



# A comparative study to analyse the effect of patient education and non-pharmacological interventions in breast engorgement

Dr Saumya P Jose<sup>1</sup> Dr Tobin Joseph<sup>2</sup>

Assistant professor, Vidyaratna college of Nursing, Udupi, Karnataka, India

## Abstract

Breast engorgement is more prevalent now a days and there have been many studies done to evaluate the effect of various pharmacological and non pharmacological interventions to alleviate the symptoms. The present study is a comparative study to analyse the effectiveness of patient education followed by and other non pharmacological interventions and the result showed that compared to patient education non pharmacological interventions like massage therapy, cold compression and Gua sha therapy are effective to reduce the symptoms.

Key words: breast engorgement, alternative therapy, pain, swelling, cold compression, awareness

## Introduction

Breast engorgement is defined as a physiological condition characterized by the painful swelling of the breasts which is caused due to sudden increase in milk volume, lymphatic and vascular congestion and interstitial oedema. It is mainly seen during the first two weeks following delivery. Various physiological changes will occur in breast following delivery. Due to hypertrophy and proliferation of breast tissue and alveoli the size of the breast becomes larger. Presence of bluish veins can be seen beneath the skin due to increased vascularity. In addition to these changes axillary tail may become enlarged and painful. Stretch marks will be also be present due to the stretching of cutis. The nipples become larger, erectile and deeply

pigmented. An outer zone of less marked and irregular pigmented area appears in second trimester known as the secondary areola. The nutritious first milk Colostrum can be squeezed out of the breast by 12<sup>th</sup> week of pregnancy. At first the consistency of the colostrum becomes sticky and by 16<sup>th</sup> week, it becomes thick and yellowish. It contains more antibodies, serum chloride, potassium, protein, minerals, and fat soluble vitamins than mature milk.

Breast feeding is considered as one of the optimum way to nourish the infant during the early developmental period. The infant should receive an exclusive breast feeding for the initial six months. It can extend up to two years or beyond along with other complimentary foods. Breast engorgement occurs in 72-85% of women. 8 first few days after the baby is born primary engorgement occurs. This is because the mothers body will be physiologically trying to meet the increased demands from infant. Usually, engorgement is a normal physiological and it does due to trauma or repeated injury. When milk production increases rapidly, the volume of milk in the breast may exceed the capacity of the alveoli to store it. If the milk is not taken, over-distention of the alveoli can cause the milk-secreting cells to be trampled, or even rupture. 10 Engorgement is a sign that the baby is not in step with stage of lactation. Inappropriate feeding practice may also lead to engorgement. The pain from the engorgement may interfere the breast feeding and if this continues the baby may get malnourished and discontinuation of the feeding again worsen the engorgement. There are various pharmacological and non-pharmacological interventions are available to reduce the symptoms of engorgement. This particular study aims to compare the effect of patient education versus non pharmacological interventions to manage the symptoms following breast engorgement.

## Methodology

**Source of data:** Participants were recruited from selected hospitals in Mangaluru.

Study design: Comparative study

Sample size: 60 ( 30 in each group )

Sampling Method: Purposive sampling technique was used for selecting the subject and allocating them into both group.

## Selection criteria

### Inclusion criteria:

- Primiparous women of age between 20 to 35 years.
- Mother having breast engorgement with Grade 2-5 on Six- point breast engorgement scale.
- Participants willingness to participate in the study.

### Exclusion criteria:

- Mothers receiving lactation suppressants and pharmacological intervention.
- Mothers with inverted nipples, breast infection, breast abscess, mastitis
- Mothers receiving any other physical therapy treatment for breast engorgement.

### Procedure

The participants were screened for the fulfilment of inclusion and exclusion criteria. Informed consent was obtained from the participants fulfilling the inclusion criteria and was randomly allocated into two groups. Group A and Group B. Group A will be receiving patient education regarding the breast-feeding positioning, self-management of symptoms and group B will be receiving various non- pharmacological interventions. Outcome measures were taken on the first day before intervention and at the end of fifth day post intervention.

**Group A:** In Group A participants were taught the possible breast feeding position and other self care strategies to relieve the symptoms of engorgement. They were made to sit in a comfortable long sitting position and feeding techniques has been taught. Demonstrated the way of taking expresses breast milk from the breast. Instructed them to feed regularly. Possible causes and prevention has been informed. It was given for 30 minutes with adequate rest period in between. Participant was advised to continue feeding on demand throughout the day and night.

**Group B:** In group B participants was made to sit in a comfortable long sitting position, they were given cold compression, massage and Gua Sha for 30 minutes . Temperature of cold compress ranged between 10°C - 18°C. Mother was advised to continue feeding on demand throughout the day and night.

**Outcome Measures:** Numerical pain rating scale. The NPRS is an eleven-point scale from 0-10. Where, '0' means no pain and '10' means the most intense pain imaginable. It is further divided as mild pain between 1 and 3, moderate pain between 4 and 6 and severe pain between 7 and 10. The participant was asked to make three pain ratings, corresponding to current, best and worst pain experienced over the past 24 hours. The average of the 3 ratings was used to represent the participant's level of pain over the previous 24 hours.

**Six-point engorgement scale** It is a standardized tool to assess the occurrence of breast engorgement during the first, second and third day of the postnatal period. It is a six-point scale where, '1' means Soft, no change in breasts and '6' is very firm, very tender. Scoring will be made based on various changes in the breast such as soft, firm, tender and non-tender.

### Statistical Analysis

The collected information was summarized by using frequency, percentage, mean and standard deviation, median and interquartile range. To compare the outcome measures before and after interventions, Wilcoxon Signed Ranks test was used. The data was processed using SPSS software version 16. The p value less than 0.05, was considered as significant.

### Comparison of day of reporting engorgement according to interventions

No of days	Group A	Group B	Likely hood ratio	P value
1	5	4	2.156	0.713
2	9	7		
3	6	5		
4	4	2		
5	2	1		

**Comparison of outcome measures before and after intervention**

	Group A		Group B		z	p value
	Median	IQR	Median	IQR		
Numerical pain rating scale	5	2.50 to 4.50	1.56	1 to 3	-3.763	<0.001
Six-point breast engorgement scale	3	1 to 2	1	0 to 1	-3.508	<0.001

**Discussion**

The aim of the present study was to compare the effectiveness of patient education and non pharmacological interventions for symptoms following breast engorgement. The result showed that compared to the patient education, non pharmacological interventions are effective to alleviate the symptoms of breast engorgement. The Gua-Sha Therapy refers to shaving the skin using pressure until small petechiae emerge. The movement is performed seven time each cycle for two two-minute cycles. The technique can be applied easily and it is low cost easy application and low cost. The cold compress is responsible for reducing the milk production when applied over the engorged breast. The cold temperature causes temporary vasoconstriction that reduced the blood flow, edema and lymphatic drainage thus reducing the production of milk<sup>(4)</sup>. In the studied articles, cold compresses were reported to produce effective pain relief, but data was presented regarding the milk production after its application. M. Witt et al. (2016) conducted a prospective study on therapeutic breast massage in lactation for the management of engorgement, plugged ducts and mastitis. Breastfeeding women presenting with engorgement, plugged ducts or mastitis who received therapeutic breast massage in lactation as part of their treatment were enrolled (n = 42). They concluded therapeutic breast massage in lactation is helpful for the reduction of acute breast pain associated with milk stasis.<sup>28</sup> Another study conducted on comparison of chilled cabbage leaves and chilled gel packs in reducing breast engorgement. 34 lactating women with breast engorgement used chilled cabbage leaves on one breast and chilled gel packs on the other for up to eight hours. Mothers reported a statistically significant drop in pain with both treatments.<sup>30</sup> **Lindeka Mangesi et al.** (2010) conducted a systematic review on treatments for breast engorgement during lactation and found eight studies with 744 women. Trials examined a range of different

treatments for breast engorgement such as acupuncture, cabbage leaves, cold gel pack, pharmacological treatments and ultrasound. They suggested for research on treatments for this painful and distressing condition.<sup>34</sup>

It is essential to give an appropriate intervention for alleviating the symptoms of breast engorgement rather than giving mere patient education. Along with the pharmacological and non-pharmacological treatment patient education will be adding extra benefit to relieve the symptoms.

## Conclusion

the prevalence of breast engorgement is common now a days and appropriate treatment should be given at the earliest as this may interfere the breast feeding and thus causes mal nourishment and other issues during the early developmental period. Cold compression, massage therapy and Gua Sha therapy are safe and can be advised to treat the symptoms of breast engorgement.

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