



TO ASSESS THE EFFECTIVENESS OF BREAST CAPS {BC} FOR MANAGEMENT OF BREAST ENGORGEMENT AMONG POSTNATAL MOTHERS IN SELECTED RURAL HOSPITALS: A PILOT STUDY

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ABSTRACT

Breast Engorgement as the physiologic condition characterized by painful swelling of the breast associated with the sudden increase in milk volume. Lymphatic and the vascular congestion and interstitial oedema during the first weeks following birth, if remain untreated leads to number of complications to mother during postnatal period such as breast abscess, inflammation, soreness of nipples, pain and difficulty in feeding. At the same time child will not able to get appropriate amount of breast milk and find difficulty in getting feed, leading to withdrawal of feeding, and not getting the benefits of breast milk. Many literatures are available to manage Breast Engorgement in which pharmacological and non pharmacological methods are used. Hot and Cold compresses showed overall benefits without having side effects. In home as well as hospital settings Hot Water Bag is many times used to give hot compress, but seeing the shape and contour of breast, hot water bag being flat does not fit to breast to give comfort to mother and also its rubber material cause irritation and allergic. Thus present research focus on development of Breast Caps and study its effectiveness for management of Breast Engorgement. Methodology: In this study quantitative research approach, Intervention study design, using simple random sampling techniques is used to allocate 15 samples in experimental and 15 in control group. Experimental group received application of Breast Caps having temperature 43-46°F, 10-15 minutes, three times a day for three consecutive days and control group received application of Hot Water Bag. Primary outcome is development of Breast Caps and secondary outcome was reduction in breast engorgement and pain level assess by using 6 point self rating breast engorgement scale (SPES) and visual analogue pain scale (VAS). Ethical approval was obtained by IEC, DMIMS(DU)/IEC/2020-21/8387. Results: Statistical analysis done by using descriptive and inferential statistics using chisquare test, student's paired and unpaired t test and $p < 0.05$ is considered as level of significance. Results shows that significant changes in reduction of breast engorgement and level of pain after application of Breast Caps as compared to Hot Water Bag. **Conclusion:** Breast Caps can be comfortably and effectively used for management of Breast Engorgement in postnatal mothers. A large scale study is necessary to collect the evidence

KEYWORDS : Breast Engorgement, Breast Caps, Hot Water Bag

INTRODUCTION:

Lactation literature refers to the engorgement as the physiologic condition characterized by painful swelling of the breast associated with the sudden increase in milk volume. Lymphatic and the vascular congestion and interstitial oedema during the first weeks following birth⁽¹⁾ The incidence rate of breast engorgement throughout the world is 1:8000, and in India, it is 1:6500, If engorgement left untreated it can lead to potentially serious issues like , A Poor Latch , A Low Breast Milk Supply, Poor Weight Gain for Your Baby: he may not be able to get enough breast milk A Forceful Flow of Breast Milk which can cause your baby to gag, choke, and swallow excessive amounts of air ,Breast Refusal due to difficult latch, Breast Problems including sore nipples, blebs, plugged milk ducts, and mastitis and Early Weaning.

Decades of years pharmacological and non-pharmacological methods are used for management of breast engorgement in home as well as hospital settings. Drugs like Bromocriptine and uterotonics (Oxytocin) are mostly used which reports of having effects on Primitive Neonatal Reflexes which eventually results stopping of breast feeding for physical reasons such as pain and difficulty. Some studies used hot and cold compresses like Cold Cabbage Leaves and Hot Water bags which are time consuming and cause discomfort. Other studies used Dazen (an antiinflammatory drug) and nHollyhock(Althaea officinal). Manually massage and breast pump are also used. Outpatient postpartum engorgement education on specific massage and hand expression techniques was found helpful. Results shows that Maternal engorgement symptoms are commonly present at the Post Discharge newborn visit.

Rational: Indrani D, Sowmya MV (2019) found the Prevalence

of Breast Engorgement among Lactating Mothers were 65 | % - prevalence were 65%-75% in rural population In majority of studies are comparatively done using hot and cold compresses.

Warm compress is a very safe and provide pain relief and easy express the milk without medication and don't have to be concerned about side-effects. Mostly in hospital and home settings Hot Water bag is used to give the hot compresses which does not effectively fits the shape of the breast causing discomfort and also sometimes allergic to rubber material is reported. Thus taking consideration of comfort and effective effect researcher tries to develop and study the effectiveness of breast caps for management of breast engorgement among post natal mothers

Aim: To evaluate the effectiveness of Breast Caps {BC} for management of breast engorgement among postnatal mothers in selected rural hospitals

Objectives:

Phase-1

- To design, develop and validate Breast Caps {BC} for management of breast engorgement among postnatal mothers.

Phase-2

- To assess the degree of breast engorgement using Six Point Self-Rated Engorgement Scale (SPES) and level of pain using Visual Analogue Scale (VAS) during postnatal period among postnatal mothers in experimental group.
- To assess the degree of breast engorgement using Six Point Self-Rated Engorgement Scale (SPES) and level of pain using Visual Analogue Scale (VAS) during postnatal

period among postnatal mothers in experimental group in control group.

- To evaluate the effectiveness of Breast Caps {BC} for management of breast engorgement and reduction in level of pain among postnatal mothers in selected rural hospitals.
- To compare the reduction in degree of breast engorgement and pain between experimental group and control group

Methodology:

Quantitative research approach and interventional research design, Post-natal mothers admitted in postnatal wards in selected hospitals, which are identified with the problem of breast engorgement are selected using Simple random sampling by lottery method and assign 15 in experimental and 15 in control group. Investigator will generate the allocation sequence, enrol participants, and will assign participants to interventions.

Blinding (masking): Single blinding

Interventions:

Assessment of breast engorgement using the Six Point Self-Rated Engorgement Scale (SPES) and Visual Analogue Scale (VAS) before every time of intervention. Self-fitting Breast Caps {BC} range between 43°C and 45°C, application was to the mothers for 10-15 minutes, three times a day for three continuous days to experimental group and Hot Water Bag {HWB} to control group. Breast feeding is continued. Prescribed drug in postnatal period continued. The outcome measures will be done by using Six Point Self-Rated Engorgement Scale (SPES) and Visual Analogue Scale (VAS) after three days of treatment. Approval from concerned ethical Institutional Committee is obtained IEC, DMIMS(DU)/IEC/2020-21/8387. Complete information provided and written consent was taken from the participants.

Data Collection, Management, And Analysis Methods:

- 1- Data collection methods: Demographic Sheet
- 2- Six Point Self-Rated Engorgement Scale (SPES)
- 3- Visual Analogue Scale (VAS).

Data Management: By using appropriate descriptive and statistical methods (SPSS and parametric and non parametric tests)

OBSERVATIONS AND RESULT

Table 1: Comparison Of Reduction In Degree Of Breast Engorgement Between Experimental And Control Group

	Mean	N	Std. Deviation	Std. Error Mean	Mean Difference	t-value
Experimental Group	3.06	15	0.96	0.24	0.60±0.29	2.05 P=0.042, S
Control Group	2.46	15	0.63	0.16		

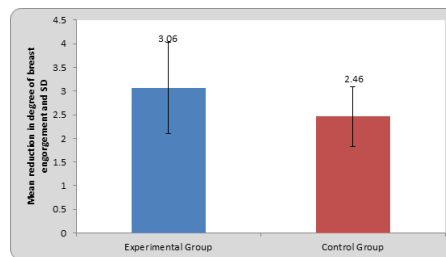
Table 2: Comparison Of Reduction In Level Of Pain Between Experimental And Control Group

	Mean	N	Std. Deviation	Std. Error Mean	Mean Difference	t-value
Experimental Group	4.40	15	0.82	0.21	1.46±0.38	3.84 P=0.001, S
Control Group	2.93	15	1.22	0.31		

Student's Unpaired t test

From above observations in experimental group the mean value was 3.06 with SD 0.96 as compared to control group it was 2.46 WITH SD 0.63, mean difference 0.60±0.29, having

p=0.042, S. This shows that the Breast Caps were effective in reduction of breast engorgement as compared to Hot Water Bag.



Graph 1: Comparison of reduction in degree of breast engorgement between experimental and control group

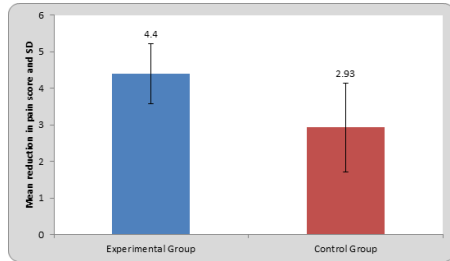
Table 3: distribution Of Postnatal Mothers According Demographic Variables In Experimental And Control

Demographic Variables	Experimental Group		Control Group		k ² -value	p-value
	F	%	F	%		
Age in years						
18-24 yrs	6	40	4	26.67	2.00	0.57, NS
25-31 yrs	6	40	9	60		
32-38 yrs	2	13.33	2	13.33		
39-45 yrs	1	6.67	0	0		
Marital Status						
Unmarried	0	0	0	0	-	-
Married	15	100	15	100		
Widow	0	0	0	0		
Divorce	0	0	0	0		
Educational level						
SSC	7	46.67	5	33.33	3.01	0.38, NS
Higher Secondary School	6	40	4	26.67		
Undergraduate	2	13.33	5	33.33		
Postgraduate	0	0	1	6.67		
Others	0	0	0	0		
Parity						
Primipara	6	40	9	60	1.20	0.27, NS
Multipara	9	60	6	40		
Type of delivery						
Normal Vaginal	2	13.33	2	13.33	-	-
Cesarean Section	13	86.67	13	86.67		
Other	0	0	0	0		
Gestational Age						
Pre Term	3	20	1	6.67	1.15	0.28, NS
Full Term	12	80	14	93.33		
Post Term	0	0	0	0		
Postnatal Day						
1-3 days	6	40	4	26.67	1.35	0.71, NS
4-6 days	6	40	8	53.33		
7-9 days	2	13.33	1	6.67		
10-12 days	1	6.67	2	13.33		
13-15 days	0	0	0	0		
Type of Nipple						
Normal	9	60	12	80	1.42	0.23, NS
Inverted	0	0	0	0		
Flat	6	40	3	20		
Type of Feeding						
Breast Feeding	5	33.33	12	80	8.38	0.038 ,S
Expressed Breast Feeding	1	6.67	0	0		
Top Feeding	4	26.67	0	0		
BF and Top Feeding	5	33.33	3	20		

Student's Unpaired t test

Table 2 shows in Experimental Group Mean value was 4.40

with SD 0.82 and in Control Group Mean is 2.93 and SD 0.22 having Mean Difference of 1.46 ± 0.38 and t-value 3.84, $P=0.0001$, This shows Breast caps were effective in reducing the pain level in experimental as compared to control group



Graph 2: Comparison of reduction in degree of pain between experimental and control group

DISCUSSION:

Research study done by Mrs. Harpreet Kaur et al, 2018. A Quasi experimental study was conducted to evaluate the effectiveness of Lukewarm water compress on breast engorgement among postpartum mothers admitted in selected maternity hospitals, Jaipur. 60 postpartum mothers (30 each in experimental and control group) with breast engorgement was purposively selected. The postpartum mothers in experimental group was given lukewarm water compress application and postpartum mothers in control group received hospital routine care. Result revealed that the mean in experimental group (2.2) was lower than mean in control group (3.2). Calculated 't' value 4.3 is more than tabled 't' value 1.6 at the degree of freedom 29. Calculated p value is $0.00031 < .05$ so it shows significant difference in post test breast engorgement score between experimental and control group. Conclusion: The study revealed that lukewarm water compress is beneficial for relieving breast engorgement among postnatal mothers.

Another study done by Sheelavathi N et al, 2019. A study to assess the effectiveness of lukewarm water compression on nipple pain and breast engorgement among postnatal mothers at selected hospital, Namakkal. Pre experimental-One group Pre-Test, Post-Test design was adopted with sample size 50 postnatal mothers using purposive sampling technique for this study. Study was conducted at Maruthi Hospital, Namakkal. Lukewarm water compression (two part of boiling water and one part cold water) was applied with a sponge cloth over the engorged breast and which was replaced every five minutes for a total duration of 20 minutes (10 minutes before and 10 minutes after breastfeeding) for two times on third, fourth and fifth postnatal day. Results show a significant difference between the post-test scores. The calculated paired 't' value 10.748 was significantly greater than the table value 1.96 at $p < 0.05$ for nipple pain and the calculated paired 't' value 12.45 was significantly greater than the table value 1.96 at $p < 0.05$ for breast engorgement. Both these studies are somewhat similar as intervention is based on hot application, thus they support the research evidence. This study differs in novelty as it is a developed device and methodology used simple random sampling using lottery method to minimise the bias for sample selection, again control group is used for comparison.

CONCLUSION:-

The study result developed and validated for the management of breast engorgement among postnatal mothers was found to be feasible and was able to conclude as a treatment for the management of Breast Engorgement which will be convenient to use for postnatal mothers in hospital and home settings.

REFERENCES:

1. Marsha Walkar, RN, IBCLC. Breast feeding engorgement. 2002 November, volume 2.; page: 11-12.

2. Newton M, Newton NR. Postpartum engorgement of the breast. *AMJ ObstetGynaecol*; 1951. 61: 664-7.
3. <https://www.google.com/search?client=firefox>
4. <https://www.verywellfamily.com/breast-engorgement-causes-treatments-complications-431580>
5. Newton M and N Newton. Postpartum engorgement of breast. *AMJ Obstet and Gynaecol*; 1951; 61: 664-67.
6. International Journal Of Current Medical And Pharmaceutical 28 July 2017
7. Indrani D, Sowmya MV (2019) A Study to Find the Prevalence of Breast Engorgement among Lactating Mothers. *Journal of Reproductive Medicine Gynecological & Obstetrics* 4: 023. DOI: 10.24966/RMGO-2574/100023
8. Amazon breast engorgement, www. Google. Com
9. Comparative effect of ultrasound therapy with conventional therapy on breast engorgement in immediate post-partum mothers: A randomized controlled trial <https://www.oatext.com/>
10. Smriti Arora. Breast engorgement in breast feeding. *The Indian Journal*; 2007; volume 4.
11. Shapiro AG, Thomas L. Efficacy of Bromocriptine versus breast binder as inhibitors of postpartum lactation. *South Med J* 1984 Jun; 77(6): 719-2
12. Ann M. Witt, Maya Bolman, and Sheila Kredit. "Mothers Value and Utilize Early Outpatient Education on Breast Massage and Hand Expression in Their Self-Management of Engorgement" *Breastfeeding Medicine*. Nov 2016. Published Online: 1 Nov 2016 <https://doi.org/10.1089/bfm.2016.0100>
13. Storr GB. Prevention of nipple tenderness and breast engorgement in the postnatal period. 1998.
14. Chiu, Jin-Yu; Gau, Meel-Ling; Kuo et al Effects of Gua-Sha Therapy on Breast Engorgement: A Randomized Controlled Trial; *Journal of Nursing Research*; March 2010 - Volume 18 - Issue 1 - p 1-10 doi:10.1097/JNR.0b013e3181ce4f8e
15. Arora S, Vatsa M, Dadhwal V. A comparison of cabbage leaves vs. hot and cold compresses in the treatment of breast engorgement. *Indian J Community Med* [serial online] 2008 [cited 2020 Feb 28]; 33:160-2. Available from: <http://www.ijcm.org.in/text.asp?2008/33/3/160/42053>
16. Witt AM, Bolman M, Kredit S, A "Therapeutic Breast Massage in Lactation for the Management of Engorgement, Plugged Ducts, and Mastitis" *J Hum Lact*. 2016 Feb; 32(1):123-31. doi: 10.1177/0890334415619439. Epub 2015 Dec 7.
17. Kanis Rexcilin Frida, S (2016) Effectiveness of closed system manual breast pump versus hand expression on breast engorgement among postnatal mothers admitted in postnatal ward at Government Rajaji Hospital, Madurai; URL: <http://repository-tnmgrmu.ac.in/id/eprint/720>.
18. Dhanya, M (2017) Effectiveness of Alma Alfatiir water compress on breast engorgement among postnatal women in Sree Mookambika Medical College Hospital at Kulasekharum, Kanyakumari District. URL: <http://repository-tnmgrmu.ac.in/id/eprint/10048>.
19. Shahla Khosravan, Hossein Mohammadzadeh-Moghadam, Fatemeh Mohammadzadeh, The Effect of Hollyhock (*Althaea officinalis* L) Leaf Compresses Combined With Warm and Cold Compress on Breast Engorgement in Lactating Women: A Randomized Clinical Trial *Journal of Evidence-Based Integrative Medicine*; Published November 23, 2015 Research Article <https://doi.org/10.1177/2156587215617106>
20. Monazzami, Maryam and Yousefzadeh, (2019) The Effect of Hot Ginger Compress (*Zingiber officinale*) on the severity of breast Engorgement in Lactating Women. *The Iranian Journal of Obstetrics, Gynecology and Infertility*, 21 (12). pp. 77-84. http://ijogi.mums.ac.ir/article_12673.html
21. Ms. Rekha Kumari "Effectiveness of Green Cabbage Leaves (GCL) and Hot Water Bag (HWB) Application on Breast Engorgement in Postnatal Mothers" *Int. J. Adv. Nur. Management*. 2017; 5(1): 28-32. DOI:10.5958/2454-2652.2017.00007.5
22. Pamela D. Hill, RN, and Sharron S. humenick, RN "The Occurrence of Breast Engorgement", *Article in Journal of Human Lactation* · July 1994 DOI: 10.1177/089033449401000212 · Source: PubMed
23. Amy Brown, Sue Jordan "Active Management of the Third Stage of Labor May Reduce Breastfeeding Duration Due to Pain and Physical Complications" © 2017 by the American College of Nurse-Midwives: *Breastfeed Med*, 2014 Dec; 9(10):494-502. doi: 10.1089/bfm.2014.0048.