct the study was obtained from the board of the faculty of nursing, Cairo University and administrative authority at antenatal clinic in Obstetrics and Gynecology Hospital. Written consent was obtained from pregnant women after explanation of the aim and the nature of the study. Women who will fit the inclusion criteria and accepted to be included in this study were recruited .Data collection was carried out following the selected study design (time series) through the following steps:-

Interviewing

Interviewing women was conducted at antenatal clinic in health teaching private rooms to obtain data related to sociodemography, obstetric, medical, previous breast operation, and history of breastfeeding.

Pretest

Assessment for breasts and nipples was made after the interview and assessment of nipple trauma was done using nipple trauma score (NTS). Those women who fulfill criteria for inclusion were recruited for the study.

Intervention

Explanation how to use olive oil by applying 3 drops to each nipple 3 times per day and let the nipples be exposed for few minutes until absorption of olive oil. Within Two weeks after first intervention, data related to degree of compliance with intervention and problems that faced the woman during application of olive oil using follow up sheet and assessment of nipple trauma was done using Nipple Trauma Score.

After the delivery during first time of breast feeding WHO B-R-E-A-S-T Feed observation form was used to ensure that the mother apply correct technique of breastfeeding . mothers who don't apply correct technique (their grade in the WHO B-R-E-A-S-T Feed observation form is poor or average according to WHO criteria in both body position and baby attachment) was instructed about correct technique and position of breast feeding. Moreover, mothers who applied correct technique during breast feeding (their grade in the WHO B-R-E-A-S-T Feed observation form is good according to WHO criteria) continued their intervention without other instruction about breastfeeding technique. Also follow up assessment of nipple trauma was done using Nipple Trauma Score and data related to type of current delivery, condition of the baby after delivery, period of using olive oil before starting breastfeeding was obtained.

Posttest

It was done within two weeks after delivery and after application of olive oil. Meeting with women were conducted and data related to degree of compliance with intervention and if breast engorgement occurred or not was obtained from the women using follow up sheet and assessment of nipple soreness was done using Nipple Soreness Rating Scale

and assessment of nipple trauma was done using Nipple Trauma Score. Each meeting took 15-20 minutes for each woman.

RESULTS

Age ranges from 15-40 years ,the lowest percent was 15% at age group less than or equal 20 years and at age group 36-40 years while the highest percent was 25% at age group 26-30 years. 34% of the sample can read and write, while 27% was primary and preparatory school and only15% are highly educated; moreover it was found that about 92% of them was house wives and only8%was empolyee.

The base line assessment and the second assessment of nipple trauma score was performed before delivery for the study sample using NTS showed that the nipple was normal with no visible skin changes (score zero) but the fourth assessment of NTS which performed at 3or 4 days after starting breast feeding showed 67% of the study sample had no visible skin changes (grade 0) figure-1.

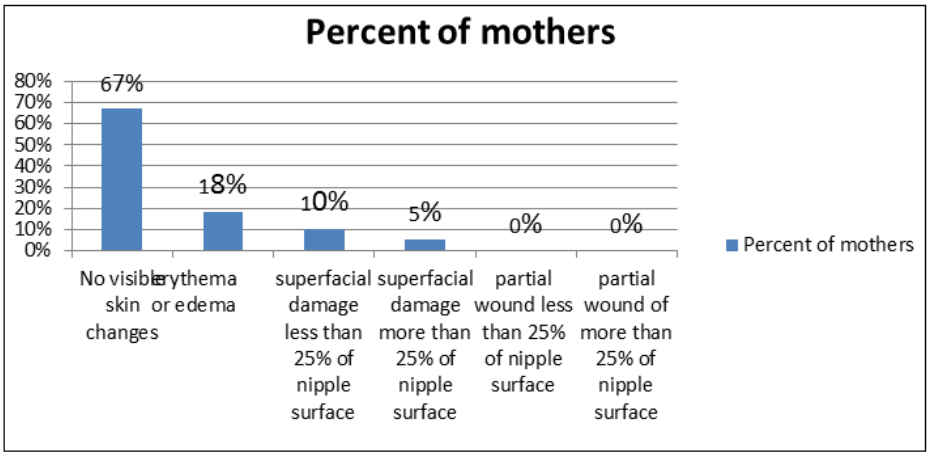

Fig-1: Distribution of the study sample according to their nipple trauma score 4th assessment within 3 or 4 days of starting breast feeding

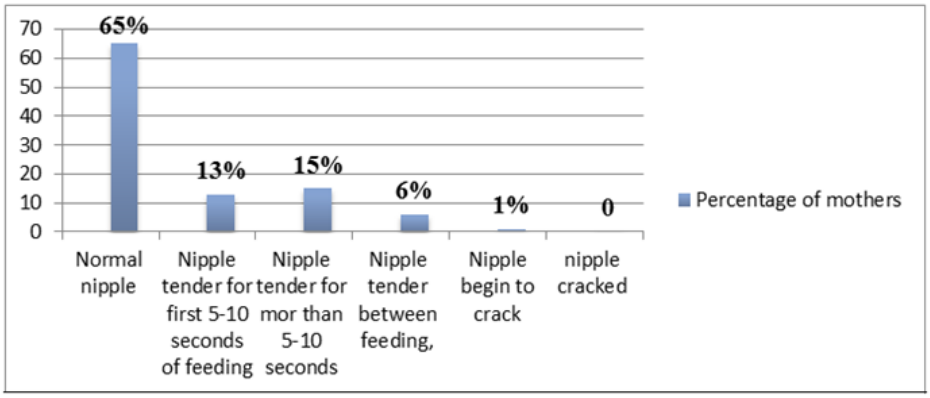

Fig-2: Distribution of the study sample according to Nipple soreness rating scale

Table-1: Relationship between nipple trauma score 4th assessment and period of using olive oil before starting breast feeding (n=100)

Nipple trauma score	Less than or equal 14 days N (%)	from 15 to 28days N (%)	more than 28 days N (%)	**X2**	p
*No visible skin changes	1(10%)	61(71.8%)	5 100%	90.433 [a]	.000
*Erythema or edema or both	3 (30%)	15(17.6%)	0 0%		
*Superfacial damage less than 25% of the nipple surface	4 (40%)	6(7.1%)	0 0%		
*Superfacial damage of more than 25%of nipple surface	2(20%))	3 (3.5%)	0 0%		

Table-2: Relationship between nipple trauma score 4th assessment and frequency of application of olive oil per day (n=100)

Nipple trauma score	Three times per day N (%)	Two times per day N (%)	once daily or forget N (%)	X2	P
*No visible skin changes	14 20.9%	48 71.6%	5 (19.2)	48.413 [a]	.000
*Erythema or edema or combination of both	1 5.6%	6 33.3%	11(42.3)		
*Superfacial damage less than 25% of the nipple surface	1 10%	4 40%	5(19.2)		
*Superfacial damage of more than 25%of nipple surface	0 0%	0 0%	5 (19.2)		

DISCUSSION

The following discussion will focus on the findings related to research hypothesis. Which is (olive oil application during late pregnancy will prevent nipple trauma). This study revealed that 67% of the study sample had no nipple trauma and no visible skin changes (score 0) according to nipple trauma scoret and 65% of the study sample had normal nipple color and no tenderness (score 0) according to nipple soreness rating scale.

Moreover, The current study showed that olive oil is effective for prevention of nipple trauma and its effectiveness depends on period and frequency of its application as there is a highly significant relation between period of application of olive oil and nipple trauma score and highly significant relation between frequency of application of olive oil and nipple trauma, the main reason is that olive oil has antioxidant and anti-inflammatory attributes, moreover; it contains significant amounts of squalene, the main component of skin surface polyunsaturated lipids, as an emollient, squalene is easily absorbed deep into the skin helping to restore suppleness and flexibility (two positive attributes of nipple skin that helps resist cracking and damage [9].

This results are congruent with oguz *et al*., [8] who conducted a study comparing between effect of olive oil and lanolin application on prevention of nipple trauma among lactating mothers and the results showed that the majoirity of the mothers were more satisfied with topical use of olive oil and only (10.8 %) of them were more satisfied with lanolin and the study suggests that olive oil is a safe, accessible, and beneficial choice for preventing sore nipples.

Moreever this results supported by cordero [15] who tested the effect of application of extra virgin olive oil to prevent nipple cracking in lactating women and reported that EVOO helps prevent nipple cracking in lactating women by administering 3 drops on each nipple after each feeding, it has been shown to have protective effects, when breastfeeding presents technical difficulties, Moreover, 70% of the women treated with EVOO breastfed exclusively.

Almost all the literature showed that incidence of nipple trauma was high before starting the selected intervention and with application of the selected intervention it improves but the results of our study showed that the majority of mothers didn't have nipple trauma or nipple pain with breastfeeding and this is because early application of olive oil during late pregnancy, in addition all of the studies applied intervention during post partum period either for prevention or treatment of nipple trauma but no of them tested effect of application of intervention during late antenatal period for prevention of nipple trauma but in our study the early application of olive oil during late antenatal period helped in preparation of the nipples for breastfeeding by increasing its elasticity, resistance to cracking by the antioxidant, anti inflammatory and lubricant effect of olive oil and this decrease incidence of nipple trauma during breastfeeding than other studies.

CONCLUSION

The Current study concluded that Olive oil is effective for prevention and treatment of nipple trauma especially when applied for enough period during late pregnancy before starting breast feeding

RECOMMENDATIONS

Based on the findings of this study, the following are recommended:

- Raise awareness of women regarding nipple care during late pregnancy and during breastfeeding.
- Raise awareness of medical team staff about importance to give women health teaching about correct breast feeding technique and care of nipples during breastfeeding.
- Recommendation for application of olive oil to nipples during late pregnancy and during breast feeding should be recommended by medical team to all pregnant women.
- Further studies are necessary to examine the effect of natural oils on prevention of nipple trauma
- Further studies with more sample size and apply olive oil at 34 weeks are necessary to assess effect of its early application.

REFERENCES

1. Shanazi, M., Khalili, A. F., Kamalifard, M., Jafarabadi, M. A., Masoudin, K., & Esmaeli, F. (2015). Comparison of the effects of lanolin, peppermint, and dexpanthenol creams on treatment of traumatic nipples in breastfeeding mothers. *Journal of caring sciences*, *4*(4), 297.
2. Shams, S. (2011). Breast Feeding and Motherhood.Aga Khan University, School of Nursing, Pakistan. *Pakistan Journal of Nutrition*, 10: 599-601.
3. Kent, J. C., Ashton, E., Hardwick, C. M., Rowan, M. K., Chia, E. S., Fairclough, K. A., ... & Geddes, D. T. (2015). Nipple pain in breastfeeding mothers: incidence, causes and treatments. *International journal of environmental research and public health*, *12*(10), 12247-12263.
4. Rani, A. M., Bangalore, C. (2012). A study to evaluate the effectiveness of structured teaching programme on non pharmacological therapeutic approach in alleviating sore nipple among antenatal mothers in selected community at Bangalore.
5. Essa, R. M., & Ebrahim, E. M. (2013). Effect of breast milk versus therapeutic honey (Apicare) on cracked nipples' healing. *Life Science Journal*, *10*(1), 2137-47.
6. Ahmed, E. M. S., El fattah Mohamed, H. A., & Abutalib, Y. M. (2015). Evidence based guideline using to alleviate traumatic nipple among nursing mothers. *World J Nursing Sci*, *1*, 35-44.
7. Gungor, A. N. C., Oguz, S., Vurur, G., Gencer, M., Uysal, A., Hacivelioglu, S., ... & Cosar, E. (2013). Comparison of olive oil and lanolin in the prevention of sore nipples in nursing mothers. *Breastfeeding Medicine*, *8*(3), 334-335.
8. Oğuz, S., Işık, S., Güngör, A. N. Ç., Şeker, M., & Ogretmen, Z. (2014). Protective efficacy of olive oil for sore nipples during nursing. *Family Med. Community Health*, *1*, 1021.
9. Walker, M. (2013). Are There Any Cures for Sore Nipples?. *Clinical Lactation*, *4*(3), 106-115.
10. Dennis, C. L., Jackson, K., & Watson, J. (2014). Interventions for treating painful nipples among breastfeeding women. *The Cochrane Library*.
11. Boskabadi, H., Ramazanzadeh, M., Zakerihamidi, M., & Omran, F. R. (2014). Risk factors of breast problems in mothers and its effects on newborns. *Iranian Red Crescent Medical Journal*, *16*(6).
12. McClellan, H. L., Hepworth, A. R., Garbin, C. P., Rowan, M. K., Deacon, J., Hartmann, P. E., & Geddes, D. T. (2012). Nipple pain during breastfeeding with or without visible trauma. *Journal of Human Lactation*, *28*(4), 511-521.
13. Abd-Elsalam, S., Hamido, S., & Abd el Hameed, H. S. (2011). Effect of using pharmacological versus alternative therapy on traumatic nipples for lactating mothers. *J Am Sci*, *7*(11), 485-96.
14. Storr, G. B. (1988). Prevention of nipple tenderness and breast engorgement in the postpartal period. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *17*(3), 203-209.
15. Cordero, M. J. A., Villar, N. M., Barrilao, R. G., Cortés, M. E. C., & López, A. M. S. (2015). Application of extra virgin olive oil to prevent nipple cracking in lactating women. *Worldviews on Evidence-Based Nursing*, *12*(6), 364-369.