ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 6, Issue, 07, pp.7483-7486, July, 2014

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

EFFECT OF HEAT THERAPY ON LOW BACK AMONG WOMEN IN LABOR PAIN DURING FIRST STAGE OF LABOR

***Sandeep Rawat, Mrs.Nidhi Sagar, Dr. (Mrs.) Jasbir Kaur and Mrs Mamta**

H.No.-616 type-3 Ggsstp Nuhon Colony Po-Ghanauli, Ropar, Punjab, India

ARTICLE INFO

Article History:
Received 05th April, 2014
Received in revised form
08th May, 2014
Accepted 16th June, 2014
Published online 20th July, 2014

Key words:
Heat Therapy,
Labor Pain,
First Stage of Labor.

ABSTRACT

Pregnancy is a special event not only in the life of women but also to the family. But, as the pregnancy reaches the due date, the fear of labor pain and sometimes past bad experiences of labor pain makes the women to refuse the delivery in a natural way. Nurses are the direct health care providers who are responsible for overall management of labor. Considering this, a quasi experimental was undertaken to assess the effectiveness of heat therapy on low back among women in labor pain during the first stage of labor to be conducted in the Labor room of DMC & Hospital and ESIC Model Hospital, Ludhiana, Punjab. The sample consisted of 60 subjects in labor pain during the first stage of labor (30 in each experimental and control group). Experimental group received heat therapy with silica gel pack, while control group got the routine care. The pain severity was assessed by numeric rating scale. The findings revealed that heat therapy affects the severity of pain in the first stage in experimental group (p=0.00)

INTRODUCTION

Pregnancy not only compliments happiness but also the sense of satisfaction to woman. Giving birth is a time when one's best dreams and ideas and worst fears and nightmares coalesce into a single moment of anticipation. (http://www.ukessays.com/essays/health-and-social-care/stress-and-pain-in-labour-health-and-social-care-essay.php#ixzz2Pngw0cOs) Pain is a highly unpleasant and personal sensation that cannot be shared with others. (Lowne 2002) With the progress of labor stage, the intensity of labor pain increases, which becomes unbearable and it needs prompt treatment which may be pharmacological or non-pharmacological. Mostly women prefer to go with the non-pharmacological measures due to fewer side effects. Heat therapy is one of the oldest modalities to relieve pain and the silica gel packs are the most commonly used hot moist application.

Objective

To compare the effectiveness of heat therapy on low back among women in labor pain during the first stage of labor in both experimental and control group.

MATERIAL AND METHODS

This quasi experimental study was performed on 60 women during first stage of labor belong to age group 18-35 years, referred to DMC & Hospital and ESIC Model Hospital, Ludhiana. In heat therapy group after establishing a good sentimental relation, the investigator used a hot silica gel pack on low back of the women. Evaluation for the severity of labor pain among woman during first stage of labor was done before intervention and 20 minutes after intervention at 40 minutes interval for 3 consecutive hours. The control group only received routine care of labor and persistent attendance of the investigator. SPSS software was used to analyze the data. The means of two groups were compared by t-test and p-value less than 0.05 was considered significant.

RESULTS

Table 1 illustrates the frequency and percentage distribution among women during the first stage of labor in control and experimental group as per age, habitat, educational status, occupation. The most of subjects were between the age group of 24-29 years in both (53.3%) control and (46.7%) experimental group. Furthermore, in both the control and experimental group, majority of subjects 23(76.7%) were residing in urban area. In control group, one third of subjects 11 (36.7%) were qualified upto elementary & senior secondary while in one third of (33.3%) subjects were educated upto elementary. Majority of subjects 26 (86.7%) in control group and 28 (93.3%) in experimental group were non working Fig. 1 describes the frequency and percentage distribution among women in labor pain during the first stage of labor in control and in experimental group as per order of pregnancy. According to, order of pregnancy in control group equal

**Corresponding author: Sandeep Rawat*
H.No.-616 type-3 Ggsstp Nuhon Colony Po-Ghanauli, Ropar, Punjab, India.

number of subjects 15(50.0%) were primigravida and multigravida whereas in experimental group more than half of the subjects 17(56.7%) were multigravida.

Table 1. Frequency and percentage distribution among women in labor pain during the first stage of labor in control and experimental group as per socio - demographic profile. N = 60

Socio demographic profile	Control Group n = 30 f (%)	Exp. Group n = 30 f (%)	Total N = 60	Chi square value
Age (in years)				
18 – 23	09 (30.0)	10 (33.3)	19 (31.1)	$\chi^2 = 0.07$
24 -29	14 (46.7)	16 (53.3)	30 (50.0)	df =1
30 – 35	07 (23.3)	04 (13.3)	11 (18.3)	$p = 0.78^{NS}$
Habitat				$\chi^2 = 0.00$
Urban	23 (76.7)	23 (76.7)	46 (76.7)	df = 1
Rural	07 (23.3)	07 (23.3)	14 (23.3)	$p = 1.00^{NS}$
Educational Status				
Illiterate	05 (16.7)	09 (30.0)	14 (23.3)	$\chi^2 = 2.21$
Elementary	11 (36.7)	10 (33.3)	21 (35.0)	df = 3,
Senior secondary	11 (36.7)	07 (23.4)	18 (30.0)	$p = 0.52^{NS}$
Graduate or above	03 (10.0)	04 (13.3)	07 (11.7)	
Occupation				$\chi^2 = 0.18$
Non working	26 (86.7)	28 (93.3)	54 (90.0)	df = 1
Working	04 (13.3)	02 (6.7)	06 (10.0)	$p = 0.66^{NS}$

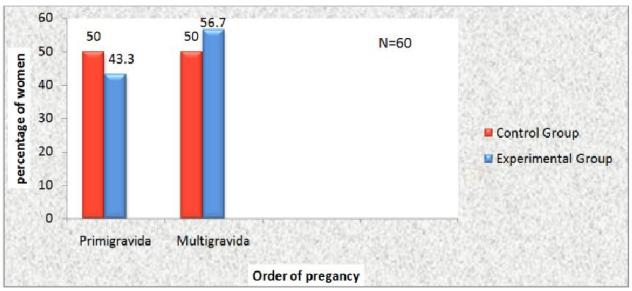

Fig. 1 Frequency and percentage distribution among women in labor pain during the first stage of labor in control and in experimental group as per order of pregnancy

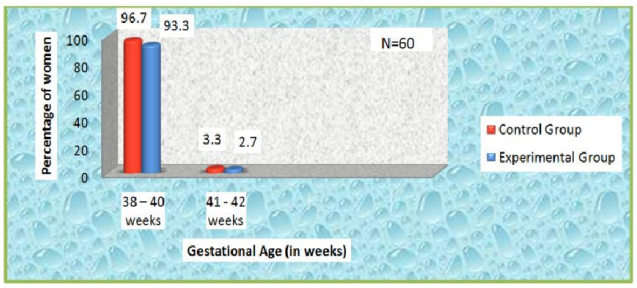

Fig. 2. Describes the frequency and percentage distribution among women in labor pain during the first stage of labor in control and in experimental group as per gestational age. According to gestational age, maximum number of subjects 29 (96.7%) in control group and 28(93.3%) in experimental group were with 38 – 40 weeks of gestation

Fig. 2 describes the frequency and percentage distribution among women in labor pain during the first stage of labor in control and in experimental group as per gestational age. According to gestational age, maximum number of subjects 29 (96.7%) in control group and 28 (93.3%) in experimental group were with 38 – 40 weeks of gestation Table 2 depict pre and post interventional comparison of labor pain among women during the first stage of labor in experimental group. It reflects that during 1st hour reading, the pre interventional mean score was (6.53 ± 1.907) which got decreased to (5.53 ± 2.030) post - interventionally. At 2nd hour reading, the pre interventional mean score was (7.40 ± 1.812) which got decreased to (6.47 ± 2.080) post interventionally.

Table 2. Pre and post interventional comparison of labor pain among women during the first stage of labor in experimental group.n=30

Reading	Experimental Group	Mean ± SD	SE	t – test
1st hour reading	Pre intervention	6.53 ± 1.907	0.348	t = 8.515 df = 29
	Post intervention	5.53 ± 2.030	0.371	$p = 0.000^*$
2nd hour reading	Pre intervention	7.40 ± 1.812	0.331	t = 7.992 df = 29
	Post intervention	6.47 ± 2.080	0.380	$p = 0.000^*$
3rd hour reading	Pre intervention	8.70 ± 1.488	0.259	t = 5.757 df = 29
	Post intervention	8.17 ± 1.683	0.307	$p = 0.000^*$

Maximum score = 10, Minimum score = 0 *Significant (p< 0.05)

At 3rd hour reading, the pre interventional mean score was (8.70 ± 1.488) which was decreased to (8.17 ± 1.683) post interventionally. The difference between the mean scores were tested in each of the three consecutive hour of reading and found that it was statistically significant. Therefore, it seems that heat therapy affects the severity of labor pain in the first stage of labor in experimental group. Table 3 reflects the comparison of post interventional level of pain among women in labor pain during first stage of labor in experimental and control group. In all the 1st, 2nd, and 3rd hour reading, the post interventional mean pain score of control group (6.10, 7.30 and 6.47 respectively) was greater than that of experimental group (5.53, 6.47 and 8.17 respectively). The findings depicts that the control and experimental group had no statistical significance of comparison on post interventional level of pain among women in labor pain during first stage of labor in experimental and control group Table 4 describes the relationship of effectiveness of heat therapy on low back among women in labor pain during the first stage of labor with socio-demographic profile. The results concluded that effectiveness of heat therapy was found statistically non- significant with age, habitat, educational status and occupation (p> 0.05). Table 5 shows that the relationship of effectiveness of heat therapy on low back among women in labor pain during the first stage of labor with obstetric profile. The results revealed that effectiveness of heat therapy was found statistically non-significant with order of pregnancy, gestational age (p> 0.05).

DISCUSSION

The present study was conducted in labor room of DMC & Hospital, ESIC Model Hospital of Ludhiana. Our results showed the effectiveness of heat therapy on pre and post interventional level of pain among women during the first stage of labor in experimental group. On 1st hour reading, the pre interventional mean score was (6.53 ± 1.907) which got decreased to (5.53 ± 2.030) post - interventionally. At 2nd hour reading, the pre interventional mean score was (7.40 ± 1.812) which got decreased to (6.47 ± 2.080) post interventionally. At 3rd hour reading, the pre interventional mean score was (8.70 ± 1.488) which was decreased to (8.17 ± 1.683) post interventionally. So it reflects that, heat therapy was statistically significant among woman in labor pain during first

Table 3. Comparison of post interventional level of pain among women in labor pain during the first stage of labor in experimental and control group

N=60

Intervention	Reading	Group	Mean ± SD	SE	t – value
Post – intervention	1st hour reading	Control	6.10 ± 2.006	0.366	t = 1.088
		Experimental	5.53 ± 2.030	0.371	df = 58
					p = 0.281^{NS}
	2nd hour reading	Control	7.30 ± 1.765	0.322	t = 1.673
		Experimental	6.47 ± 2.080	0.380	df = 58
					p = 0.100^{NS}
	3rd hour reading	Control	8.60 ± 1.499	0.274	t = 1.053
		Experimental	8.17 ± 1.683	0.307	df = 58
					p = 0.297^{NS}

Maximum score = 10, Minimum score = 0 NS = Non significant

Table 4. Relationship of effectiveness of heat therapy on low back among women in labor pain during the first stage of labor with selected socio – demographic profile

N = 30

Socio demographic profile	n	1st hour reading		2nd hour reading		3rd hour reading	
		Mean ±SD	ANOVA Statistics	Mean ±SD	ANOVA Statistics	Mean±SD	ANOVA Statistics
Age (in years)							
18 – 23	10	5.10±2.28	F=0.32	6.30±2.31	F=0.04	8.20±1.61	F=0.13
24 – 29	16	5.75 ± 2.11	p=0.72^{NS}	6.56 ± 2.19	p=0.95^{NS}	8.25±1.73	p=0.87^{NS}
30 – 35	04	5.75 ± 0.95		6.50 ± 1.29		7.75±2.06	
Habitat							
Urban	23	5.70±2.07	F=0.62	6.70±2.14	F=1.20	8.30±1.74	F=0.65
Rural	07	5.00±1.91	p=0.43^{NS}	5.71±1.79	p=0.28^{NS}	7.71±1.49	p=0.42^{NS}
Educational status							
Illiterate							
Elementary	09	4.33±1.80	F=1.69	5.56±2.06	F=0.97	7.89±1.96	F=0.53
Senior secondary	10	5.90±1.96	p=0.19^{NS}	6.70±2.05	p=0.41^{NS}	8.30±1.63	p=0.66^{NS}
Graduate or above	07	6.00±2.23		7.29±2.28		8.71±1.70	
	04	6.50±1.73		6.50±1.73		7.50±1.29	
Occupation							
Non working	28	5.64±1.98	F=1.23	6.57±2.09	F=1.06	8.25±1.69	F=1.03
Working	02	4.00±2.82	p=0.27^{NS}	5.00±1.41	p=0.31^{NS}	7.00±1.41	p=0.31^{NS}

Maximum score = 10, Minimum score = 0 NS = Non Significant

Table 5. Relationship of effectiveness of heat therapy on low back among women in labor pain during the first stage of labor with obstetric profile

N =30

Obstetric profile	n	1st hour reading		2nd hour reading		3rd hour reading	
		Mean ±SD	ANOVA Statistics	Mean ±SD	ANOVA Statistics	Mean ±SD	ANOVA Statistics
Order of pregnancy							
Primigravida							
Multigravida	13	5.77±2.24	F=0.30	6.62±2.43	F=0.11	7.85±2.11	F=0.82
	17	5.35±1.90	p=0.58^{NS}	6.35±1.83	p=0.73^{NS}	8.41±1.27	p=0.37^{NS}
Gestational Period							
38 – 40 wks							
41 – 42 wks	28	5.39±2.02	F=2.08	6.39±2.13	F=0.52	8.14±1.73	F=0.08
	02	7.50±0.70	p=0.16^{NS}	7.50±0.70	p=0.47^{NS}	8.50±0.70	p=0.77^{NS}

Maximum score = 10, Minimum score = 0 NS = Non Significant

stage of labor ($p < 0.05$). The similar findings were given by Geissbuhler *et al*. (2004) they conducted a prospective observational study that spans 9 years in which they compared warm water birth with land birth and showed that the patients in warm water birth group needed less obstetrical analgesia and warm water caused pain reduction in 69% of the patients. (Geissbuehler *et al*., 2005) During the comparison of post – interventional level of pain in control and experimental group in present study it was reported that during all of the 1st , 2nd , and 3rd hour reading, the post interventional mean pain score of control group (6.10, 7.30 and 6.47 respectively) was greater than that of experimental group (5.53, 6.47 and 8.17 respectively). Hence, the study revealed no statistical significant change in level of pain after application of heat therapy in experimental group and routine care in control group. In line with the findings of present study, Eckert K *et al*. (2001) showed no significant difference in labor pain between routine group women and warm water bath group women. (Eckert *et al*., 2001) In contrary with the present study, the Behmanesh *et al*. (2009) revealed that pain severity in the heat therapy group (mean pain severity 8.14 ± 0.99) was less than that in the control group (mean pain severity 8.88 ± 1.20) in first and second stage of labor. (Behmanesh *et al*., 2009) In support with the present study findings, Melzack *et al*. (1984) conducted a research study on severity of labor pain : influence of physical as well as psychologic variables among

141 primiparous and 99 multiparous revealed that there was strikingly difference in the individual pain scores due to individual differences, as some of the women were having severe pain and others having almost none, so the pain perception of two individuals may be significantly different and may not be comparable. (Melzack *et al*., 1984) Hence, control and experimental group may not be statistically comparable but there is a significant decrease in mean pain score of experimental group as compared to control group in this study. Moreover, pre and post interventional comparison of labor pain among women during the first stage of labor in experimental group shows a statistical significance of decrease in labor pain and effective usage of hot silica gel packs.

Conclusion

From the findings of present study it is concluded that post interventional level of pain in control and experimental group showed no statistical significant difference but the findings of the experimental group (n = 30) showed the statistical significance ($p<0.05$) post interventionally, in relieving labor pain. But, pre and post interventional comparison of labor pain among women during the first stage of labor in experimental group shows a statistical significance ($p=0.000$) of decrease in labor pain during first stage of labor. Hence it can be concluded that heat therapy is effective in relieving labor pain. It is further recommended to undertake the study on the effect of heat therapy on labor pain severity and delivery outcome in parturient women. Pre – experimental or randomized control trials can also be done.

REFERENCES

Behmanesh F, Pasha H, Zeinaldeh M. The effect of heat therapy on labor pain severity and delivery outcome in parturient women. *Iranian red crescent medical journal* 2009; 11(2): 188-192.

Eckert K, Turnbull D, MacLennan A. Immersion in water in the first stage of labor: a randomized controlled trial. Birth. 2001 Jun; 28(2):84-93.

Geissbuehler V, Eberhard J, Stein S. Experience of pain and analgesia with water and land births. *J Psychosom Obstet Gynaecol*. 2005 Jun; 26(2):127-33.

Habananda T. Non pharmacological pain relief in labor, *Journal Med Assoc* Thai 2004; 87(3): 194- 204.

http://downloads.lww.com/wolterskluwer_vitalstream_com/samplecontent/9780781792097_Sinclair/samples/Sinclair_ch05_089-110.pdf Retrieved on 19.2.2012

http://www.ukessays.com/essays/health-and-social-care/stress-and-pain-in-labour-health-and-social-care-essay.php#ixzz2Pngw0cOs. Retrieved on 16 Feb. 2013

Lowne NK. The nature of Labor pain, *American Journal of Obstetrics*, 2002 May 186:16-24.

Lowne NK. The pain and discomfort during labor and birth, JOGNN 1996 Jan; 25(1): 82 – 92.

Melzack R, Kinch R, Dobkin P, Lebrun M, Taenzer P. Severity of labor pain: influence of physical as well as psychologic variables. *Can Med Assoc J. I*984 Mar 1; 130(5):579-84.

Reis M. Modern heat therapy. Available online at (http://www.touchbriefings.com /pdf/1092/ Mentholatum_ tech.pdf) Retrieved on 19.2.2013

****