

To Compare the Effectiveness of Ultrasound with Reverse Pressure Softening of Areola Technique and Ultrasound with Latching Technique in Postpartum Breast Engorgement Women

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Abstract: ***Introduction:** Breast Engorgement is a painful and unpleasant condition affecting large number of women's in the early postpartum period. It can lead to potentially serious issues including painful blebs, plugged milk ducts and are mastitis. **Background:** Breast engorgement occurs during the first week of breast feeding due to as a result of delayed, infrequent or interrupted removal of milk from the breast. **Aim:** To compare the effectiveness of ultrasound with latching technique and ultrasound with reverse pressure softening of areola technique in women with postpartum Breast engorgement. **Objectives:** 1) To assess the effectiveness of ultrasound with latching technique in women with postpartum Breast engorgement. 2) To assess the effectiveness of ultrasound with reverse pressure softening of areola technique in women with postpartum Breast engorgement. 3) To compare the effectiveness of ultrasound with latching technique and ultrasound with reverse pressure softening of areola technique in women with postpartum Breast engorgement. **Method:** Group A was given ultrasound with reverse pressure softening of areola and group B was given ultrasound with latching technique. **Conclusion:** This study it is inferred that the ultrasound with reverse pressure softening of areola technique shows greater reduction in postpartum breast engorgement women.*

Keywords: Breast engorgement, mastitis, reverse pressure softening, ultrasound, postpartum

1. Introduction

Breast Engorgement is a painful and unpleasant condition affecting large number of women's in the early postpartum period. It can lead to potentially serious issues including painful blebs, plugged milk ducts and are mastitis.

Several engorgements make it difficult for baby to latch on to the breast properly and feed well. Engorgement can even cause body temperature to rise around 99 - 100 degree F. Primary Breast engorgement during the first week of breast feeding due to as a result of delayed, infrequent or interrupted removal of milk from the breast. Secondary engorgement occurs later when the mother is not feeding as frequently as she used to feed.

Engorgement causes swelling around the nipple which makes it even more difficult for the baby to latch on and feed successfully, and this may make the engorgement worse. The breasts become harder, and the skin appears as shiny and in tension.

Pain and tenderness are the major characteristics, followed by a low grade fever, an aching sensation, generalized malaise, numbness, and a tingling sensation in the hands that occurs as a result of pressure exerted by swelling on the nerves.

Ultrasound is a form of mechanical energy. Normal human sound ranges from 16Hz to 15 to 20000Hz. beyond this upper limit mechanical vibration is known as ultrasound

Frequencies used in therapy are typical between 1.0 and 3.0 MHZ. ultrasound works on the principal of Piezo electric effects caused by vibration of crystals within the head of the probe.

Effective breast feeding is a function of the proper positioning of mother and baby and attachment of the child to the mother breasts. Most difficulties can be avoided all together if good attachment and positioning are achieved at the first and early feeds.

An effective sucking technique is considered important to establish breast feeding, to ensure milk transfer, and to prevent breast feeding problems and different nipple traumas.

Successful breastfeeding requires efficient milk transfer through the nipple areolar complex, which includes subareolar tissues. Subareolar tissue resistance increases during engorgement, when expanded circulation and excess interstitial fluid compete for space with increasing milk volumes. Physiologic and iatrogenic events often combine to produce distortion of breast anatomy. Resulting latch difficulty, delayed milk ejection reflex, poor milk transfer, pain, and nipple damage discourage many mothers.

The rationale and technique for a simple intervention developed in practice are described: Reverse pressure softening (RPS) before latching significantly reduces resistance of subareolar tissue, temporarily freeing it to interact more efficiently with the baby's mouth. RPS also triggers the milk ejection reflex promptly

Aim of the Study:

The aim of the study is to compare the effectiveness of ultrasound with latching technique and ultrasound with reverse pressure softening of areola technique in women with postpartum Breast engorgement.

Objective of the Study:

- To assess the effectiveness of ultrasound with latching technique in women with postpartum Breast engorgement.
- To assess the effectiveness of ultrasound with reverse pressure softening of areola technique in women with postpartum Breast engorgement.
- To compare the effectiveness of ultrasound with latching technique and ultrasound with reverse pressure softening of areola technique in women with postpartum Breast engorgement.

Background and Need of the Study

Breast engorgement occurs during the first week of breast feeding due to as a result of delayed, infrequent or interrupted removal of milk from the breast

K. Jean Cotterman et al 2004 concludes that the reverse pressure softening of areola technique significantly reduces resistance of subareolar tissue also triggers the milk ejection reflex

Folami et al 2018 states that a good lactation counseling about latching positions can decrease the breast engorgement

Lindeke Manai et al 2014 concluded that ultrasound shows greater improvement in breast engorgement by reducing pain.

2. Methodology

Sample Design: experimental study

Study Type: comparative type

Sample Method: random sampling method

Sample Size: 20

Study Duration: 6weeks

Study Setting: Get well physiotherapy clinic

Inclusion Criteria

- Mothers delivered baby with caesarean section or vaginal delivery
- Mothers with age group of 20 to 35
- Mothers with moderate breast engorgement
- Mothers with no other breast abnormality
- Mothers with normal neonates.
- Pain range from 4 to 7 in VAS

Exclusion Criteria

- Mother receiving lactation suppressants for breast engorgement
- Mothers with mastitis, breast abscess, retracted nipple, bleeding
- Mothers with any systemic illness
- Mothers who are taking alternative therapies for breast engorgement

Materials Used:

- Therapeutic Ultrasound
- Chair
- Footstool
- Pillow

Outcome Measures

- Six point BREAST engorgement scale
- Visual analogue scale

Procedure

Thirty subjects were selected according to the inclusion and exclusion criteria and informed consent were obtained and then there randomly divided into two groups [group A and B]. Each group consists of 15 subjects. Group A were treated with ultrasound and reverse pressure softening of areola technique & Group B treated with ultrasound with latching technique for six weeks of duration and individuals were advised to do following technique.

Ultrasound:

Ultrasound given for both the groups
Patient in supine lying position
10min given
Frequency 1MHZ

Group A: Reverse Pressure Softening Of Areola

Position the mother with breast engorgement flat on her back during RPS which delays re entry of swelling, allowing a longer window of time for latching or in sitting position

Firmly but gently, press steadily on the areola, right at the nipple base.

Pressure should not be firm enough to cause pain. Avoid discomfort with less pressure for longer intervals.

Pre inward toward the chest wall for a full 60second or longer [10 - 20 minutes or more if needed. This is a good time for instructions.

Use the flats of two thumbs or the first several fingers on each hand lengthwise above and below the nipple, creating a 1 - 2 inch long depression. Continue to alternate in opposite quadrants, with repeated 2minutes period of pressure, partially overlapping the first set of pits, to keep oedema displaced from the entire area at the base of the nipple.

- 1) Two handed method: fingernails short, fingertips curved, each one touching the side of the nipple. Using 2 or 3 straight fingers on each side, knuckles touching nipple. Move 1/4 turn above and below nipple.
- 2) Two thumbs method: using straight thumbs, base of thumbnail even with side of nipple. Move 1/4 turn. Repeat above and below nipple.

Group B: Breastfeeding Latching Technique

Get in a comfortable chair with good back support.

Use stool to rest your feet to prevent straining of neck and shoulders.

Use breastfeeding support pillow if you have or can use any kind of pillow to support your baby.

Make sure your baby is tummy –to - tummy with you all the times

Make sure you bring your baby to you, don't try to lean into the baby. Not only will this cause severe strain on your neck and shoulders, but it can affect the baby's position

Remember to keep your baby's ear, shoulder, and hip in alignment, which will make swallowing easier.

The baby's nose should be opposite the nipple

You might need to hold your breast to help guide the nipple to your baby's mouth. Grasp the breast on the sides, using either a 'c' hold or 'u' hold. Make sure to keep fingers far from the nipple so you don't affect how the baby latches on.

Aim the nipple toward the baby's upper lip\nnose, not the middle of the mouth. You might need to rub the nipple across the top lip to get your baby to open his\her mouth.

The baby's head should be tilted slightly back. You don't want his chin to his chest.

When he opens his mouth wide with the chin dropped and tongue down, he should latch on to the nipple. If he does not open wide, do not try to shove the nipple in and wiggle the mouth open. It is best to move back, tickle the lip gain with the nipple and wait for a wide open mouth.

The baby's head should be tilted slightly back. You do not want his chin to his chest

When he opens his mouth wide with the chin dropped and tongue down, he should latch on to the nipple. If he does not open wide, do not try to shove the nipple in and wiggle the mouth open. It is best to move ack, tick the lip again with the nipple and wait for a wide open mouth.

Try to get as much of the lower portion of the areola in the baby's mouth.

The baby's chin should indent the lower portion of your breast.

Look to see if the baby's bottom and top lip are flanged out like fish lips. If they are not, you may use your finger to pull the bottom one down and open up the top one more

3. Statistical Analysis

Group A

Six Point Engorgement Scale

Group A	Mean		Standard Deviation		t value	p value
	Group A	Group B	Group A	Group B		
Six point engorgement scale	3.733	2.866	1.751	1.355	6.5	0.00001

VAS

Group A	Mean		Standard Deviation		t value	p value
	Pre- test	Post- test	Pre- test	Post- test		
VAS	4.733	3.866	3.011	2.642	6.5	0.00001

Group B

Six Point Engorgement Scale

Group B	Mean		Standard Deviation		t value	p value
	Group A	Group B	Group A	Group B		
Six point engorgement scale	3.866	1.266	1.597	0.703	8.981	0.00001

VAS

Group B	Mean		Standard Deviation		t value	p value
	Pre- test	Post- test	Pre- test	Post- test		
VAS	5	1.466	2.725	0.990	6.858	0.00001

Sixpoint – Mean Difference

	Mean		Standard Deviation		t value	p value
	Group A	Group B	Group A	Group B		
Six point engorgement scale	0.86	2.6	0.51	1.21	5.43	0.00001

VAS - Mean Difference

VAS	Mean		Standard Deviation		t value	p value
	Group A	Group B	Group A	Group B		
VAS	0.86	3.53	0.51	1.99	5.01	0.000013

4. Result

The inferential statistics of table 3.1 shows the means reduced Six Point Engorgement Scale (SPES) Group A – mean = 0.86, SD = 0.51 than Group B – mean = 2.6, SD = 0.51, t = 5.43, p = 0.00001 (p<0.05) showing a significant change between Group A and Group B. Table 3.2 shows the mean decreased in the Visual Analog Scale (VAS) Group A – mean = 0.86, SD = 0.51 than Group B – mean = 3.53, SD = 1.99, t = 5.01, p = 0.00001 (p <0.05) shows there is a significant change between Group A and Group B.

5. Discussion

The present study was undertaken in a motive to compare the effects of ultrasound with latching technique and ultrasound with reverse pressure softening of areola technique in postpartum breast engorgement women.

Eman abdul et al states that the breast engorgement is defined as painful sensation due to stasis of milk inside the breast

which increase the pressure in milk ducts which in turn reduce the flow of milk.

This study is aimed to decrease the postpartum breast engorgement in women. Subjects in both the groups reported that there was reduction in symptoms of breast engorgement after giving therapeutic ultrasound. Few studies also suggested that the ultrasound were used to decrease the pain.

Zoe McLachlan et al concludes that the application of therapeutic ultrasound for breast engorgement would facilitate the removal of milk from the engorged breast by facilitating milk let down leading to less pain and hardness.

Wolters kluwer et al concludes that breast engorgement results from incorrect positioning and latching on in breastfeeding which leads to difficulty in newborn to latch on correctly.

k. Jean Cotterman et al concludes that the reverse pressure softening of areola technique significantly reduces resistance of subareolar tissue also triggers the milk ejection reflex

6. Conclusion

Breastfeeding is an uncomfortable and sometimes painful component of postpartum period. The effective treatment of breast engorgement must improve the symptoms and avoid complications.

In conclusion, this study reveals that the significant improvement is seen In group A treated with ultrasound and reverse pressure softening of areola technique in postpartum breast engorgement women.

Many literatures have proved that the ultrasound can reduce the pain in breast and also increase the milk let down reflex. Also the reverse pressure softening of areola technique reduce the areola pressure and hardness in postpartum breast engorgement breast women.

Thus, from this study it is inferred that the ultrasound with reverse pressure softening of areola technique shows greater reduction in postpartum breast engorgement women.

7. Limitation of the study

- The duration of the study is short
- Small sample size
- Long term effect was not assessed
- Severe engorgement is not taken

8. Recommendation of the study

- Future study may require long duration period
- Future study can be done using different age group
- Future study on severe breast engorgement can be done
- Future study on breast engorgement with different protocols.

References

- [1] Ram C Goyal et al 'Breastfeeding practices: poaitioning, attachment, and effective suckling – A hospital based study ' 30th July 2011
- [2] Hanne Kronborg et al "How are effective breastfeeding technique and pacifier use related to breastfeeding problems and breastfeeding duration" 23rd March 2009
- [3] Nalini Aswathaman et al 'Assessment of breastfeeding position and attachment in a tertiary carw centre in Chennai, india: an observational descriptive cross sectional study' Maarch 2018
- [4] Joshi et al 'Effect of mother infants pair latch on position on child's health. A lesson for nursing car' June 2016
- [5] Zoe Mc Lachian et al 'Ultrasound treatment for breast engorgement: A randomized trial' June 2000
- [6] Habibu W. et al 'efficacy of non thermal ultrasound in the management of breast engorgement in post partum women: Arandamoized control trial' June 2017
- [7] Ramannavar et al 'Comparative effect of ultrasound therapy with conventional therapy on breast engorgement in immediate post partum mothers. A randomized cintroll trial' January 2016
- [8] Indrani D et al 'Astudy to find the prevalence of breast engorgement among Lactating mothers' June 2012
- [9] Fabiana et al 'Effects of therapeutic ultrasound in mammary engorgement. A pilot study' May 2019
- [10] Padmasree et al 'Effectiveness of prenatal teaching on prevention of breast engorgement ' June 2017
- [11] Reena et al "Effectiveness of Lactation counseling on breast engorgement and new born feeding behavior among primigravidae" September 2015
- [12] K. Jean Cotterman et al "Effectiveness of reverse pressure aerola softening technique in postpartum breast engorgement women" January 2017
- [13] Valma J Roberasyon et al "AReview of therapeutic ultrasound: Effectiveness study" july 2001
- [14] Apurna A. Mahaelaker et al "Effectivenss of ultrasound and transcutaneous electrical nerve stimulation in postnatal painful breast engorgement" June 2015
- [15] Folami et al "The Effectiveness of nursing intervention on breast feeding related problems among nursing mothers in primary health centers" May 2018
- [16] Ashley Gresh et al "Caring for women experiencing breast engorgement: Acase study" July 2019
- [17] Mohamed –Nabil et al "Effect of two different nursing care approaches on reduction of breast engorgement among postnatal women" 2016
- [18] Takalign Banacha et al "Breast feeding practice: Positioning and attachment during breast feeding among lactating bmothers" April 2019
- [19] Katie Bourdillon et al "Latch related nipple pain in breastfeeding women the impact on breast feeding outcomes" July 2020
- [20] Mariarosa Milinco et al "Efectiveness of biological nurturing on early breastfeeding problems: a randomized controlled study ' April 2020