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RESEARCH ARTICLE

COMPARATIVE INTERVENTIONAL STUDY TO ASSESS THE EFFECTIVENESS OF ALTERNATIVE HOT AND COLD COMPRESSES VS. COLD CABBAGE LEAVES ON BREAST ENGORGEMENT AND PAIN AMONG POSTNATAL MOTHERS

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ABSTRACT

Comparative interventional study to assess the effectiveness of alternative hot & cold compresses vs. Cold cabbage leaves on breast engorgement and pain among postnatal mothers. This study was carried out to assess the effectiveness of "alternative hot and cold compresses and cold cabbage leaves" application on breast engorgement and pain as despite of numerous strategies, there is lack of knowledge regarding the most effective method in treating breast engorgement among postnatal mothers. A comparative interventional research design was used with convenience sampling technique consisted of 60 postnatal mothers out of which 30 subjects in the experimental group 1 were given intervention with application of alternative hot and cold compresses while 30 subjects in the experimental group 2 were given intervention with application of cold cabbage leaves. Assessment was done in terms of breast consistency and breast tenderness scores before intervention and at the end of each day. Data was collected by using interview schedule to assess the socio demographic data and observational checklist for assessing breast consistency and tenderness. Analysis was done using both descriptive and inferential statistics. The mean breast consistency score in experimental group 1 had a decrease of 2.70 to 0.96 while mean score in experimental group 2 had decrease of only 2.80 to 1.50 ($p < 0.001$). Similarly in mean breast tenderness score in experimental group 1 had decrease of 5.73 to 1.00 whereas breast tenderness score in experimental group 2 had decrease of only 6.30 to 2.70. Thus the study concluded that application of alternative hot and cold compresses are more effective than application of cold cabbage leaves in reducing breast engorgement and pain.

INTRODUCTION

Breast engorgement refers to the condition that occurs in the mammary glands due to expansion and pressure exerted by the synthesis and storage of breast milk characterized by considerable pain and feeling of tenderness or heaviness in both the breasts; generalised malaise or even transient rise of temperature and painful breast feeding. As engorgement is a painful condition which leads to early weaning of breast milk, therefore preventive measures should be focussed like initiation of breast feeding as early as possible. The application of hot compresses on the engorged breast promotes vasodilatation, and thus increases circulation and consequently, the volume of milk in the breasts also increases. On the other hand, application of cold compresses causes temporary vasoconstriction that reduces the blood flow, edema and lymphatic drainage and thus reducing the production of milk in the engorged breast and hence their alternative application fosters the process of engorgement in breasts whereas green cabbage (Brassica Capitata) contains sulphur which act as an antibiotic and anti-irritant which in turn draws an extra flow of blood to the area. This dilates the capillaries and acts as a counter – irritant, thus relieving the engorgement and inflammation and allowing milk to flow freely. (As suggested by Lees)

The incidence rate of breast engorgement all over the world is 1:8000 and in India it is 1:6500. Engorgement symptoms occur most commonly between postpartum days 3rd and 5th, 20% post- natal mothers especially primigravida mothers are affected with breast engorgement from 0–4 days of postnatal period. A field work conducted during December 2007 to April 2008 in Karnataka revealed that breast engorgement occurs in 72% to 85% of postnatal mothers. Among every 10 mothers, 6 mothers suffer with breast engorgement. Application of alternative hot and cold compresses is one of the traditional methods to be employed in treating breast engorgement and is found to be more effective. (Arora *et al.,* 2008), on a sample of 60 mothers out of which 30 participants assigned in the experimental group and 30 in the control group. The control group received alternative hot and cold compresses and the

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experimental group received cold cabbage leaf treatment for relieving breast engorgement where it was found that both the treatments, i.e., cold cabbage leaves and hot and cold compress were equally effective in decreasing breast engorgement (p=0.07) and it had also been found that hot and cold compresses were more effective than cold cabbage leaves in relieving pain due to breast engorgement ($p \leq 0.001$) in postnatal mothers.

During the posting in postnatal wards, it was being observed by the researcher that breast engorgement is the commonest problem on the 3rd and 4th postpartum day and despite of applications of numerous strategies, there is lack of knowledge regarding the most effective method in treating breast engorgement among postnatal mothers. Therefore, the researcher felt the need to compare both methods so that strong evidence regarding the most effective method in treating breast engorgement among postnatal mothers with minimum side effects could be identified.

MATERIALS AND METHODS

The study was conducted in postnatal wards of DMC & Hospital, Deep Hospital, Ludhiana, Punjab among 60 postnatal mothers with breast engorgement. Equal number of samples (i.e., n = 30) included in both the experimental groups and the total number of breasts were 120 (60 in each experimental group) as all the subjects in each experimental group had bilateral engorgement using convenience sampling technique followed by randomization with the help of lottery method who fulfilled the preset inclusion and exclusion criteria. The experimental group 1 was given intervention with application of alternative hot compresses (43^0C- 46^0C) and cold compresses (10^0C – 18^0C) and experimental group 2 was given intervention with cold cabbage leaves (0^0C) as measured by lotion thermometer.

It was found that the mean breast consistency score was reduced among postnatal mothers in experimental group 1 (as per Table1)

It was found that the mean breast tenderness score was reduced among postnatal mothers in experimental group 1 (as per Table 2)

A written permission for conducting the study was taken from ethical committee of DMC & Hospital, Ludhiana as before starting the study and an informed consent was obtained from each subject.

Statistical methods

Analysis of data was done according to the objectives. Data obtained was analysed in terms of descriptive statistics i.e., mean, standard deviation and in terms of inferential statistics i.e. chi square, t – test and ANOVA at the level of significance $p < 0.05$.

DISCUSSION

The findings of the present study revealed that alternative hot and cold compresses were more effective as compared to cold cabbage leaves in reducing breast engorgement and pain as pre intervention mean breast consistency score was higher (2.70) in experimental group 1 which decreased up to 0.96 on day 3, whereas in experimental group 2 pre intervention mean breast consistency score was 2.80 which decreased only to 1.50at day 3 (p=0.001).Similarly, in breast tenderness during pre intervention phase, the pre intervention mean breast tenderness score was higher (5.73) in experimental group 1 which decreased up to 1.00 on day 3.

RESULTS

Table 1. Pre and post interventional comparison of breast consistency score of postnatal mothers among experimental group 1 and experimental group 2 N = 60

Pre-intervention score (as assessed on 4th postpartum day)		Groups	n	Right breast		Left breast	
				Mean ±SD	't' – test	Mean ±SD	't' – test
		Experimental group 1	60	2.70 ± 0.46	t = 0.88 p = 0.38^{NS}	2.66 ± 0.60 t = -0.88 p = 0.08^{NS} -0.36 ± 0.12 t = -3. 00 p = 0.58^{NS} -0.40 ± 0.14 t= -2.81 p = 0.68^{NS} -0.53 ± 0.13 t= -3.87 p = 0.000*	t = 1.00 p = 0.32^{NS}
		Experimental group 2	60	2.80 ±0.40		2.80 ±0.40	
Post- Intervention (has done daily after 8.5hours of intervention)	Day 1 score	Experimental group 1	60	2.33 ± 0.48	t = 3.00 p = 0.004*	2.33 ±0.54	t = 2.23 p = 0.003*
		Experimental group 2	60	2.70 ± 0.46		2.63 ±0.49	
	Day2 score	Experimental group 1	60	1.76 ± 0.50	t = 2.81 p = 0.007*	1.66 ±0.54	t = 2.74 p = 0.008*
		Experimental group 2	60	2.16 ± 0.59		2.06 ±0.58	
	Day 3 score	Experimental group 1	60	0.96 ± 0.31	t = 3.87 p = 0.001*	1.03 ±0.31	t = 3.39 p = 0.00*
		Experimental group 2	60	1.50 ± 0.68		1.50 ±0.68	

*Significant (p<.05) NS= non significant (p 0 >.05) df = 58 n_1 = no. of breasts (60) of postnatal mothers in experimental group 1
n_2 = no. of breasts (60) of postnatal mothers in experimental group No change in consistency = 0, severe firmness = 4 (as per breast consistency scale)

Table 2. Pre and post interventional comparison of breast tenderness score of postnatal mothers among experimental group 1 and experimental group 2 N = 60

		Groups	N	Right breast		Left breast	
				Mean ±SD	't' – test	Mean ±SD	't' – test
Pre-intervention score (as assessed on 4th postpartum day)		Experimental group 1	60	5.73 ± 1.92	t = 0.88 p = 0.38^{NS}	5.56 ± 1.73	t = 1.00 p = 0.32^{NS}
		Experimental group 2	60	6.30 ± 1.31		6.20 ± 1.39	
Post- Intervention (has done daily after 8.5hours of intervention)	Day 1 score	Experimental group 1	60	4.43 ± 1.52	t = 3.00 p = 0.004*	4.13 ± 1.85	t = 2.23 p = 0.003*
		Experimental group 2	60	5.43 ± 1.75		5.23 ± 1.50	
	Day2 score	Experimental group 1	60	2.76 ± 1.54	t = 2.81 p = 0.007*	2.70 ± 1.57	t = 2.74 p = 0.008*
		Experimental group 2	60	4.20 ± 1.82		4.00 ± 1.68	
	Day 3 score	Experimental group 1	60	1.00 ± 1.11	t = 3.87 p = 0.001*	1.00 ± 1.01	t = 3.39 p = 0.001*
		Experimental group 2	60	2.70 ± 1.62		2.53 ± 1.63	

*Significant (p<.05) NS= non significant (p 0 >.05) df = 58 n1 = no. of breasts (60) of postnatal mothers in experimental group 1
n2 = no. of breasts (60) of postnatal mothers in experimental group 2. Maximum pain score= 10, minimum pain score = 0 (as per numeric rating pain scale)

Where as in experimental group 2 pre intervention mean breast tenderness score was 6.30 which decreased only to 2.70at day 3 (p=0.001). Findings of the present study was supported by the another study conducted by Arora (2008) on comparison of cabbage leaves versus hot and cold compresses in the treatment of breast engorgement among 60 postnatal mothers, where results showed that pre intervention mean score of breast engorgement in experimental group was 5.17 which decreased to 3.02 post interventionally whereas in control group it was 5.03 which decreased to 2.97(p<.001). Likewise pre-interventional pain mean score in experimental group had decreased from 6.4 to 3.45(p=.001) where as in control group, it decreased from 6.1 to 0.51(p=.001).

Conclusion

The findings of the present study concluded that both the experimental groups were statistically homogenous (p > 0.05). Application of alternative hot and cold compresses had significant improvement in breast consistency, as mean breast consistency score had decrease of 2.70 to 0.96 in experimental group 1 whereas application of cold cabbage leaves had decrease of only 2.80 to 1.50 in experimental group 2.Application of alternative hot and cold compresses had significant change in breast tenderness, as mean breast tenderness score had decrease of 5.73 to 1.00 in experimental group 1 whereas application of cold cabbage leaves had decrease of only 6.30 to 2.70 in experimental group 2.

Hence it can be concluded that application of alternative hot and cold compresses are more effective in improving breast consistency and reducing breast tenderness than the application of cold cabbage leaves.

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