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Effect of Lanolin Versus Breast Milk on Traumatic Nipples for Lactating Mothers

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Introduction: Sore nipples are common during lactation and remain the major reason for failing to establish successful breastfeeding. **The present study aimed** to evaluate the effect of lanolin versus breast milk on traumatic nipples for lactating mother. **Intervention** study was used at the postnatal unit of Ain Shams Maternity University Hospital through **purposive technique**, 100 women were included in the study, and were subjected to the following criteria: breastfed with painful & damaged nipples during first three month after childbirth, different types of delivery, different parity, medically diagnosed for damaged nipples, healthy women (free from medical disease), and have healthy infant. Data were collected through three tools: **Tool 1:** A Structured interview sheet was developed to collect the mother's data and knowledge. **Tool 2: Visual** Analogue Scale was conducted to assess degree of nipple pain pre& post intervention.. **Tool 3:** The Nipple Trauma Score (NTS) was conducted to assess degree of traumatic nipple pre& post intervention in addition to Arabic educational leaflet. **Results** of the study illustrated that all mothers suffered from different degrees of nipple trauma, the majority of mothers have poor knowledge about breastfeeding practice &measures regarding to traumatic nipple, all mothers hadn't any reaction toward nipple trauma in the first days of delivery. There is equal effect of both lanolin& breast milk to relieve nipple pain &trauma. **The study concluded** that the use of lanolin or breast milk combined with instruction related to breast feeding& measures to relieve nipple trauma could have some beneficial effects in the treatment of traumatic nipple. **Recommendations:** Counseling program should be developed for women during pregnancy &immediate postpartum period about prevention and treatment of traumatic nipple. Further studies are still needed to assess the effect of breast feeding position on the occurrence of nipple trauma.

Key words: Lanolin, Breast Milk, Traumatic Nipples, Lactating Mothers

Introduction: It is a dream for most mothers to have comfort in breastfeeding, but sore nipples are still a common problem, and pain or cracks frequently occur after breastfeeding. When the nipples are hurt, breastfeeding is in jeopardy. It is estimated that 11 to 96 percent of breastfeeding women experience some nipple soreness, and may lead to premature weaning. ⁽¹⁾

Nipple pain and trauma has been identified as pain sensation on frictional and suction lesions of nipple ranges from uncomfortable feeling to severe pain with physical trauma (cracked, sore, bleeding, oedematous, erythemic, blistered nipples that may have fissures) associated with breast feeding. ⁽²⁾

The management of nipple pain and/or trauma associated with breastfeeding according to the Best Evidence Based Practice information Sheets which has been derived from a systematic review of research published by the Joanna Briggs Institute include (Teabag Compress, Water Compress, Lanolin, Hydrogel Dressing, Breast Shells, Breastfeeding Technique, Ointments and breast milk). ⁽³⁾

Lanolin (purelan cream) is chiefly a mixture of cholesterol and the esters of several fatty acids. Recent studies also indicate that antibiotics are present in the lanolin. The extract is insoluble in water, but forms an emulsion. Medical grade lanolin is used as a cream to soothe skin. It is pure, hypoallergenic and bacteriostatic. In this form it is used by some breastfeeding mothers on sore and cracked nipples for prevention and treatment. This grade of lanolin can also be used to treat chapped lips, diaper rash, dry skin, itchy skin, rough feet, minor cuts, minor burns and skin abrasions. As an ointment base, it is readily absorbed through skin. ⁽⁴⁾

Lanolin has been recommended for healing nipple traumas due to its effect on the formation of a barrier that avoids losing the natural moistness of deeper skin layers, and thus increases cellular growth.; it is indicated to stimulate the healing process and pain relief. It is adequate for the absorption by the mucous membrane and/ or by ingestion. In other words, there is no need to remove it before breastfeeding (*Wilson,2010*).⁽⁵⁾

Expressed breast milk has antibacterial properties& anti-inflammatory agents, also contains antimicrobial factors, such as acetylhydrolase and lactoferrin, that protect against infection according to an article in the La Leche League publication "Leaven" published in 2000 by Jahaan Martin. Rubbing fresh hind milk into sore nipples following the feeding can soothe pain and reduces infection risk. mother could also apply a warm, moist compress to the affected nipple⁽⁶⁾.

Immune Factors in Human Milk include Antimicrobial agent as Oligosaccharides, lactoferrin, fatty acids, lysozyme, immunoglobulin, bifidus factor, complement, mucins, lactoperoxidase Oligosaccharides, lactoferrin, fatty acids, lysozyme, immunoglobulins, bifidus factor, complement, mucins, lactoperoxidase.⁽⁷⁾ It also include anti-inflammatory agent as cytokines, long-chain polyunsaturated fatty acids, inflammatory growth factors, lactoferrin, hormones., and Immune system promotion/development as Macrophages, cytokines, lymphocytes, long-chain polyunsaturated fatty acids, nucleotides, growth factors, hormones, neutrophils. ⁽⁷⁾

Nurses often play an active role in the prevention and treatment of nipple trauma, so a midwife/nurse should be present at the first feed to help with correct position and attachment to prevent associated problems. If possible, always advise a breastfeeding mother to pursue non-pharmacological

therapy to treat her symptoms as express breast milk and apply it on the nipple after feeding. When this is not an option and true medical intervention is necessary, certain techniques can be employed to decrease the risk of potential side effects to the baby. The mother should apply purified lanolin immediately following a feed, or before the infant's longest sleep and it is not necessary to remove the lanolin before next feeding because it is slowly absorbed into the skin .⁽⁴⁾

Significance of the study

It is a dream for most mothers to have comfort in breastfeeding, but nipple trauma is still a common problem, pain or cracks frequently occur after breastfeeding . When the nipples are hurt, breastfeeding is in jeopardy. It is estimated that 34 to 96 percent of breastfeeding women experience some nipple soreness, and may lead to premature weaning. ⁽¹⁾ Up to one third of mothers who experience these complications may change to alternate methods of infant nutrition within the first six weeks postnatal.⁽⁴⁾ One of the significant consequences of this change in infant feeding practice was an increase in infant mortality and morbidity which breastfeeding would have helped to prevent as exclusive breastfeeding reduces infant deaths caused by common childhood illnesses such as diarrhea and pneumonia, hastens recovery during illness, and helps space births. In addition to breastfeeding has a major role to play in public health, as it promotes health and prevents disease in both the short and long term for both infant and mother. So mothers need to use topical agent as lanolin ointment, the most evidence effective ointment to relieve nipple trauma .⁽³⁾

Aim of the Study

This study aimed to evaluate the effect of lanolin versus breast milk on traumatic nipples for lactating mother through:

-Assess the degree of traumatic nipples& mother's measures used to relieve nipple trauma before intervention.

-Evaluate the effect of lanolin versus breast milk on traumatic nipples.

Study question:

This aim was achieved through answering the following question:

What is the effect of lanolin versus breast milk on traumatic nipples for lactating mothers?

Subjects and Methods:

Study design, setting & sampling:

Intervention study was conducted at the postnatal unit in Ain Shams Maternity University Hospital. Purposive technique was used,100 women were included in the study, and chosen from 10% of the total women with traumatic nipple who attended at the previously mentioned setting in the previous year. The sample were subjected to the following criteria: breastfed with painful & damaged nipples during first three month after childbirth , different types of delivery, different parity, medically diagnosed for damaged nipples, healthy women (free from medical disease), and have healthy infant.

Tools of data collection:

There are three 3 tools were used for data collection related to this study in addition to educational booklet about traumatic nipple.

1-Arabic Structured interviewing questionnaire:

Constructed by the researcher after review of literature. It was including 30 questions divided into three parts: **first part:** to assess women's socio-demographic characteristics as age, educational level, occupation, **Second part:** To assess women's obstetric history as number of previous pregnancies, parity, any previous

pregnancy problems, and any previous postpartum complications. **Third part:** to assess woman's knowledge regarding breast feeding and nipple trauma.

A scoring system for knowledge & measures related to breast feeding practice and measures related to traumatic nipple was adopted and correct answers were predetermined according to the literature. Women's total knowledge scores were classified as good (that is 75% or more correct answers), fair (that is 50% - 74%) and poor or did not know (that is less than 50% correct answers).

II-A visual analog scale : in English language (modified from **Abou-Dakn & Fluhr, 2011**)⁽⁴⁾ used to assess woman's degree of pain before and after intervention. The scale used in this study ranged from 0 to 10 with the following anchor-point descriptors:

Modified visual analogue scale

Score	Nipple pain description
0	no pain, just the tugging feeling of the baby moving my breast
1-4	Mild
5-7	moderate pain
8-10	severe pain

II- Nipple trauma score: in English language (Adapted from **Abou-Dakn & Fluhr, 2011**)⁽⁴⁾. Used to assess nipples trauma before and after intervention.

Description for Nipple Trauma score:

score	Description of nipple trauma
0	

	-No microscopically visible skin changes
1	-Erythematic or edema or combination of both
2	-Superficial damage with or without scab formation of less than 25% of the nipple surface
3	- Superficial damage with or without scab formation of more than 25% of the nipple surface
4	-Partial-thickness wound with or without scab formation of less than 25% of the nipple surface
5	-Partial-thickness wound with or without scab formation of more than 25% of the nipple surface

-A supportive Arabic booklet:

Consists of instructions about breast feeding benefits, anatomy of breast, causes of nipple trauma & instructions to relieve nipple trauma, In addition to lanolin & breast milk {action, dose and route}.

Validity & reliability of tools

Tools review for appropriateness of items through an expert panel to assure content and shape validity and then a pilot study was conducted for 5 mothers that represent 10% of the sample, to evaluate the applicability of data collection plan . According to pilot study results, tool items were modified to be clearer for the study sample as well as assessment point were organized at the same time & data collection plan was modified .

Administrative Design and Ethical Considerations:

An official approval was obtained from the maternal & neonatal health nursing department counsels & the Scientific Research Ethical Committee that were approved by the Faculty of Nursing, Ain Shams University Counsel. Also a letter containing the title and aim was directed to the director of Ain Shams Maternity University Hospital then the approval for data collection was obtained. Clients / patients will be informed that they are allowed to choose to participate or not in the study and that they have the right to withdraw from the study at any time.

Field Work:

The study consumed 2 years started from, 17-3- 2020 to 17-3- 2021, This period was divided as follows, preparatory phase consumed 6 months, data collection continued for 1 year and finally 6 months for data analysis and evaluation. Data collected from inpatient postnatal unit at Ain Shams Maternity University Hospital 3 days/week from 9am to 3PM. **stage 1:** At the beginning of the interview, the researcher explained to the women the aim of the study, and then the oral consent of the woman was obtained. Confidentiality of the information was ensured to gain women confidence and trust, and then the questionnaire was fulfilled by researcher in time ranged 5-10 minutes. **Stage 2:** educational session about lanolin (action, uses and how to use) manner of using lanolin described for every women individually in time ranged 5-6 minute. Designed Arabic educational booklet was distributed to guid women during intervention process. **Stage3:** pre-intervention assessment for nipple pain and trauma, researcher asked the women to rate the nipple pain they experienced during breastfeeding by marking their pain intensity level on a visual analog scale (VAS) form given to them ranging from 0 (no pain) to 10 (most intense pain imaginable)& pre-intervention and assessed nipple trauma score through description of nipple trauma score

pre-intervention. **Stage 4:** Follow-up telephone interviews were conducted in a time 7th&14th days of intervention in time ranged 2-8 minute to assess the women symptoms improvement and any problems arised.

STATISTICAL DESIGN:

The data were obtained, reviewed, prepared for computer entry, coded, analyzed, and tabulated. Data entry and analysis were done using SPSS 17.0 statistical software package and Microsoft excel program. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means for quantitative variables. Using chi square to determine relation between qualitative data. Statistical significance difference was considered when P -value ≤ 0.05 , and highly significance when P -value ≤ 0.001 and no Statistical significance difference was considered when P -value > 0.05 .

Results

Table (1)

The table shows that, the mothers` age ranged from 18-42 yr with mean age 27.04 ± 5.006 years. Mothers who are illiterate or just read and write represented 11%, while secondary and University degree represented 46 %, 32% respectively. Regarding to Mothers job the study revealed that 79% of women were housewives.

Table (2)

This table illustrates that (53%) of mothers complained from nipple problems during last pregnancy, out of them (77%) suffered from nipple pain while the reminder (22%) suffered from painful and

cracked nipple. Concerning mothers reaction toward nipple problems, (35.8%) of mothers used different methods to treat nipple problems, while (64.2%) of them hadn't any reaction. Concerning the effect of method used, (44.4%) of mothers treated completely.

Table (3)

The above table reveals that (99%) of mothers have poor knowledge types of breast feeding positions, (77%) of mothers have poor knowledge about breast feeding technique. (79%) of mothers have poor knowledge about causes of nipple trauma. (100%) of mothers have poor knowledge about treatment of nipple trauma.

Figure(1):

This figure shows that all mothers suffered from different degrees of nipple pain before intervention, (85%) of mothers suffered from severe nipple pain.

Figure(2)

This figure shows that all mothers suffered from different degrees of nipple trauma before intervention, (32%) of mothers suffered from Erythema and/or edema.

Figure(3)

This figure reveals that 96% of mothers hadn't any reaction toward nipple trauma in the first days of delivery.

Table(4):

Regarding using lanolin for nipple pain, The above table indicates that there is significant improvement on the pain degree between pre and post using lanolin by 7th& 14th day (p value <0.001).

Table (5):

Concerning using lanolin to nipple trauma the above table shows that there is significant improvement on the trauma grade between pre and post using lanolin by 7th& 14th day (p value <0.001).

Table(6):

Regarding using breast milk for nipple pain, the above table indicates that there is significant improvement on the pain degree between pre and post using breast milk by 7th& 14th day (p value <0.001).

Table(7):

Concerning using breast milk for nipple trauma, there is significant improvement on the trauma grade between pre and post using breast milk by 7th & 14th day (p value <0.001).

Table(8):

Regarding using lanolin& breast milk to relieve nipple pain, the above table indicates that there is no statistically significant difference between methods on pain degree pre and post intervention (p value <0.0001).

Table(9):

Regarding using lanolin & breast milk to relieve nipple trauma, the above table indicates that there is no statistically significant difference between methods to improve trauma grades post intervention (p value <0.0001).

Tables

Table (1):-Mother's Socio demographic characteristic:

Items	NO=100	
	No	%
Age range Mean ±SD	18-42 yr 27.04±5.006	
Women's education : - Illiterate or just read and write - Primary - Secondary - University	11 11 46 32	11 11 46 32
Women's occupation : - Worked - Housewife	21 79	21 79

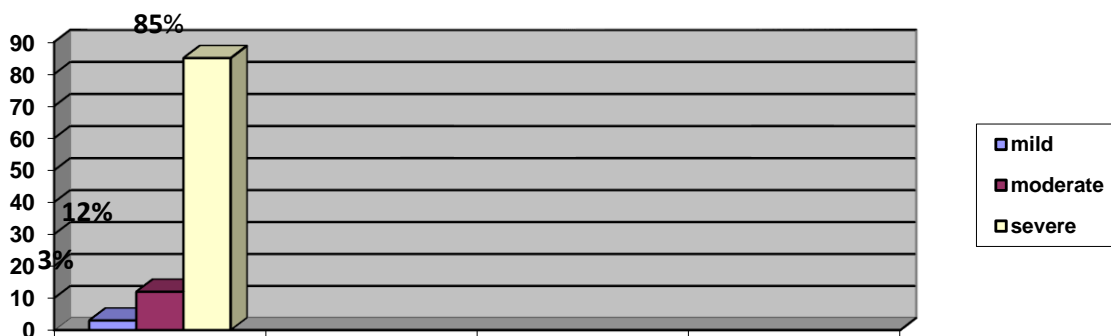
Table (2):-pregnancy history for nipple problems

Items	n=100	
	n	%
Nipple problems: -present -absent	53 47	53 47
Types of problems:(n=53) -nipple pain -painful& cracked nipple	41 12	77.4 22.6
Mothers reaction::(n=53) -no reaction -use natural method -use pharmacological method	34 1 18	64.2 1.8 34
The effect of method used:(n=18) -total improvement -partial improvement -not improved	8 7 3	44.4 38.9 16.7

Table (3): Mother's knowledge about Breastfeeding & traumatic nipple

Knowledge	Total score					
	Poor		Fair		Good	
	No	%	No	%	No	%
- mothers` knowledge regarding types of breast-feeding position	99	99	-	-	1	1
- mothers` knowledge regarding correct breastfeeding technique	77	77	-	-	23	23
- Mother's knowledge regarding causes of nipple trauma	79	79	21	21	-	-
-Mother's knowledge regarding treatment of nipple trauma	100	100	-	-	-	-

Figure(1): shows degree of nipple pain for mothers



figure(2) shows grade of nipple trauma for mothers

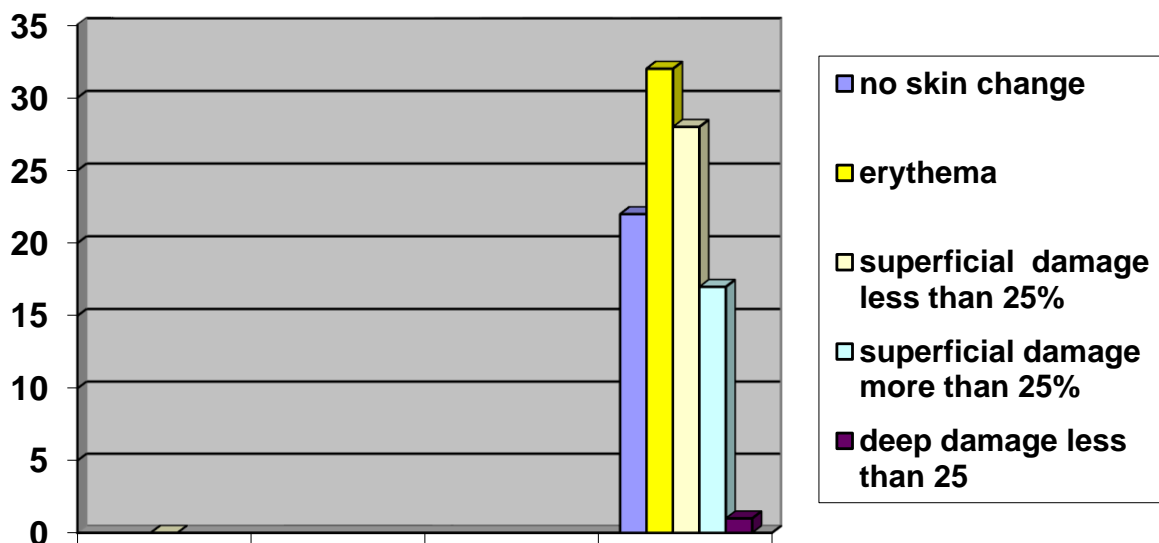


Figure (3): shows mothers reaction toward nipple trauma

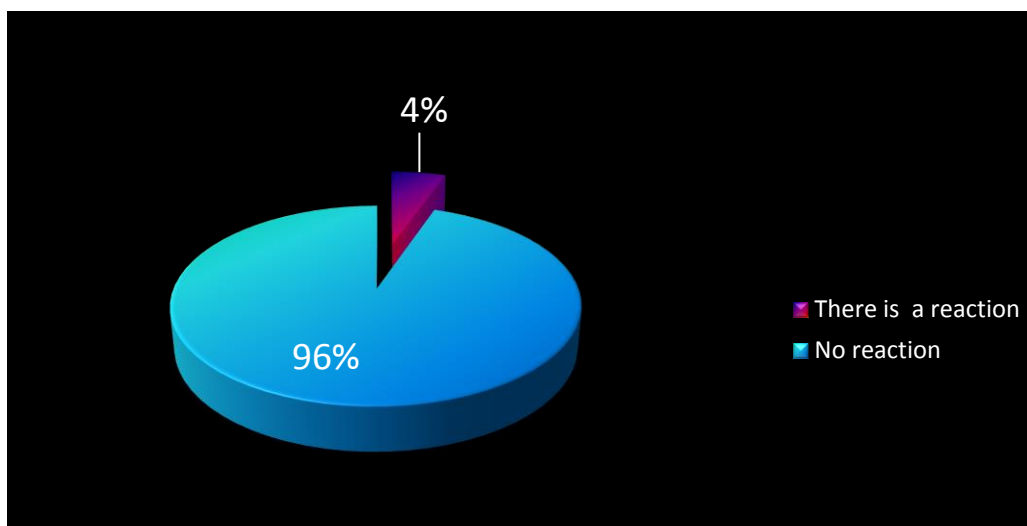


Table (4):-Comparison between base line, 7th and 14th day for mothers using lanolin regarding to pain degree

pain degree for lanolin	Number of days						Test of sig.	
	Base-line <i>n =50</i>		7 th <i>n= 50</i>		14 th <i>*(n =43)</i>		Chi-square	P-value
	N	%	N	%	N	%		
No pain	0	0	19	38	38	88.4	105.473	0.000
Mild pain	2	4	10	20	3	7		
Moderate Pain	4	8	7	14	0	0		
Severe pain	44	88	14	28	2	4.7		

*NB:-there is drop-out of 7cases in lanolin group at 14 day

Table (5):-Comparison between base line,7th and 14th day for mothers using lanolin regarding to trauma grade

trauma grade for lanolin	Number of days						Test of sig.	
	Base-line <i>n =50</i>		7 th <i>n= 50</i>		14 th <i>*(n =43)</i>		Chi-square	P-value
	N	%	n	%	N	%		
No skin change	5	10.0	25	50	41	95.3	72.965	0.000
Erythema and/or edema	19	38	10	16	1	2.3		
Superficial damage <25	13	26	5	4	0	0		
Superficial damage >25	13	26	8	4	1	2.3		
Deep damage <25	0	0	2	4	0	0		

*NB:-there is drop-out of 7cases in lanolin group at 14 day

Table(6): Comparison between base line,7th and 14th day for mothers using breast milk regarding pain degree

Pain degree for breast milk	Number of days						Test of sig.	
	base-line n =50		7 th n= 50		14 th (n =48)		Chi-square	P-value
	n	%	n	%	n	%		
<i>No pain</i>	0	0	28	56	43	89.6	105.302	0.000
<i>Mild pain</i>	1	2	9	18	1	2.1		
<i>Moderate Pain</i>	8	16	8	16	0	0		
<i>Severe pain</i>	41	82	5	10	4	8.3		

**NB: there is drop-out of 2 cases in breast milk on 14 day*

Table(7):Comparison between base line,7th and 14th day for mothers using breast milk regarding trauma grade

Trauma grade for breast milk	Number of days						Test of sig.	
	Base-line n =50		7 th n= 50		14 th *(n =48)		Chi-square	P-value
	n	%	n	%	n	%		
No skin change	17	34	39	78	44	91.7	43.496	0.000
Erythema and/or edema	13	26	6	12	1	2.1		
Superficial damage <25	15	30	4	8	1	2.1		
Superficial damage >25	4	8	1	2	2	4.2		
Deep damage <25	1	2	0	0	0	0		

**NB:-there is drop-out of 2 cases in breast milk on 14 day*

Table (8): Comparison between base line,7th and 14th day for mothers using breast milk regarding trauma grade

Items		n=100				Chi-square	p-value
		Lanolin		breast milk			
		no	%	no	%	99,72	,000
Nipple pain pre-intervention	Mild	2	4	1	2	70.01	,000
	Moderate	4	8	8	16		
	Severe	44	88	41	82		
Nipple pain post-intervention on day 7	No pain	19	38	28	56	60,25	,000
	Mild pain	10	20	9	18		
	Moderate	7	14	8	16		
	Severe	14	28	5	10		
Nipple pain post-intervention on day 14	No pain	38	88.4	43	89.6	60,25	,000
	Mild pain	3	7	1	2.1		
	Moderate	0	0	0	0		
	Severe	2	4.7	4	8.3		

**NB: there is drop-out of 7 cases in lanolin group&3cases in tea bag group and 2 cases in breast milk group on 14th day.*

Table (9): Comparison between lanolin and breast milk for mothers regarding trauma grade pre& post-intervention

Items		n=100				Chi-square	p-value
		Lanolin		breast milk			
		no	%	no	%	20,88	,000
Nipple trauma pre-intervention	No skin change	5	10	17	34	120,03	,000
	Erythema and/or edema	19	38	13	26		
	Superficial damage <25	13	26	15	30		
	Superficial damage >25	13	26	4	8		
	Deep damage <25	0	0	1	2		
Nipple trauma post-intervention on day 7	No skin change	25	50	39	78	120,03	,000
	Erythema and/or edema	10	16	6	12		
	Superficial damage <25	5	4	4	8		
	Superficial damage >25	8	4	1	2		
	Deep damage <25	2	4	0	0		

Nipple trauma post-intervention on day 14	No skin change	41	95.4	44	91.6	161.06	,000
	Erythema and/or edema	1	2.3	1	2.1		
	Superficial damage <25	0	0	1	2.1		
	Superficial damage >25	1	2.3	2	4.2		
	Deep damage <25	0	0	0	0		

**NB: there is drop-out of 7 cases in lanolin group & 2 cases in breast milk group on 14th day.*

Discussion

Painful and/or damaged nipples associated with breastfeeding are common and represent a challenge for both the persons experiencing nipple pain and/or trauma and for those providing treatment and these common reasons for failure to initiate or continue successful breastfeeding.⁽⁴⁾

National and international health-promotion strategies include increasing breastfeeding initiation and duration rates, as well as eliminating disparities in the care of women and infants in relation to breastfeeding. Policy makers, researchers, and professional organizations have pointed to the irrefutable benefits of breastfeeding for babies, mothers, society, and the environment (e.g., decreased health care costs, reduced acute and chronic illnesses, and increase mother-infant bonding). Unfortunately, as many as 96% of mothers experience damaged, painful nipples during breastfeeding and stop nursing before they intended.⁽¹⁾ So We should offer the mother the most up-to-date measures of symptomatic relief and accelerated healing.⁽⁸⁾

The present study showed that the majority of mothers suffered from severe nipple pain and different grade of nipple trauma, in addition to all mothers hadn't any reaction toward nipple trauma in the first days of delivery, As the majority of sample has poor knowledge about breastfeeding practice and measures regarding to traumatic nipple as correct breast feeding position and latching on.

This finding is consistent with .⁽⁹⁾who studied breast-feeding knowledge and practices among mothers in Manisa, Turkey And found that More than half of women did not know how to hold their breast during a feed in early postpartum period. Comparing with the result of Indue et al. ⁽¹⁰⁾ who mentioned that mother's reaction toward sore nipples were breast feeding cessation due to severe pain.

In another study done by Mauri, et al (2012)⁽¹¹⁾. For exploring the mother's perception of latching difficulty in the first days after birth: An interview study in an Italian hospital, suggested that although mothers experience difficulties during early breast feeding, positive feelings seem to prevail over

the negative ones, and mothers have already developed strategies to overcome their latching problems.

Also the results of *Hegney et al.*, (2008)⁽¹²⁾. **who studied** a retrospective case-controlled study of women who experienced extraordinary breastfeeding problems **and reported that** Women from both cohorts expressed idealistic expectations about breastfeeding and experienced psychological distress due to their breastfeeding problems. Those who continued breastfeeding (BF) used coping strategies and exhibited personal qualities that assisted them to overcome the difficulties experienced, more likely to report relying on a health professional they could trust for support. This latter cohort is also more likely to report having peers with which they shared their experiences. women non-continuing BF due to BF problems expressed feelings of guilt and inadequacy following weaning and were more likely to feel isolated.

This result is in dissimilarity with *Brien et al.* (2013)⁽¹³⁾. **who studied** Strategies for success: a toolbox of coping strategies used by breastfeeding women and mentioned that **Participants** in both the studies raised strategies used to assist them in their efforts to cope with the challenges of breastfeeding and early motherhood. These strategies included increasing breastfeeding knowledge, staying relaxed and ‘looking after yourself’, the use of positive self-talk, challenging unhelpful beliefs, problem solving, goal setting and the practice of mindfulness.

Preventing some of the common problems associated with breastfeeding depending on adequate support and good information about breastfeeding during pregnancy and soon after delivery will assist to improve a woman's chance of successfully breastfeeding her new baby.⁽¹⁴⁾

Southlake Regional Health Centre promotes prenatal education as the most effective way for women to prepare for their childbirth experience and to gain information on how best to for themselves and their babies following birth.⁽¹⁵⁾

Breast-feeding problems can be avoided if the mothers understand the basics of breastfeeding technique. Proper Breastfeeding techniques (positioning, latching and sucking) and “let down” of milk is crucial to exclusive breastfeeding and long term breastfeeding success.99% of all mothers around the world can make enough breast milk to feed one baby, or multiple babies, if they learn how, it is all in the techniques (*Elsa& Giuglian 2004*).⁽¹⁴⁾

In the light of the previous the study conducted to evaluate & compare the effect of lanolin versus breast milk on traumatic nipple. Regarding the effect of using lanolin on group of traumatic nipples for lactating mothers, the current study results revealed that there was significant improvement on the pain degree& trauma grade between pre and post using lanolin by 7th& 14th day.

This result is congruent with *Abou-Dakn & Fluhr,(2011)* who studied positive effect of highly purified anhydrous(HPA) Lanolin versus Expressed Breast milk(EBM) on Painful and damaged nipples during Lactation, and mentioned that topical treatment with HPA lanolin is more effective than EBM for faster healing of nipple trauma and reducing nipple pain. ⁽⁴⁾.

Similarly *Ali,(2012)* who studied effect of using pharmacological versus alternative therapy on traumatic nipples for lactating mothers, and mentioned that the appropriate use of HPA lanolin results in a significant reduction of pain associated with breastfeeding and significantly higher healing rates of nipple trauma. ⁽¹⁶⁾.

This result is consistent with *Schottle et al,(2011)* who studied an All-Purpose Nipple Ointment (APNO) versus lanolin in treating painful damaged nipples in breastfeeding women and suggest that APNO is not superior to lanolin in treating painful and damaged nipples. ⁽¹⁷⁾.

This finding is supported by *(Dick,2012)* who mentioned that Many women with sore nipples have also found it helpful to apply a thin coat of medical-grade anhydrous lanolin (PureLan or Lansinoh are good brands) after feeding according to breastfeeding guideline. ⁽¹⁸⁾.

The previous results can be explained as the lanolin is a type of highly purified, and medical –grade lanolin has had no allergic

components, and has environmental impurities removed by a proprietary process rendering it safe to use during breast feeding. in addition to lanolin, an organic ester derived from sheep fleece after shearing, creating an air permeable temporary barrier, and promoting moist wound healing when applied to traumatic skin. Lanolin have anti-inflammatory, antimicrobial, skin protecting, and barrier repair properties.

The above finding of present study is in disagreement with *Melli et al., (2007)* who studied a randomized trial of peppermint gel, lanolin ointment, and placebo gel to prevent nipple crack in primiparous breastfeeding women and mentioned Prophylactic peppermint gel in breastfeeding lactating women was associated with fewer nipple cracks and is more effective than lanolin and placebo. It could be recommended for preventing of nipple crack along with teaching better breastfeeding technique at the initiation of breastfeeding. ⁽¹⁹⁾.

Another study which is in disagreement with the present study by *Dodd&Chalmers (2006)* who studied comparing the use of hydrogel dressings to lanolin ointment with lactating mothers and suggested that hydrogel dressings are a safe, available treatment that provided more effective pain management for nipple soreness than the common intervention of lanolin ointment. This may be due to that lanoline must be used with other measures to prevent or treat nipple trauma. ⁽²⁰⁾.

Regarding mother`s degree of nipple pain& trauma follow up at 7th and 14th day for mother used **breast milk** the current study indicates that there is significant improvement on the pain degree& trauma grade between pre and post using breast milk by 7th& 14th day.

This finding is constant with (*Mohammad et al,2005*)⁽²¹⁾ who studied The effect of breast milk versus lanolin on treatment of sore nipples, and suggested& recommended breast milk for the treatment of sore nipples, for its better healing of the sore nipple, its availability, safety and without payment. Similarly *page et al., (2009)*⁽³⁾ reported that expressed breast-milk reduces the duration of cracked nipples.

Expressed breast milk has antibacterial properties, according to an article in the La Leche League publication "Leaven" published in 2000 by Jahaan Martin. Rubbing fresh hind milk into sore nipples following the feeding can soothe pain and reduces infection risk. mother could also apply a warm moist compress to the affected nipple.⁽²¹⁾.

As well as Breast milk is a great cure to quickly heal cracked or sore nipples **due to** the presence of 'epidermal growth factor' in breast milk which has potential therapeutic benefits by promoting the growth and repair of skin cells.⁽²¹⁾.

Regarding using pharmacological (lanolin)&non pharmacological (teabag-breast milk) to relieve nipple pain, The present study indicates that there is no statistically

significant difference between pharmacological and non pharmacological methods on pain degree pre and post intervention.

This finding is consistent with (*Dolores et al., 2009*),⁽²²⁾ who studied Which interventions are best for alleviating nipple pain in nursing mothers And mentioned that using lanolin to relieve nipple pain were equivalent to expressed breast milk, Equivalent to warm water compress, and equivalent to tea bag compress.),⁽²²⁾

This results is in accordance with *Morland-Schultz and Hill., (2005)*⁽²³⁾ who studied Water compress versus(vs) breast milk vs. education vs. lanolin for traumatic nipple and mentioned the beneficial effect of lanoin for treatment of nipple pain/trauma and reported that All groups experienced the highest pain intensity and affect on day 4.this means that pharmacological and natural methods have the same effect for treatment of nipple pain/trauma.⁽²³⁾

This finding is similar with that of (*Lochner &, Livingston,2009*) who mention that For mild nipple soreness or cracking, applying expressed breast milk, warm water compresses, lanolin cream, or tea bag compresses has been shown to be equally effectivey.⁽²⁴⁾.

Morland-Schultz., (2006)⁽²³⁾ who studied Prevention of or treatment for nipple pain, These treatments include warm water compresses, tea bag compresses, heat,

application of expressed mother's milk, lanolin, vitamin A, collagenase, dexpanthenol, hydrogel therapy, glycerin gel therapy, moist occlusive dressing, education regarding proper latch-on and positioning, and no treatment, and concluded that no one topical agent showed superior results in the relief of nipple discomfort. The most important factor in decreasing the incidence of nipple pain is the provision of education in relation to proper breastfeeding technique and latch-on as well as anticipatory guidance regarding the high incidence of early postpartum nipple pain.

Comparing with the results of the of the present study using topical agent (tea bag compress-breast milk-lanolin) in combination with using self-learning brochure (about breast feeding benefit & technique, causes of nipple trauma, its prevention and its treatment) were effective in reducing nipple trauma .

Finally, we can say that prevention is better than cure, it is worth highlighting that the baby's positioning and attachment to the breast during breastfeeding are fundamental aspects towards the occurrence of different sorts of trauma. So, the most important intervention for reducing its occurrence is the education of women on correct breastfeeding techniques, starting during pregnancy or immediately during postnatal period.

Conclusion and Recommendations

In the light of the present study findings, it can be concluded that:

There is equal effect of both lanolin & breast milk combined with instruction related to breast feeding & measures to relieve nipple trauma could have some beneficial effects in the treatment of traumatic nipple

In the light of the study findings, it is recommended that:

1-Counseling program should be developed for women during pregnancy & immediate postpartum period about prevention and treatment of traumatic nipple.

2-Further studies are still needed to assess the effect of breast feeding position on the occurrence of nipple trauma.

Limitations of the study:

-There is drop out of 6 cases were excluded due to inability to follow the mothers or mother related causes.

-Difficulty in data collection due to interruption of health worker team and client relatives.

References

1-Brent,N.,(2010): sore nipples in breast-feeding women, american medical association. journal of clinical nursing,10(16): 1564–1552, www.archpediatrics.com.

2-Page,T.,lockwood,c.,guest,k.,(2012): **Management of nipple pain and/or trauma associated with breast-feeding Issue 1(4),p: 127 –147.**

3-Page, T., Lockwood, C., Guest, K.(2009): The management nipple pain and/or trauma associated with breastfeeding: a systematic review. JBI Reports 1(4), Blackwell Publishing Asia.

- 4-Abou-Dakn ,M., Fluhr J.W (2011);** positive effect of HPA lanolin versus expressed breast milk on painful and damaged nipples during lactation, skin pharmacol physio ,24(27). Accessible online at:www.karger.com/spp
- 5-Wilson ,B.,(2010):** Sore Nipple Management Medela,Inc.15(2):125-130.
- 6-Gartner, LM., Morton, J., Lawrence, RA., Naylor, AJ., O'Hare, D., Schanler, RJ., Eidelman, A.,(2005):**Breastfeeding and the use of human milk. Pediatrics; 115: 496–506.
- 7- Wambach k., Campbells.,Sara L., Gill, Joan E., Titilayo, C.,(2005);** Clinical Lactation Practice: 20 Years of Evidence, J Hum Lact , 21(3):245-258.
- 8-Cadwell, K., FAAN, RN, Turner, C., Blair, Anna, A.,Brimdyr, Kajsa., (2004)** pain reduction and treatment of sore nipples in nursing mothers , a lamaze international publication, 13(1): 29– 35.
- 9-Yanikkerem E, Tuncer R, Yilmaz K, Aslan M, Karadeniz G. (2009) Breast-feeding knowledge and practices among mothers in Manisa, Turkey. ;25(6).**
- 10-Indu B Morro,B., Hsia,J(2005):** why do women stop breastfeeding? Findings from the pregnancy risk assessment and monitoring system pediatric ,6(116).
- 11- Mauri,P,A., Zoppi,V,F., Zannini, L.(2012):** Exploring the mother's perception of latching difficulty in the first day after birth: An interview study in an Italian hospital, 6(28), Pages 816–823.
- 12-Hegney,D., Fallon,T., Brien,M.,(2008):** Against all odds: a retrospective case-controlled study of women who experienced extraordinary breastfeeding problems, Journal of Clinical Nursing, pages 1182–1192.
- 13-Brien,M., Buikstra, E., Fallon,T., Hegney,D.,(2013):** Strategies for success: a toolbox of coping strategies used by breastfeeding women, . Journal of Clinical Nursing,11(18): 1574–1582.
- 14-Elsa, R J., Giuglian,I.,(2004);** Common problems during lactation and their management by Sociedade Brasileira de Pediatria.
- 15-UNICEF UK (2009):** Developing a breastfeeding strategy Evidence and appendices,The UNICEF UK Baby Friendly Initiative.
- 16-Ali, H., (2012):** effect of using pharmacological versus alternative therapy on traumatic nipples for lactating mothers, Benha university, faculty of nursing.pp:80.
- 17-Schottle,N., Lee Dennis,C , Hodnett,E.,Karen Mc,(2011):**All-Purpose Nipple Ointment Versus Lanolin in Treating Painful Damaged Nipples in Breastfeeding Women: A Randomized Controlled Trial, Breastfeeding Medicine:7(6) .
- 18-Dick, G.,(2012):** Breastfeeding Guide ,mount carmel,PP24-25: www.breastfeedinginc.ca
- 19-Melli,M.,Rashidi,M.,Delazar,A., Madarek,E., Hassan,M., Maher.,K.,Ghasemzadeh ,A., Sadaghat ,K., Tahmasebi ,Z.(2007):** Effect of peppermint water on prevention of nipple cracks in lactating primiparous women: a randomized controlled trial International Breastfeeding Journal 2(7).
- 20- Dodd,V., Chalmers,C., (2006):**Comparing the Use of Hydrogel Dressings to Lanolin Ointment With Lactating Mothers Journal of Obstetric, Gynecologic, & Neonatal Nursing **4(32) pages 486–494.**
- 21-Mohammadzadeh A, Farhat A, Esmaily H.,(2005):** The effect of breast

milk and lanolin on sore nipples,IRAN, 26(8)
amohammadzahed@mums.ac.ir.

22-Dolores, Z., Jennifer, E., Lochner, MDC.,atherine, J., Livingston, MD.,

Judkins, MLS.,(2009):Which interventions are best for alleviating nipple pain in

nursing mothers, Oregon Health & Science University, Portland 58(11).

23-Morland- Schulz, K., Hill, P., (2005): Prevention of and therapies for nipple pain: a

systematic review. J Obstet & Gynecol Neonatal Nurs, 34:428-437

24- Vieira F, Bachion MM, Mota DD, Munari DB. A systematic review of the interventions for nipple trauma in breastfeeding mothers. *Journal of nursing scholarship : an official publication of Sigma Theta Tau International Honor Society of Nursing*. 2013;45(2):116–25. doi:

10.1111/jnu.12010. [[PubMed](#)]

[[CrossRef](#)] [[Google Scholar](#)]