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Effectiveness of infrared lamp therapy on healing of episiotomy wound among post natal mothers

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Abstract
Background: Postpartum period is a very crucial period caring for mother especially mother who had under gone episiotomy. It is a painful and discomfort during puerperial period. Infra red therapy is effective for episiotomy wound healing.
Objectives: To assess the condition of episiotomy wound among post natal mothers in experimental and control group. To evaluate the effectiveness of infra red lamp therapy on healing of episiotomy wound among post natal mothers by comparing experimental and control group scores.
Material and methods: Simple random sampling method was used for the present study to assign the post natal mothers admitted in post natal wards at Yadiyur maternity hospitals to control group and experimental group from Krishna Institute of Medical sciences hospital and research centre. Randomization was done through lottery method. Mothers who had undergone right or left medio lateral episiotomy were included in the study. The socio demographic data were collected by conducting structure interview schedule and episiotomy wound was assessed by using observational check list 'REEDA scale'. Total 3 days infra red lamp therapy was given to experimental group and routine treatment to control group.
Results: There was significant improvement in wound healing in experimental group as compared to control group.
Conclusion: Infra red lamp therapy is an effective method of treatment on healing of episiotomy wound among post natal mothers.

Keywords: Infra red lamp therapy, episiotomy wound and Post natal mothers

1. Introduction

Post partum is a very special period for a woman and her family. This period is usually a joyful one. Despite the pain and discomfort, child birth is a long awaited grand ending of a pregnancy and start of a new life as a mother is the beginning of a new chapter of human life. The process of labour not only generates new life but it also creates different position to the mother in the family. It makes the world as an ever ending place for the human beings to live in. That's why mothers are special and labour is precious. [1]

Following the birth of the baby and expulsion the placenta, the mother enters a period of physical and psychological recuperation. From anatomical and physiological point of view this period is called the puerperium, which is a crucial period for the mother. During this period a mother goes through the physiological process of uterine involution and at the same time adapting to her new role in the family. [2]

Pregnancy and postpartum period is a very special period for a mother and her family, this period is usually a joyful movement at the same time the mother suffer much distress after child birth due to pain full perineum. It is most commonly associated with child birth by vaginal delivery. Pain following episiotomy appears to be universal. The mother undergoing episiotomy is characterised by great blood loss during delivery and there is a high risk of improper wound healing during early puerperium. Episiotomy is a surgically planned incision on the perineum and the posterior vaginal wall during the second stage of labour [**4].** Various interventions are found to aid the wound healing process which includes cleanliness, applying icepack, topical application by dry heat (Infra red therapy), sitz bath, performance of kegel's exercise and perineal care. However, infra red radiation was found effective in relieving pain and proper wound healing [3]. Thus present study was planned to evaluate the effectiveness of infra red lamp therapy on healing of episiotomy wound among post natal mothers.

Materials and methods:

The study was carried out on post natal mothers who under gone right or left medio lateral episiotomy admitted in post natal wards in Kempegowda Institute of Medical Sciences and Research centre (KIMS hospital) and Yadiyur maternity hospital, both from Bangalore, Karnataka. Post natal mothers admitted in KIMS hospital, Bangalore were taken as the Experimental group and Post natal mothers admitted in Yadiyur maternity hospital, Bangalore were taken as the control group. Ethical clearance was obtained from Institutional Ethics Committee and written consent was taken from all subjects. According to 5th day Edema score [7], one of the component of 'REEDA scale', in control group 0.08±0.4 and in experimental group 0.04±0.2 at 5% level of significance and 80% power the minimum number of post natal mothers required to be studied in each of control group and experimental group were 221 [10]. Every day one or two mothers were selected by simple random sampling method from eligible post natal mothers. After taking written consent the socio demographic data were collected by using structure interview schedule and episiotomy wound was assessed by using observational check list 'REEDA scale' [R]. It has five components namely Redness, Edema, Ecchymosis, Discharge, Approximation and total score ranges between 0 and 15. Higher score indicates poor wound healing while lower score indicates good wound healing. Scores were categorized like: 0 to 2 – good, 3 to 5 – moderate, 6 to 8– mild and 9 to 15 – poor. The tool measuring socio-demographic factors was validated by the experts. Reliability of tool was established using Karl pearson's correlation coefficient formula and it was 0.9454. [11]

The routine perineal care was given to both experimental and control group. The infra red lamp therapy was given only to experimental group twice a day, morning and evening. The procedure continued for three days. Episiotomy wound healing assessment was done on each morning and evening up to 4th day morning for both experimental and control group. 1st day before therapy pre assessment and 4th day morning was post assessment.

Statistical Analysis: Qualitative data was summarized into count & percentages, and quantitative data into mean & standard deviation. Comparison, of qualitative variables, between experimental group and control group was done by Chi-square test while of quantitative variables by 't' test (paired & unpaired). The comparison was said to be significant if p was less than 0.05.

Results:

The experimental group consisted of 231 post natal mothers and control group 233 post natal mothers. Post natal mothers in both study groups; experimental and control; were having similar ages, education levels, religion, residential area, type of family, occupation, family income, source of information and type of episiotomy (Table 1). All mothers were having first parity and no still birth was observed in any subject. Very less number of mothers (10 (4.3%)) in experimental group were having once the abortion. This indicates that socio demographic characteristics of study subjects in experimental group and in control group were matching with each other and demonstrated statistically significant homogeneity in all the characteristics.

According to the categories of REEDA scale score, in pre treatment assessment, more than 90% subjects of both control as well as experimental group were laying in poor category (χ^2 = 0.3770, p = 0.8282). No one was having good category. However, post treatment analysis revealed that significantly high proportion of post natal mothers (92.64%) were having good category of wound healing while no one from control group was having good category (χ^2 = 403.554, p < 0.001). (Table 2)

Pre treatment wound score in experimental and control group was similar (t = 1.375, p = 0.174). In comparison to pre treatment score there was significant reduction in post treatment score in both experimental and control groups. However, comparison between post treatment score of experimental and control group revealed that there was significant reduction in the score of experimental group. (Table 3)

Similar to overall REEDA scale score, each component of REEDA scale was categorised as 0: Good, 1: Moderate, 2: Mild and 3: Poor. This individual component wise there was no one with poor category in post treatment assessment in both control and experimental group (Table 4). However, for each of the component, there was significantly high proportion of mothers with 'Good' category in experimental group as compared to control group.

Table 1: Socia Demographic characteristics of the study subjects control and experimental groups

Variables		Control (n=233)		Experimental (n=231)		(p-value)
		N	%	N	%	
Age group (years)	18-21	71	30.5	65	28.1	0.223
	22-25	86	36.9	103	44.6	
	26-34	76	32.6	63	27.3	
Educational level	Primary	45	19.3	36	15.6	0.180
	Secondary	81	34.8	89	38.5	
	PUC	75	32.2	86	37.2	
	Graduate	32	13.7	20	8.7	
Para	First	233	100.0	231	100.0	--------
Religion	Hindu	136	58.4	143	61.9	0.544
	Muslim	54	23.2	54	23.4	
	Christian	43	18.5	34	14.7	
Area of Residence	Rural	60	25.8	53	22.9	0.481
	Urban	173	74.2	178	77.1	
Type of family	Nuclear	140	6.1	145	62.8	0.553
	Joint	93	39.9	86	37.2	

Occupational Status	House wife	98	42.1	105	45.5	0.115
	Agriculture	40	17.2	37	16.0	
	Government	29	12.4	42	18.2	
	Private	66	28.3	47	20.3	
Family Income/month	Rs 1,001-3,000	15	6.4	11	4.8	0.141
	Rs 3,001-8,000	77	33.0	60	26.0	
	Rs 8001-14,000	141	60.5	160	69.3	
No of Abortions	No	233	100.0	221	95.7	----------
	one	0	0.00	10	4.3	
No of still births	No	233	100.0	231	100.0	----------
	One	0	0.0	0	0.00	
Source of Information	Radio/Television	19	51.4	18	48.6	0.634
	Print media	19	54.3	16	45.7	
	Health personnel	56	44.8	69	55.2	
	Relatives/family members	103	53.4	90	46.6	
	Friends/ neighbours	36	48.6	38	51.4	
Type of episiotomy	Right medio lateral	222	50.2	220	49.8	0.983
	Left medio lateral	11	50.0	11	50.0	
Suture material used	Absorbable	233	100.0	231	100.0	--------

Table 2: REEDA scale score categories of Post natal mothers.

REEDA Score	Pre Treatment		Post Treatment	
	Control Group	Experimental Group	Control Group	Experimental Group
Good	0 (0.00)	0 (0.00)	0 (0.00)	214 (92.64)
Moderate	14 (6.00)	12 (5.19)	136 (58.37)	17 (7.36)
Mild	8 (3.44)	10 (4.33)	84 (36.05)	0 (0.00)
Poor	211 (90.56)	209 (90.48)	13 (5.58)	0 (0.00)

Table 3: Pre and post treatment scores on episiotomy wound healing of experimental and control group.

Group	Pre Treatment Mean ± SD	Post Treatment Mean ± SD	Paired 't' test value
Experimental	14.81 ± 0.91	0.91 ± 0.92	51.973**
Control	14.92 ± 0.81	5.73 ± 1.32	107.912**
Unpaired 't' test value	1.375	45.440**	

**: $p<0.001$

Table 4: Post treatment assessment of components of REEDA scale.

REEDA COMPONENT	Category	Control n (%)	Experimental n (%)	χ^2 (p value)
Redness	Good	0 (0.0)	205 (88.7)	372.178 (<0.001)
	Moderate	196 (84.1)	26 (11.3)	
	Mild	37 (15.9)	0 (0.0)	
Edema	Good	8 (3.4)	215 (93.1)	374.998 (<0.001)
	Moderate	159 (68.2)	16 (6.9)	
	Mild	66 (28.3)	0 (0.0)	
Ecchymosis	Good	3 (1.3)	210 (90.9)	376.857 (<0.001)
	Moderate	182 (78.1)	21 (9.1)	
	Mild	48 (20.6)	0 (0.0)	
Discharge	Good	26 (11.2)	132 (57.1)	110.259 (<0.001)
	Moderate	200 (85.8)	93 (40.3)	
	Mild	7 (3.0)	6 (2.6)	
Approximation	Good	10 (4.3)	199 (86.1)	314.117 (<0.001)
	Moderate	164 (70.4)	22 (9.5)	
	Mild	59 (25.3)	10 (4.3)	

Discussion:

In present study all socio-demographic variables and pre-treatment REEDA score of experimental and control group were similar. Post-treatment comparison revealed significantly good wound healing in experimental group as compared to control group. This indicates that the improvement in wound healing in experimental group may be due to infrared lamp therapy which is also inferred by some other studies. [6, 7,8,9] The mean episiotomy pain score of the control group participants was high on all three days in comparison with the experimental group and 10% of the participants in the control group developed mild infection whereas none of the participants in the experimental group developed infection.

The episiotomy wound healing was rapid after infra red lamp therapy. [9] Though the application of heat lamp improved the healing of episiotomy wound [8] and have findings similar to the present study, infra red lamp therapy is more effective in healing of episiotomy wound.

The heat of infra red lamp penetrates up to three inches into the body. Hence when heat applied on episiotomy wound

vasodilatation occurs due to this the blood circulation increases, blood contents oxygen nutrients etc. It permits fast wound healing. Not only healing but also helps in absorption of moist and prevents growth of micro organisms, loosening tight muscles, aids in healing damaged tissue, and pain relief providing comfort reducing oedema.

Limitations:

Only wound healing was assessed and no attempt was made to identify other attributes like pain, perception and discomfort level.

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