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MOIST HEAT VERSUS DRY HEAT APPLICATION: A COMPARATIVE STUDY ON HEALING OF EPISIOTOMY WOUND

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ABSTRACT

Background: Episiotomy is used to widen vaginal orifice to facilitate difficult deliveries. There is high prevalence of episiotomy during labour process, and there is significant role of both dry heat and moist in healing of episiotomy. Therefore present study aims to compare moist heat and dry heat application on healing of episiotomy. **Material & Method:** Quantitative quasi experimental post-test only research design was used to carry out the study. A sample of 60 postnatal mothers selected for the study through non probability convenient sampling technique. First thirty postnatal mothers allocated to group A (dry heat recipient) and next 30 postnatal mothers allocated to group B (moist heat recipient). **Results:** In Group A (dry heat recipient), 73.33% postnatal mothers had mild wound healing and 26.66% had moderate wound healing whereas in Group B (moist heat recipient), 53.33% postnatal mothers had mild wound healing, 26.66% had moderate wound healing and 20% postnatal mothers had adequate wound healing. Mean post test wound healing score of Group B (moist heat recipient) was higher than mean post test wound healing score of Group A (dry heat recipient). There was significant association found between the wound healing score and selected variables of group A (Dry heat recipient) like parity, weight of the baby, type of family and indication of episiotomy. **Conclusion**: Study concluded that both dry and moist heat was effective in wound healing but moist heat was more effective and it was found significant also.

KEYWORDS: Postnatal mothers, episiotomy, wound healing, moist heat, dry heat.

INTRODUCTION

A foetus and placenta are expelled from the uterus through the vaginal canal during labour. Three stages can be identified in human labour. There are two phases within the first step. Foetal features, pelvic architecture, maternal efforts and uterine contractions all play a role in a successful labour. This trio is known as the passenger, power, and passage in traditional usage.[1] Many women may experience trauma to the perineum during childbirth, many of them visit the maternity unit for the first time, and perineal tears are the most typical pregnancy complications. Perineal tears are injuries to the perineum, vulva, and vagina that happen during vaginal birth based on the anatomical characteristics of women.[2] According to **WHO Key facts (2019)** about 810 women perished everyday from pregnancy- and childbirth-related avoidable causes. Maternal mortality ratio (MMR, number of maternal deaths per 100,000 live births) decreased by roughly 38% globally between 2000 and 2017. Low- and lower middle-income countries account for 94% of all maternal deaths worldwide.[3] Any sort of harm to the female genitalia during labour is referred to as perineal trauma, which can happen naturally or artificially (through an episiotomy or instrumental delivery).[4] The anterior vaginal wall, urethra, clitoris, and labia can all be harmed by anterior perineal trauma. The posterior vaginal wall, perineal muscle, perineal body, external and internal anal sphincters, and anal canal can all be impacted by posterior perineal trauma. Most perineal tears during labour happen along the posterior vaginal wall, reaching

towards the anus.[5] The episiotomy is a procedure that was first created to lessen the prevalence of severe (third and fourth-degree) perineal injuries during labour. In order to facilitate difficult deliveries, it is often intended to make a controlled incision in the perineum for vaginal opening enlargement.[6] **Singh S. et al (2016)** revealed that in 63.4% of the 120243 vaginal deliveries, episiotomies were carried out. Episiotomies were 8.8 times more common in nulliparaous women than in multiparous women. When nullipara underwent an episiotomy, the combined rate of third and fourth degree perineal tears was much lower (0.13%) than it was in the control group (0.62%).[7] Decreased risk of uterine prolapsed, trauma to perineum and pelvic floor dysfunction, reduced sexual issues, urinary and fecal incontinence are maternal advantages of episiotomy. There may be advantages for the foetus, such as a quicker second stage of labour. Cleanliness, sitz baths, kegel exercises, perineal care, and topical dry heat-infrared lamp therapy are some methods that can be used to lessen episiotmy complications in the postpartum period (extension to a third or fourth-degree tear, anal sphincter dysfunction, and dyspareunia).[8] **Kapoor J & Rita (2018)** revealed that both medicated and non medicated sitz bath was equally effective in episiotomy wound healing among postnatal mothers. Thus, sitz bath either medicated or non medicated should be encouraged among postnatal mothers so as fasten the episiotomy wound healing and easy recovery of postnatal mothers.[9] **Roma N. et al (2023)** discovered that the dry heat group had a significantly improved episiotomy wound healing as regards perineal redness, edema of the perineal area, ecchymosis, wound discharge, and approximation of wound edges than the moist heat group.[10] **Kaur N, Rana AK et al (2013)** revealed a highly significant difference between the groups in terms of pain scores and wound healing. Though both the interventions were effective but dry heat was more effective than moist heat in relieving pain and promoting wound healing at the episiotomy site.[11] Because of the high prevalence of episiotomy during labour process, and there is significant role of both dry heat and moist in healing of episiotomy, we chose the following topic for the study.

Statement of Problem: A comparative study to assess the effectiveness of moist heat and dry heat application on healing of episiotomy wound in post natal mothers in selected hospitals at Udaipur.

Objective

1. To compare the effectiveness of dry heat (infrared light therapy) vs. moist heat (sitz bath) application on episiotomy in terms of wound healing among postnatal mothers.
2. To determine the association of wound healing scores of post natal mothers with selected demographic variables.

MATERIAL AND METHODS

Research approach:- Quantitative approach
Research Design:- Quasi-experimental post-test only group design.
Research Setting: Study was conducted in selected hospitals of Udaipur, Rajasthan.
Population:- Study population consisted of all the post natal mothers having episiotomy wound and admitted at selected hospital, Udaipur.
Sampling technique and sample: 60 postnatal mothers selected through non probability convenient sampling technique.
Research Tool: The tools selected for the present study divided in two sections.
Section I:- Socio-demographic variables included 7 items such as age in years, educational status, type of family, area of residence, parity, birth weight of the baby, type of episiotomy, and indication of episiotomy.
Section II:-

Reeda Scale: - Secondary outcome measure used was REEDA scale for assessing the healing process. REEDA scale has a categorical score [0-3]. That measure 5 components associated with the healing process. Each item is related on a scale of 0 - 3 and score may range from 0-15.

The lesser score indicate better healing.
R- Redness.
E- Edema.
E- Ecchymosis.
D- Discharge.
A- Approximation of wound edge.

Intervention

After securing written permission from the respective authority and based on the inclusion and exclusion criteria the sample was selected. Informed consent was taken from the mother. After explaining the study, first thirty postnatal mothers allocated to group A received infrared light (dry heat) to the episiotomy for 15 minutes. Next 30 postnatal mothers allocated to group B received sitz bath (moist heat) to the episiotomy for 15-20 minutes. Each therapy was provided twice daily for three consecutive days. Healing of wound was observed after giving the treatment using REEDA Scale.

RESULTS

Table 1: Distribution of samples according to socio demographic variables (N=60).

Variables	Category	Group A (dry heat) n_1=30		Group B (Moist heat) n_2=30	
		Frequency	Percentage	Frequency	Percentage
Age in Years	18 to 20 years	1	3.33	4	13.33
	21 to 25 years	2	6.67	3	10
	26 to 30 years	13	43.3	11	36.67
	31 to 35 years	13	43.3	9	30
	> 35 years	1	3.3	3	10
Educational status	Non formal	0	0	2	6.67
	High school	6	20	6	20
	Higher secondary	5	16.67	5	16.66
	Graduation	19	63.33	17	56.67
Type of family	Nuclear	20	66.66	20	66.66
	Joint	10	33.33	10	33.33
Area of residence	Rural	17	56.67	15	50
	Urban	13	43.3	15	50
Parity	Primi	22	73.33	18	60
	Multi	8	26.67	12	40
Birth weight of the baby	Below 2.5 kg	5	16.66	4	13.33
	2.5 kg to 3.5 kg	20	66.6	19	63.33
	Above 3.5 kg	5	16.66	7	23.33
Type of episiotomy	Medio lateral Right	22	73.33	23	76.66
	Medio lateral Left	8	26.66	7	23.33
Indication of episiotomy	Macrosomia	1	3.33	2	6.66
	Elastic perineum	26	86.66	27	90
	Breech	3	10	1	3.33

As per table 1, majority of the participants (43.3% each) were in the age group of 21 to 25 years and 26 to 30 years in group A while 36.67% participants were in 26 to 30 years and 30% were in age group of 31 to 35 years of age in group B. Regarding educational status, 63.3% participants were graduate in group A, Where as in group B, 56.66% participants were graduate. As per type of family, there was equal distribution of participants in both nuclear (66.67%) and in joint family (33.33%) in both Group A and Group B. In view of place of residence, 56.6% participants were living in rural area in group A. While in group B, 50% participants were living in each rural and urban area. According to parity of the participants, 73.3% belongs to primipara in group A, where as in group B, 60% belongs to primipara. Regarding birth weight of the baby, 66.6% participants delivered between 2.5 kg to 3.5 kg of newborn, in group A, whereas in group B, 63.33% participants delivered between 2.5 kg to 3.5 kg of newborn. Regarding the types of episiotomy, 73.33% participants had medio lateral (right) episiotomy in group A. While in group B, 76.66% participants had medio lateral (Right) episiotomy. Regarding indication of episiotomy, 86.66% participants had elastic perineum in Group A while 90% participants had elastic perineum in Group B.

Table 2: Frequency and percentage distribution of post-test levels of episiotomy wound healing among participants.

S. No.	Level of wound healing	Group A (Dry heat)		Group B (Moist heat)	
		Frequency	Percentage	Frequency	Percentage
1	Mild wound healing	22	73.33%	16	53.33%
2	Moderate wound healing	08	26.67%	08	26.67%
3	Adequate wound healing	00	00	06	20%
	Total	30	100%	30	100%

Table 2, reveals that 22(73.33%) postnatal mothers had mild wound healing and 8(26.66%) postnatal mothers had moderate wound healing in group A. Whereas in group B 16(53.33%) postnatal mothers had mild wound healing, 8(26.66%) postnatal mothers had moderate wound healing and 6(20%) postnatal mothers had adequate wound healing.

Table 3: Comparison between Group A and Group B participants on episiotomy wound healing.

Group	Mean	Standard Deviation	Mean Difference	Unpaired 't' Value	Inference
Group A	4.8	1.73	2.08	13.89	S*
Group B	6	3.81			

Table 3, revealed that mean post test score for wound healing among group A Mean=4.8 was lower than the mean post-test wound healing score for the group B Mean=6 and the obtained 't' value was t =13.89 greater than the table value. The finding shows that dry and moist heat was effective in wound healing among undergone procedure. Hence, Research hypothesis H_1 is accepted.

On the basis of chi square test there was significant association found between the wound healing score and selected variables of group A like parity ($\chi 2$=7.71), weight of the baby ($\chi 2$=6.04), types of family ($\chi 2$=4.59) and indication of episiotomy ($\chi 2$=6.15). While there was no significant association found between the wound healing score and selected variables of group B.

DISCUSSION

According to result about post test in Group A (dry heat) that 73.33% postnatal mothers had mild wound healing and 26.66% postnatal mothers had moderate wound healing. Our findings supported by **Khosla P et al (2017)**[12] study's result in which dry heat was effective in reducing pain and improving healing of episiotomy wound. **EI-Lassy & Madian (2019)**[13] and **Kaur et al (2019)**[14] also found that dry heat application enhanced episiotomy wound healing. In Group B (moist heat), 53.33% postnatal mothers had mild wound healing, 26.66% postnatal mothers had moderate wound healing and 20% postnatal mothers had adequate wound healing. Our findings supported by findings of **Muthamilselvi G (2018)**[15] in which 33.3% participants with moist heat (sitz bath) with good status of episiotomy wound healing, 20 (66.67%) were in mild status of episiotomy wound healing. **Pratibha Khosla (2017)**[16] also found that application of sitz bath therapy had significant improvement in episiotomy wound healing. **Devi HM (2019)**[17] and **Amandeep Kaur et al (2015)**[18] also found that sitz bath was effective in episiotomy wound healing process.

Our study also found that mean post test wound healing score of Group B (moist heat) was Higher than mean post test wound healing score of Group A (dry heat). Both dry and moist heat was effective in wound healing but moist heat was more effective and it was found significant also. **Chandraleka R et al (2019)**[19] also revealed similar findings in which both the sitz bath (moist heat) and infrared ray (dry heat) therapy was effective but sitz bath was more efficient in decreasing the episiotomy pain and improving wound healing among participants. **Kaur et al (2014)**[20] also revealed that both infrared light therapy and sitz bath were effective in enhancing episiotomy wound healing, however, sitz bath was significantly more effective in enhancing episiotomy wound healing as contrast to dry heat. Contradictory findings revealed by **Aruna G (2015)**[21] in which application of dry heat was more effective than the application of moist Heat in episiotomy wound healing. **Pore Y (2014)**[22] and **Nemat Ismail AAI (2019)**[23] also revealed opposing findings in which dry heat was more effective than the moist Heat in episiotomy wound healing.

As per our study there was significant association found between the wound healing score and selected variables of group A (Dry heat) like parity, weight of the baby, types of family and indication of episiotomy while no such association was found in group B (moist heat) participants. **Vijayasuguna. V & Jinu K Rajan (2022)**[24] found no association between episiotomy wound healing score and postnatal mothers socio demographic variables. **Tak HK & Chaturvedi D. (2021)**[25] and **Kumawat A. & Kaur A. (2020)**[26] and also revealed no significant association with demographic variables with their study result.

CONCLUSION

Findings of our study that both dry and moist heat was effective in wound healing but moist heat was more effective. Demographic variables also have part in wound healing. There are many contradictory findings on effectiveness of moist heat or dry heat so more studies with calculated sample size and standard tools are needed in future.

Limitations

The total sample size (60) and 30 in each group made it difficult to draw generalization. A standard tool was used for data collection which restricts the amount of information that can be obtained from the respondents; no attempt was made to assess their opinion and pain perception due to time shortage and less resources.

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Conflict of Interest: There was no conflict of interest involved while conducting the present study.

REFERENCES

1. Liao, J. B., Buhimschi, C. S., & Norwitz, E. R. Normal labor: mechanism and duration. Obstetrics and gynecology clinics of North America, 2005; 32(2): 145–vii. https://doi.org/10.1016/j.ogc.2005.01.001.
2. Simic, M., Cnattingius, S., Petersson, G., Sandström, A., & Stephansson, O. Duration of second stage of labor and instrumental delivery as risk factors for

severe perineal lacerations: population-based study. BMC pregnancy and childbirth, 2017; 17(1): 72. https://doi.org/10.1186/s12884-017-1251-6.
3. Maternal Mortality key facts. WHO. Available from https://www.who.int/news-room/fact-sheets/detail/maternal-mortality.
4. Frohlich J, Kettle C. Perineal care. BMJ Clin Evid, 2015. Available from https://www.ncbi.nlm.nih.gov /pmc/articles/PMC4356152/
5. Sultan, A.H., Kettle, C. Diagnosis of Perineal Trauma. In: Sultan, A.H., Thakar, R., Fenner, D.E. (eds) Perineal and Anal Sphincter Trauma. Springer, London, 2009. https://doi.org/10.1007/978-1-84628-503-5_2.
6. Priddis, H., Dahlen, H. G., Schmied, V., Sneddon, A., Kettle, C., Brown, C., & Thornton, C. Risk of recurrence, subsequent mode of birth and morbidity for women who experienced severe perineal trauma in a first birth in New South Wales between 2000-2008: a population based data linkage study. BMC pregnancy and childbirth, 2013; 13: 89. https://doi.org/10.1186/1471-2393-13-89.
7. Singh, S., Thakur, T., Chandhiok, N., & Dhillon, B. S. Pattern of episiotomy use & its immediate complications among vaginal deliveries in 18 tertiary care hospitals in India. The Indian Journal of Medical Research, 2016; 143(4): 474–480. https://doi.org/10.4103/0971-5916.184304.
8. Choudhari, R. G., Tayade, S. A., Venurkar, S. V., & Deshpande, V. P. A Review of Episiotomy and Modalities for Relief of Episiotomy Pain. Cureus, 2022; 14(11): e31620. https://doi.org/10.7759 /cureus.31620.
9. Kapoor J, Rita. A comparative study to assess the effectiveness of medicated and non-medicated sitz bath on episiotomy wound healing among postnatal mothers at govt. Smgs maternity hospital, Jammu (J&K). Int J Pregn & Chi Birth, 2018; 4(2): 92–96. DOI: 10.15406/ipcb.2018.04.00090.
10. Roma, N. Z. H., Essa, R. M., Rashwan, Z. I., & Ahmed, A. H. Effect of Dry Heat Application on Perineal Pain and Episiotomy Wound Healing among Primipara Women. Obstetrics and gynecology international, 2023; 9572354. https://doi.org/10.1155/2023/9572354
11. Kaur N, Rana AK, Suri V. Effect of dry heat versus moist heat on Episiotomy pain and wound healing. Nursing & Midwifery Research Journal, 2013; 9(1): 21-33. doi:10.1177/0974150X20130103.
12. Khosla P. effect of dry heat on episiotomy wound healing and level of pain among post natal mothers. International Journal of Recent Advances in Multidisciplinary Research, 2017; 4(05): 2592-2595. Available from https://www.ijramr.com/sites /default/files/issues-pdf/1294.pdf.
13. El-Lassy R, Madian A. The effect of infrared lamp therapy on episiotomy wound restorative besides pain relief among post-partum women. Journal of Nursing Education and Practice, 2019; 9(2): 20-30.
14. Kaur P, Prakasam A, Kaur V. A study to evaluate the effectiveness of infrared lamp therapy on healing of episiotomy wound among postnatal mothers admitted in Adesh Hospital, Bathinda, Punjab, India. IOSR Journal of Nursing and Health Science (IOSRJNHS), 2019; 8(2): 61-69.
15. Muthamilselvi G. Comparative study to assess the effectiveness of medicated non medicated sitz bath on episiotomy wound health among the postnatal mothers. International Journal of Current Research, 2018; 10: 07: 71821-71824, July,. DOI: https://doi.org/10.24941/ijcr.30575.07.2018.
16. Pratibha Khosla. Effect of Sitz Bath on Episiotomy Wound Healing and Level of Pain among Post Natal Mothers. Int. J. Adv. Nur. Management, 2017; 5(3): 227-230. doi: 10.5958/2454-2652.2017.00048.8.
17. Amandeep Kaur, Nidhi Sagar, Mamta Kaur, Jindal P. Effect of sitz bath in reduction of episiotomy pain and wound healing among postnatal mothers. International Journal of Current Research, 2015; 7(02): 12461-12463.
18. Devi HM. A quasi experimental study to assess the effectiveness of sitz bath on episiotomy wound healing among postnatal mothers admitted in postnatal ward, district hospital, maternity sector Morar, Madhya Pradesh. Journal of Advances and Scholarly Researches in Allied Education, 2019; 16(6): 358 -349. DOI: 10.29070/JASRAE.
19. Chandraleka R, Manju Bala Dash, Felicia Chitra. Effectiveness of Sitz Bath Versus Infrared Ray Therapy on Level of Episiotomy Pain and Wound Healing Among Post Natal Mothers in Selected Hospital, Puducherry. Biomed J Sci & Tech Res, 2019; 21(3). BJSTR. MS.ID.003605.
20. Kaur S, Sheoran P, Chand S, Haobijam J. Comparison of Infra Red Light Therapy vs Sitz Bath on Episiotomy in Terms of Wound Healing and Intensity of Pain among Postnatal Mothers. Asian J. Nur. Edu. & Research, 2014; 4(1): 70-75.
21. Aruna G. Effectiveness of moist heat and dry heat application on healing of episiotomy wound among postnatal mothers. NNJ, 2015; 4(3): 36-38.
22. Pore Y. Effectiveness of moist heat and dry heat application on healing of episiotomy wound. Asian Journal of Multidisciplinary Studies, 2014; 2(7): 225- 236.
23. Nemat Ismail Abdel Aziz Ismail. Effect of Infrared Lamp Therapy versus Warm Sitz Bath on Episiotomy Wound Healing and Pain among Puerperal Mothers. " IOSR Journal of Nursing and Health Science (IOSR-JNHS), 2019; 8(06): 44-56
24. Vijayasuguna.V, Jinu K Rajan. Effectiveness of infrared radiation on episiotomy wound among the postnatal mothers at selected hospitals, Indore. International Journal of Research Publication and Reviews, 2022; 3(4): 1820-1821.
25. Tak HK, Sharma N, Chaturvedi D, Yadav K. A comparative study to assess the level of knowledge regarding oral hygiene among school age children in selected government and private schools at Udaipur.

Universe International Journal of Interdisciplinary Research, 2021; 2(5): 17-25. Available from https://www.doi-ds.org/doilink/10.2021-45218735/UIJIR

26. Kumawat A., Kaur A. A quasi experimental study to assess the effectiveness of sitz bath in reduction of episiotomy pain among postnatal mothers in selected hospitals of district Amritsar, Punjab. Universe International Journal of Interdisciplinary Research, 2020; 1(2): 59-64. Available from https://uijir.com /wp-content/uploads /2020/08/UIJIR-JULY210.pdf.