



A Study To Assess The Effectiveness Of Dry Cold Application On Episiotomy Wound Healing Among Postnatal Mothers In A Selected Hospital Of Dehradun, Uttarakhand

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Abstract: Background: Episiotomy is a surgically planned incision on the perineum and the posterior wall during the second stage of labor. The first episiotomy was reported in 1741, being suggested as a way to prevent severe perineal tears. The worldwide rate of episiotomy increased dramatically in the early 1900's, coinciding with the move from women giving birth at home to having their baby in a hospital. This is when physicians became more involved in the normal, uncomplicated birth process. While episiotomy is performed to aid delivery, it may lead to certain complications such as pain and discomfort, infection, bleeding and hematoma, perineal tears and extension, painful intercourse, fecal or urinary incontinence and delayed healing or scar formation. Proper assessment ensures early detection of complications and promotes healing such as visual inspection, pain assessment, monitor signs of infection (fever, foul smell discharge, increased warmth) and Healing progress REEDA scale. Regular postpartum checkup helps to detect and manage complications early. A Quasi-experimental research design was adopted to accomplish the objectives of this study. The data was collected from 60 mothers admitted at postnatal ward at Shri Mahant Indresh Hospital Dehradun, Uttarakhand, India. Purposive sampling technique was used to collect the sample. The conceptual framework used in this study was King's Goal Attainment Theory. Out of 60 participants, 30 were included in experimental group and 30 in control group. The reliability of tool was found to be 0.98. The data was collected by using the Standardized REEDA Scale. Lower scores of REEDA scale indicates good episiotomy wound healing and vice versa. The data was analyzed and interpreted by using the descriptive and inferential statistics. The percentage of mean difference of episiotomy wound healing level among pre-test and post-test scores in experimental group was found to be 33.6% and the calculated t value was found to be 17.36 which is higher than the tabulated t value (2.045). The mean difference of episiotomy wound healing level among pre and post-test scores in control group was found to be 0.7% and the calculated t value was found to be 1.42 which is lesser than tabulated t value (2.045). The Experimental group shows decrease in episiotomy wound healing scores after administration of dry cold application which shows that there was statistically significant difference in pre-test and post-test episiotomy wound healing scores. There is no statistically significant difference in pre-test and post-test episiotomy wound healing scores of control group. Thus, it can be said that episiotomy wound healing was due to the dry cold application done by the researcher.

Keywords: Assess, effectiveness, dry cold application, episiotomy wound healing, postnatal mothers.

INTRODUCTION

Episiotomy is a routinely performed obstetric procedure, with prevalence rates varying globally between 10% to over 60%, depending on the region and clinical practices (World Health Organization, 2020). Despite its utility in preventing severe perineal trauma during childbirth, episiotomy often results in significant postpartum pain, edema and delayed wound healing. Studies report that up to 70% of women experience moderate to severe perineal pain after episiotomy, which can last several weeks, affecting their mobility, breastfeeding and overall quality of life.

Dry cold application is a simple and effective technique that reduces pain and swelling by causing vasoconstriction and numbing nerve endings. Despite its benefits, cold therapy is underutilized and lacks standardized protocols in many healthcare settings. Moreover, there is limited research conducted locally to support its routine use in postpartum care. In this study, researcher has chosen dry cold application therapy for research study because in the hospital setting where researcher conducted the study, this procedure is not commonly used. Compared to other methods, dry cold application is effective intervention for episiotomy wound healing because it is simple, safe, non-invasive, and provides immediate relief from pain and edema by causing vasoconstriction, which reduces swelling and discomfort, thereby promoting faster healing. It is simple to apply, cost-effective and associated with minimal side effects, making it more practical and reliable intervention. Compared to other methods, it has distinct advantages: sitz bath improves circulation but requires resources, time, and hygiene maintenance and cause delayed wound healing, increased bleeding, burns and risk of infection; infrared lamp therapy also cause burns and skin irritation; antiseptic solutions like povidone-iodine or Tricol are effective for infection prevention but do not provide quick pain relief; and normal saline helps in wound cleansing but does not heal episiotomy wound. Thus, it was selected over other methods as it directly addresses the primary concerns after episiotomy—pain, healing and swelling—while being practical and evidence-based. So, this will enable researcher to opt for better healing method for the postnatal mothers and provide a better care using cold application. Ultimately, it aims to enhance the physical and psychological well-being of mothers during a critical phase of recovery, aligning with global maternal health goals.

OBJECTIVES

1. To assess the pre-test episiotomy wound healing score among postnatal mothers in control and

experimental group.

2. To assess the effectiveness of dry cold application on episiotomy wound healing among postnatal mothers in experimental group.
3. To find out the association of the pretest episiotomy wound healing with selected demographic variables.

RESEARCH METHODOLOGY

One group pretest and posttest design was adopted for the study. The study was conducted in a selected hospital of Dehradun. A total of 60 primigravida women were selected using non-probability purposive sampling technique and divided into experimental (n=30) and control(n=30) groups. Data were collected using a structured demographic and obstetric proforma and standardized REEDA scale (0-15). Dry cold application was given to the experimental group whereas control group received routine care.

INSTRUMENTS

Data were collected using following tools

Section A:

Structured Demographic variables (age, education, occupation, monthly income, types of family, place of residence, religion, dietary pattern) obstetric variables (parity, types of episiotomy, indication for episiotomy, fetal presentation).

Section B:

Standardized REEDA Scale (0-15) to assess the episiotomy wound healing.

Level of episiotomy wound healing was categorized as:

- 0-5 = good wound healing,
- 6-10 = average wound healing and
- 11-15 = poor wound healing.

Ethical Consideration

Formal permission was obtained from the Principal of SGRRIM&HS, College of Nursing, Dehradun, Uttarakhand to conduct the research study. Prior to conduction of the study, written permission was obtained from the Medical Superintendent of SMI Hospital, Dehradun, Uttarakhand and informed written consent was taken from the patients who were willing to take part in the study. Privacy and confidentiality of the subjects was maintained and data collected was strictly used for the research purpose only.

RESULTS

TABLE – 1: Assessment of Pre-test Episiotomy Wound Healing Levels among Experimental and Control group N=60

Episiotomy Wound Healing Level	Score	Group			
		Experimental		Control	
		f	%	f	%
Good	0-5	0	0.0	0	0.0
Average	6-10	21	70.0	23	76.7
Poor	11-15	9	30.0	7	23.3
Total		30	100.0	30	100.0

The table presents the pre-test episiotomy wound healing status among experimental and control group. In experimental group 70.0% showed average wound healing and 30.0% showed poor wound healing. In control group 76.7% showed average wound healing and 23.3% showed poor wound healing. None of the respondents showed good wound healing in both experimental and control group.

TABLE – 2: Difference between pre-test episiotomy wound healing scores among Experimental and Control group N=60

S.No.	Group	Episiotomy Wound Healing Scores			t Value (t _{cal})
		Mean ± SD	Mean (%)	SD (%)	
I	Experimental	8.40 ± 1.85	56.0	12.3	0.54
II	Control	8.63 ± 1.59	57.6	10.6	

(t_{tab} = 1.96, df=58, p<0.05)

The table presents the difference between pre-test episiotomy wound healing scores among Experimental and Control group. Independent sample t-test was used to find out the difference between pre-test episiotomy wound healing scores among Experimental and Control group. In experimental group the Mean ± SD is 8.40 ± 1.85, mean percentage is 56.0% and SD percentage is 12.3%. In control group the Mean ± SD is 8.63 ± 1.59, mean percentage is 57.6% and SD percentage is 10.6%. The calculated t value was found to be 0.54 which was less than the table value of t (1.96). Hence, it can be said that there was no significant difference between the pre-test episiotomy wound healing scores in both experimental and control group.

TABLE – 3: Difference between Pre-test and Post-test Mean Episiotomy Wound Healing Scores of the Experimental group N=30

Episiotomy Wound Healing Score	Mean ± SD	Mean (%)	SD (%)	t Test Value (t _{cal})
Pre test	8.40 ± 1.85	56.0	12.3	17.36 *
Post test	3.37 ± 1.13	22.4	7.5	

Paired t-test * Significant at 5% level, (p<0.05) (t_{tab} = 2.045, df=29)

The table shows the difference between pre-test and post-test mean episiotomy wound healing scores of the experimental group which was calculated using paired score t-test. In pre-test assessment; the Mean ± SD is 8.40 ± 1.85, mean percentage is 56.0% and SD percentage is 12.3%. In post-test assessment; the Mean ± SD is 3.37 ± 1.13 mean percentage is 22.4% and SD percentage is 7.5%. The paired t-test value was found to be 17.36, which is much higher than the table value of t (2.045) at 0.05 level of significance (df=29). Hence, it can be said that there was significant difference between the pre-test and post-test mean episiotomy wound healing scores in experimental group, which suggests that episiotomy wound healing was due to the dry cold application by the researcher.

TABLE – 8: Difference between Pre-test and Post-test Mean Episiotomy Wound Healing Scores of the Control group N=30

Episiotomy Wound Healing Score	Mean $\pm$ SD	Mean (%)	SD (%)	t value (t _{cal})
Pre test	8.63 $\pm$ 15	57.6	10.6	1.42
Post test	8.53 $\pm$ 1.48	56.9	9.9	

Paired t-test

(t_{tab} = 2.045, df=29, p>0.05)

The table shows the difference between pre-test and post-test mean episiotomy wound healing scores of the control group which was calculated using paired score t-test. In pre-test assessment; the Mean $\pm$ SD is 8.63 $\pm$ 15, mean percentage is 57.6% and SD percentage is 10.6%. In post-test assessment; the Mean $\pm$ SD is 8.53 $\pm$ 1.48, mean percentage is 56.9% and SD percentage is 9.9%. The paired t-test value was found to be 1.42, which is less than the table value of t (2.045) at 0.05 level of significance (df=29). Hence, it can be said that there was no significant difference between the pre-test and post-test mean episiotomy wound healing scores in control group.

DISCUSSION

Description of episiotomy wound healing of postnatal mothers among experimental and control group in terms of pretest. In the experimental group, 70% had average healing and 30% poor, while in the control group, 76.7% were average and 23.3% poor. In contrast, the control group had no mothers in the good category, with 80% average and 20% poor healing. The t-test (t_{cal} = 0.54, t_{tab} = 1.96, p > 0.05) revealed no statistically significant difference in pre-test episiotomy wound healing levels or scores between the experimental and control group.

A similar quasi- experimental study was conducted by Somia Oda Abdel Menaem, which comprised of 104 postnatal mothers (52study group and 52 control group) who had an episiotomy. Cold gel packing was applied to the episiotomy site in experimental group, routine care in the control group. Finding shows that in pre-test assessment, both group shows average and poor episiotomy wound healing level whereas in post-test assessment, experimental group shows good and average episiotomy wound healing level but in control group the participant shows average and poor episiotomy wound healing level.

Description of posttest episiotomy wound healing of postnatal mothers among experimental group. The findings revealed that in the experimental group, the mean wound healing score significantly decreased from 8.40 $\pm$ 1.85 (56.0%) in the pre-test to 3.37 $\pm$ 1.13 (22.4%) in the post-test, with an enhancement mean of 5.03 $\pm$ 1.59 (33.6%). The t-test value was found to be (t_{cal} = 17.36, t_{tab} = 2.045, p < 0.05), confirmed a statistically significant improvement in wound healing levels following dry cold application. In contrast, the control group showed minimal change in wound healing scores, with pre-test and post-test means of 8.63 $\pm$ 1.50 (57.6%) and 8.53 $\pm$ 1.48 (56.9%) respectively, and an enhancement mean of only 0.10 $\pm$ 0.40 (0.7%). The t-test value was found to be (t_{cal} =

1.42, t_{tab} = 2.045, p > 0.05) indicated no significant difference.

A similar quasi-experimental study was conducted by El Saidy, with the sample size of 200 postnatal women. Crushed ice gel pads applied to the episiotomy site in experimental group and routine care was given to the control group. Finding shows significant reduction in REEDA scores in the experimental group compared to control. 92% of mothers in the experimental group had good wound healing vs only 43% in control group.

CONCLUSION

The study concluded that dry cold application is found to be an effective approach for healing of episiotomy wound. The Experimental group shows decrease in episiotomy wound healing scores after administration of dry cold application which shows that there was statistically significant difference in pre-test and post-test episiotomy wound healing scores. There is no statistically significant difference in pre-test and post-test episiotomy wound healing scores of control group. Thus, it can be said that episiotomy wound healing was due to the dry cold application by the researcher.

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