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A Study to Assess the Effectiveness of Normal Saline Application on Episiotomy Wound Healing among Postnatal Mothers at Gauhati Medical College & Hospital, Guwahati, Assam

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Abstract: ***Background: Episiotomy is one of the most common procedures that performed during 2nd stage of labour. Morbidity associated with episiotomy may affect women's physical, psychological and social wellbeing, both in the immediate and long-term postnatal period. Women who experience perineal episiotomy can subsequently be affected by conditions such as dyspareunia, urinary and anal incontinence, perineal pain, and delayed mother–neonate interaction. Objectives: To find out the effectiveness of normal saline application on episiotomy wound healing among postnatal mothers at GMCH, Guwahati, Assam. Material and Methods: Quasi Experimental non randomized control group design was adopted for the study. 60 samples were selected by using convenient sampling technique. Result: The comparison of post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group showed that in experimental group mean post-interventional score was 2.80±0.976 and in control group mean post-interventional score was 11.53±1.814 with mean difference was 8.73. The comparison between experimental and control group was tested using unpaired t test with obtained t value (t=14.80) was statistically significant at p<0.05 level. Conclusion: Application of normal on episiotomy wound healing is very effective among postnatal mothers.***

Key words: Effectiveness, Normal saline, Episiotomy, wound healing, postnatal mothers

1. Introduction

"Motherhood is the biggest gamble in the world. It is the glorious life force. It's huge and scary –it's an act of infinite optimism"

- Gilda Radner

Labour is a process of delivering a baby and the placenta, membranes and umbilical cord from the uterus to the vagina to the outside world. During the first stage of labour, the cervix dilates fully to a diameter of about 10 cm. Also known as parturition and childbirth.[1]

Episiotomy is one of the most common procedures that performed during 2nd stage of labour. The first performance of Episiotomy was done in 1742, when the Perineal incision were used to facilitates deliveries. The types of episiotomy include medio-lateral, median, lateral and J shape episiotomy. Among this medio-lateral episiotomy is commonly use.[2]

Care of episiotomy would begin immediately after delivery and should include a combination of local wound care and pain management.[3]The care of episiotomy is different from hospital to hospital.Now a day, normal saline is widely used in the hospitals for healing of episiotomy wound. It helps to improve epithelialization of skin to prevent infection and promote healing. It is easily available, efficient and cost effective. The application of normal saline is useful in first 24 hours postpartum which reduces inflammatory reaction and oedema.[4]

2. Background of the Study

The origin of episiotomy is difficult to determine, but one of the first to describe it was a midwife, Sir Fielding Ould. In 1742, in his Treatise of Midwifery in Three Parts, he recommended the procedure for those cases in which the external vaginal opening is so tight that labor is dangerously prolonged.[5]The first report of the procedure in the United States was 110 years later in a journal entitled "The Stethoscope and Virginia Medical Gazette". Taliaferro cut a small medio-lateral episiotomy to facilitate delivery in young eclamptic women.[6]For these women, episiotomy was used to facilitate an unusually difficult labor. The use of episiotomy was expanded in 1921, when DeLee published a paper entitled "The Prophylactic Forceps Operation." In this publication, he recommended the use of forceps with a medio-lateral episiotomy, which he believed saved the fetal brain from injury, preserved the integrity of the pelvic floor, and restored the parturient canal to "near perfect."[7]

DeLee believed labor to be disease producing and therefore to be a "decidedly pathologic process."[7] Historically, physicians have been trained to intervene in disease processes, including protecting the mother from the morbidity of the birthing process. It was on this basis that numerous modalities to support the perineum, as well as to incise it, have been described. In the 1920s, a shift to hospital deliveries occurred and with it an increase in operative procedures. A 1915 mail survey of prominent obstetricians indicated that few physicians routinely used episiotomy.[8,9]By 1938, Diethelm asserted that the indications for episiotomy were well established and needed

no defense.[10] This opinion supported the increasing trend of the use of episiotomy.

In developing countries such as Egypt, episiotomy is a common procedure to facilitate vaginal delivery. The World Health Organization (2018) recommends an episiotomy rate of 10% for normal deliveries. Although the frequency of performing an episiotomy is decreasing, 30% to 50% of women may still receive episiotomy. There is a paucity of information regarding the frequency of episiotomy and associated factors at a national and regional level.[11]

3. Need of the study

Pregnancy and child birth are special events in women's lives. Episiotomy continues to be a frequently used procedure in obstetrics despite little scientific support for its routine care. Mothers however suffer much distress after child birth due to painful perineum following episiotomy. The American college of obstetricians and Gynaecologist estimates that as many as 90% of women giving to their first child in a hospital will have an episiotomy. A current medical literature documented that 60% of women with episiotomies reported severe postpartum pain, 25% experienced infection at the site and 20% had problems with intercourse for up to 3 months after birthing. Hence it is evident that special care must be taken to prevent infection, hasten healing and reduce scar.[12]

According to WHO, the number of normal delivery rate was very high 30-72 % per 1000 births.The risk of perineal infections ranges from 2.8 % to higher than 18%.The risk of infections can be high as 20 %. The world health organization has taken a clear stand against routine practice of episiotomy. The episiotomy infections are preventable and can be reduced by practicing clear delivery and post –natal care. Midwives have an important role in the care of episiotomy wound after the childbirth.[13]

Gomaa R, Farrag R, Hashem AE, Mohamed R. conducted a study on effectiveness of betadine versus normal saline dressing on episiotomy wound healing.A quasi experimental study included a Simple random sample of 160 postnatal women (80 mothers used saline dressing and 80 mothers used povidone iodine solution (10%) who had normal vaginal delivery with episiotomy from Ain Shams University Maternity Hospital). The results revealed that normal saline had a positive effect on the healing of episiotomy wound among postnatal mothers in form of lower REEDA scale score and pain scores (VAS).[14]

In the present situation, cost of medical treatment is a major issue influencing the patient and his treatment, now a day the medical insurance companies have started playing a major role in decision making regarding the treatment. Use of normal saline would be cost effective, easy to prepare, readily available and least damaging agent as the healing occurs without local antibiotics or disinfectant. It helps to remove things that can irritate the underlying tissue as well as help to wash out bacteria. It relives stiffness and muscle cramps and reduces redness and edema and hastens the healing of episiotomy.[12]

All these facts described above, evoked a thought in the researcher's mind that there is a strong need in incorporate the use of normal saline into nursing practice. Even through the application of normal saline in an effective method of healing the episiotomy wound, it is not widely used like other treatments. Hence the researcher is interested to conduct the study on effectiveness of normal saline application on episiotomy wound among postnatal mothers.

4. Review of Literature

Jameela S. (2018) conducted a study on effectiveness of sodium chloride application on episiotomy wound healing among postnatal mothers at Government Rajaji Hospital, Madurai. True experimental pre- test post -test design was used. 60 subjects were selected by using simple random sampling. Interventional group sodium chloride application was given twice a day for 3 consecutive days. The result revealed that improvement in wound healing after intervention, confirmed by paired "t" test (t=11.74 and p=<0.001%) level. The study concluded that sodium chloride was effective in wound healing among postnatal mothers.[15]

Resmy v, kardirvelu Divya (2019) conducted a study on effectiveness of salt water application on episiotomy wound among postnatal mothers. 60 patients who met the inclusion criteria were selected by using non –probability convenience sampling technique. After selecting sample, the investigators explained the purpose of the study and informed consent was obtained. Demographic variables were collected and pretest was done by using the REEDA scale. For the experimental group, the saltwater application was give twice a day for five days in 8 hours, control group receives the routine hospital care. On the third postnatal day, post- test was done, the data were tabulated and analysis by descriptive and inferential statistics. The result shows that in experimental group pre –test (3.23%) were mild healed and 29 (97%) were not healed and in control group 30(100%) were not healed. Post-test in experimental group 22 (73%) were healed and 8(27%) were moderately and 13(43%) were mild healed. The calculated value is significant at p<0.005. The study indicates that the application of salt water is effective on episiotomy wound healing among postnatal mothers.[16]

Beula J. (2014) conducted a study to assess the effectiveness of normal saline in healing episiotomy wound among the postnatal mothers. True experimental research design was utilized and data were collected by random Sampling method by using the structured interview method. In the pretest mean value of episiotomy wound healing score in experimental group was 13.30 and the SD score was 93 respectively. The calculated Tb value is 1.29 p=0.19, this difference is small and in experimental group is 0.93 and SD score was .87 were as control group was 4.53 and SD score 1.93 respectively. The calculated value T was 9.33 p=0.001, this difference is statistically significant. Assess the effectiveness of normal saline of healing episiotomy wound of experimental and control group was 21.9%. Therefore application of normal saline in healing of episiotomy wound is very effective among postnatal mothers.[12]

Fetemech Sheikhanetal (2014) conducted a quasi-experimental study to assess the effectiveness of ice pack containing normal saline on the episiotomy wound. The aim was to assess the level of pain, inflammation and bruising of episiotomy wound. The result shown that the mother had significantly less pain on episiotomy wound .The study concluded that the application of ice pack containing normal saline can be use in the postnatal ward and home setting as well.[17]

Problem Statement

A study to assess the effectiveness of normal saline application on episiotomy wound healing among postnatal mothers at Gauhati Medical College & Hospital, Guwahati, Assam.

Objectives of the Study

General Objectives

- To find out the effectiveness of normal saline application on episiotomy wound healing among postnatal mothers.

Specific objectives

- To assess the pre–interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group.
- To assess the post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group.
- To compare the pre interventional and post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group.
- To compare the post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group.
- To associate the level of episiotomy wound healing among postnatal mothers with selected demographic variables.

Operational Definitions

Effectiveness: It refers to improve healing outcome of normal saline application on episiotomy wound healing among postnatal mothers.

Normal saline: It refers to a sterile isotonic solution which contains 0.9 % sodium chloride in 500 ml of water.

Episiotomy: It refers to a surgical incision performed on left medio-lateral and right medio- lateral, made on the perineum during childbirth.

Wound healing: It refers to the ability of perineal skin to regain back in its original pattern after normal saline application on episiotomy wound.

Postnatal mothers: Postnatal mothers who have normal vaginal delivery with left medio-lateral and right medio-lateral episiotomy

Assumption

- Postnatal mothers may have varying or different level of episiotomy wound healing.
- Episiotomy wound care with normal saline may readily available and least damaging agent. It aids in granulation.
- Normal saline application is cost effective and it is easily followed by the postnatal mothers in future.

Hypothesis

(The hypotheses are tested at 0.05 level of significance)

H_1: There is significant difference in the pre interventional and post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group.

H_2: There is significant difference in the post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group.

H_3: There is significant association in the level of episiotomy wound healing among postnatal mothers with their selected demographic variables.

Delimitation

- Postnatal mothers who are admitted in the postnatal ward.
- Specific period of data collection is 4 weeks

5. Research Methodology

A quantitative research approach was adopted by the researcher to assess the effectiveness of normal saline application on episiotomy wound healing among postnatal mothers. The sample for the this study consists of postnatal mothers who have episiotomy wound admitted in postnatal ward of Gauhati Medical College and Hospital (GMCH),, Guwahati, Assam.60 samples were selected by using Convenient sampling technique mothers out of which 30 mothers belong to experimental group and 30 mothers belong to control group. The study consist of independent variable, dependent variable and demographic variable

Independent variables: Normal saline application to the postnatal mothers

Dependent variables: Episiotomy wound healing among postnatal mothers.

Demographic variable: age, religion, education of mothers, occupation, type of family, monthly income, residence, source of information regarding episiotomy care etc.

Obstetric information: parity of mother, haemoglobin level, type of episiotomy, type of suture material used, duration of labour, baby weight , type of perineal pads, no of perineal pad used per day, type of delivery ,presence of any disease during pregnancy, any complication during and after pregnancy etc.

6. Data Analysis and Interpretation

The analysis of data were classified into following sections:

Section I: Distribution of demographic proforma among postnatal mothers in experimental group and control group.

Section II: Distribution of pre-intervention and post intervention level of episiotomy wound healing among postnatal mothers in experimental group and control group.

Section III: Comparison of pre intervention and post interventional level of episiotomy wound healing among postnatal mothers in experimental group.

SectionIV: Comparison of pre intervention and post interventional level of episiotomy wound healing among postnatal mothers in control group.

Section V: comparison of post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group

Section VI: Association between level of healing score with selected demographic variable in experimental and control group.

Main Analysis

Section I: Distribution of demographic proforma among postnatal mothers in experimental group and control group.

Age in years	Experimental Group		Control Group	
	f	%	f	%
a. ≤ 20 years	5	16.6	8	26.7
b. 21-25 years	11	36.7	13	43.3
c. 26-30 years	11	36.7	6	20
d. > 30 years	3	10	3	10
Religion	**f**	**%**	**f**	**%**
a. Hindu	29	96.7	29	96.7
b. Christian	0	0	1	3.3
c. Muslim	1	3.3	0	0
d. Any others	0	0	0	0
Education of mother	**f**	**%**	**f**	**%**
a. Illiterate	0	0	0	0
b. Primary school	0	0	3	10
c. Middle school	3	10	7	23.3
d. High school	8	26.7	9	30
e. Higher secondary school	0	0	0	0
f. Undergraduate and above	19	63.3	11	36.7
Occupation	**f**	**%**	**f**	**%**
a. Housewife	30	100	29	96.7
b. Labourer	0	0	1	3.3
c. Business	0	0	0	0
d. Service	0	0	0	0
e. Others	0	0	0	0
Type of family	**f**	**%**	**f**	**%**
a. Joint	10	33.3	16	53.3
b. Nuclear	20	66.7	14	46.7
c. Extended	0	0	0	0
Monthly income	**f**	**%**	**f**	**%**
a. ≤ Rs 10,000	7	23.3	9	30
b. Rs 10,001- 15,000	15	50	11	36.7
c. Rs 15,001- 20,000	0	0	7	23.3
d. ≥ Rs 20,001	8	26.7	3	10
Haemoglobin level	**f**	**%**	**f**	**%**
a. Less than 10 gm	6	20	6	20
b. 10-12 gm	17	56.7	17	56.7
c. > 12 gm	7	23.3	7	23.3
Residence	**f**	**%**	**f**	**%**
a. Rural area	26	86.7	29	96.7
b. Urban area	4	13.3	1	3.3
Source of information	**f**	**%**	**f**	**%**
a. No information	23	76.7	20	66.6
b. Mass media	4	13.3	5	16.7
c. Relatives/ friends	3	10	5	16.7
d. Health personnel	0	0	0	0
e. Others	0	0	0	0
Parity of mother	**f**	**%**	**f**	**%**
a. Primipara	22	73.3	18	60
b. Multipara	8	26.7	12	40
Type of episiotomy	**f**	**%**	**f**	**%**
a. Right medio-lateral	30	100	30	100
b. Left medio-lateral	0	0	0	0
Type of suture material used	**f**	**%**	**f**	**%**
a. Vicryle	30	100	29	96.7
b. Chromic agent	0	0	1	3.3
c. Silk	0	0	0	0
Duration of labour	**f**	**%**	**f**	**%**
a. Less than 8 hours	2	6.7	3	10
b. 8-10 hours	4	13.3	4	13.3
c. 10-12 hours	14	46.7	15	50
d. > 12 hours	10	33.3	8	26.7
Baby weight	**f**	**%**	**f**	**%**
a. Less than 2.5 kg	7	23.3	3	10
b. 2.5 kg to 3.5 kg	17	56.7	16	53.3
c. More than 3.5 kg	6	20	11	36.7
Type of perineal pads	**f**	**%**	**f**	**%**
a. Commercial pads	11	36.6	7	23.3
b. Hospital pads	2	6.7	6	20
c. Home made	17	56.7	17	56.7
Number of perineal pads used per day	**f**	**%**	**f**	**%**
a. 3-4 pads	2	6.7	10	33.3
b. 5-6 pads	19	63.3	20	66.7
c. > 6 pads	9	30	0	0
Type of delivery	**f**	**%**	**f**	**%**
a. Spontaneous	0	0	0	0
b. Medical induction	29	96.7	30	100
c. Surgical induction	0	0	0	0
d. Vaccum extraction	0	0	0	0
e. Forceps	1	3.3	0	0
Presence of any disease during pregnancy	**f**	**%**	**f**	**%**
a. Yes	4	13.3	0	0
b. No	26	86.7	30	100
Any complication during and after delivery	**f**	**%**	**f**	**%**
a. Yes	3	10	0	0
b. No	27	90	30	100

Section II: Distribution of pre-intervention and post intervention level of episiotomy wound healing among postnatal mothers in experimental group and control group.

Table 1: Frequency and percentage distribution of pre–interventional level of episiotomy wound healing among postnatal mothers in experimental groupand control group, N=60(30+30)

Pre Interventional Episiotomy wound healing	Experimental Group		Control Group	
	f	%	f	%
Healed	0	0	0	0
Mildly Healed	0	0	0	0
Moderately Healed	0	0	0	0
Not Healed	30	100	30	100

Table 2: Frequency and percentage distribution of post–interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group, N=60(30+30)

Post Interventional Episiotomy wound healing	Experimental Group		Control Group	
	f	%	f	%
Healed	11	36.7	0	0
Mildly Healed	13	43.3	0	0
Moderately Healed	6	20	10	33.3
Not Healed	0	0	20	66.7

Section III: Comparison of pre intervention and post interventional level of episiotomy wound healing among postnatal mothers in experimental group, **n=30**

Experimental Group	Mean	SD	Mean Difference	t test value	df	p value
Pre- interventional	12.10	0.995	9.3	16.38	29	0.001**
Post- interventional	2.80	2.976				

****p<0.01 level of significance**

Section IV: Compare the pre interventional and post interventional level of episiotomy wound healing among postnatal mothers in control group, n=30

Control Group	Mean	SD	Mean Difference	t test value	df	p value
Pre-interventional	12.33	1.154	0.80	1.850	29	0.074NS
Post-interventional	11.53	1.814				

NS= Non significant

Section V: Compare the post interventional level of episiotomy wound healing among postnatal mothers in experimental and control group, N=60 (30+30)

Comparison Post Interventional	Mean	SD	Mean Difference	t test value	df	p value
Experimental Group	2.8	0.976	8.73	14.8	58	0.001**
Control Group	11.53	1.814				

****p<0.01 level of significance**

Section VI: Association between post-interventional level of episiotomy wound healing among postnatal mothers with selected demographic variables in experimental group.

Table 3: Association between post-interventional level of episiotomy wound healing among postnatal mothers with selected demographic variables in experimental group, **n=30**

Demographic variables	Post-Interventional			χ^2 value	df	p value
	Healed	Mild	Moderate			
Age in years						
a. ≤ 20 years	1	4	0	9.657	6	0.140^{NS}
b. 21-25 years	4	6	1			
c. 26-30 years	5	3	3			
d. > 30 years	1	0	2			
Religion						
a. Hindu	11	12	6	1.353	2	0.508^{NS}
b. Muslim	0	1	0			
Education of mother						
a. Middle school	1	0	2	5.124	4	0.275^{NS}
b. High school	3	4	1			
c. Undergraduate and above	7	9	3			
Occupation						
a. Housewife	11	13	6	NA	NA	NA
Type of family						
a. Joint	4	3	3	1.411	2	0.494^{NS}
b. Nuclear	7	10	3			
Monthly income						
a. ≤ Rs 10,000	5	2	0	16.05	4	0.003*
b. Rs 10,001-15,000	6	8	1			
c. ≥ 20,001	0	3	5			
Haemoglobin level						
a. Less than 10 gm	2	3	1	0.434	4	0.980^{NS}
b. 10-12 gm	6	7	4			
c. > 12 gm	3	3	1			
Residence						
a. Rural	10	10	6	2.162	2	0.339^{NS}
b. Urban	1	3	0			
Source of information						
a. No information	11	11	1	15.96	4	0.003*
b. Mass media	0	1	3			
c. Relatives/ friends	0	1	2			

***p<0.05 level of significance NS-Non significant**

Table 4: Association between post-interventional level of episiotomy wound healing among postnatal mothers with selected Obstetrical variables in experimental group, n=30

Obstetrical variables	Post-Interventional			χ^2 value	df	p value
	Healed	Mild	Moderate			
Parity of mother						
a. Primipara	9	10	3	2.161	2	0.339^{NS}

b. Multipara	2	3	3			
Type of episiotomy						
a. Right medio-lateral	11	13	6	NA	NA	**NA**
Type of suture material used						
b. Vicryle	11	13	6	NA	NA	**NA**
Duration of labour						
a. Less than 8 hours	1	1	0	3.384	6	0.759^{NS}
b. 8-10 hours	1	2	1			
c. 10-12 hours	6	4	4			
d. > 12 hours	3	6	1			
Baby weight						
a. Less than 2.5 kg	3	4	0	5.434	4	0.246^{NS}
b. 2.5 kg to 3.5 kg	7	7	3			
c. More than 3.5 kg	1	2	3			
Type of perineal pads						
a. Commercial pads	3	5	3			
b. Hospital pads	0	2	0	3.984	4	0.408^{NS}
c. Home made	8	6	3			
Number of perineal pads used per day.						
a. 3-4 pads	2	0	0	5.009	4	0.286^{NS}
b. 5-6 pads	7	9	3			
c. >6 pads	2	4	3			
Type of delivery						
a. Medical induction	10	13	6	1.787	2	0.409^{NS}
b. Forceps	1	0	0			
Presence of any disease during pregnancy						
a. Yes	3	1	0	3.131	2	0.209^{NS}
b. No	8	12	6			
Any complication during and after delivery						
a. Yes	2	1	0	1.562	2	0.458^{NS}
b. No	9	12	6			

NS-Non significant

Table 5: Association between post-interventional level of episiotomy wound healing among postnatal mothers with selected demographic variables in control group, n=30

Demographic variables	Post-Interventional		χ^2 value	df	p value
	Moderate	Not Healed			
Age in years					
a. ≤ 20 years	3	5			
b. 21-25 years	5	8	0.966	3	0.809^{NS}
c. 26-30 years	1	5			
d. > 30 years	1	2			
Religion					
a. Hindu	10	19	0.517	1	0.472^{NS}
b. Muslim	0	1			
Education of mother					
a. Primary school	2	1			
b. Middle school	5	2			
c. High school	2	7	9.481	3	**0.024***
d. Undergraduate and above	1	10			
Occupation					
a. Housewife	9	20	2.069	1	0.150^{NS}
b. Business	1	0			
Type of family					
a. Joint	7	9	1.674	1	0.196^{NS}
b. Nuclear	3	11			
Monthly income					
a. ≤ Rs 10,000	4	5			
b. Rs 10,001-15,000	1	10			
c. Rs 15,001-20,000	4	3	5.195	3	0.158^{NS}
d. ≥ 20,001	1	2			
Haemoglobin level					
a. Less than 10 gm	3	3	1.922	2	0.382^{NS}
b. 10-12 gm	6	11			
c. > 12 gm	1	6			
Residence					
a. Rural	9	20	2.069	1	0.150^{NS}

b. Urban	1	0			
Source of information					
a. No information	7	13			
b. Mass media	1	4	0.525	2	0.769^{NS}
c. Relatives/ friends	2	3			

***p<0.05 level of significance NS-Non significant**

Table 6: Association between post-interventional level of episiotomy wound healing among postnatal mothers with selected Obstetrical variables in control group, n=30

Obstetrical variables	Post-Interventional			χ^2 value	df	p value
	Healed	Mild	Moderate			
Parity of mother						
a. Primipara	9	10	3	2.161	2	0.339^{NS}
b. Multipara	2	3	3			
Type of episiotomy						
a. Right medio-lateral	11	13	6	NA	NA	**NA**
Type of suture material used						
a. Vicryle	11	13	6	NA	NA	**NA**
Duration of labour						
a. Less than 8 hours	1	1	0	3.384	6	0.759^{NS}
b. 8-10 hours	1	2	1			
c. 10-12 hours	6	4	4			
d. > 12 hours	3	6	1			
Baby weight						
a. Less than 2.5 kg	3	4	0	5.434	4	0.246^{NS}
b. 2.5 kg to 3.5 kg	7	7	3			
c. More than 3.5 kg	1	2	3			
Type of perineal pads						
a. Commercial pads	3	5	3	3.984	4	0.408^{NS}
b. Hospital pads	0	2	0			
c. Home made	8	6	3			
Number of perineal pads used per day						
a. 3-4 pads	2	0	0	5.009	4	0.286^{NS}
b. 5-6 pads	7	9	3			
c. >6 pads	2	4	3			

NS-Non significant

7. Discussion

Objective 1: To assess the pre interventional level of episiotomy wound among postnatal mothers in experimental and control group.

The pre–interventional level of episiotomy wound healing among postnatal mothers in experimental group the participants 30(100%) had not healed episiotomy wound healing where as in control group pre-intervention 30(100%) had not healed episiotomy.

The finding of the present study was supported by Beula J. (2018) conducted a study to assess the effectiveness of normal saline in healing of episiotomy wound among postnatal mothers at Govt. Hospital for Women & Children, Chennai. The Chi square test was performed to assess the condition of episiotomy wound before application of normal saline on postnatal mothers. The result of the study showed that 100% of the mothers are not in healed status in both experimental group and control group.[12]

Objective 2: To assess the post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group.

The post–interventional level of episiotomy wound healing among postnatal mothers in experimental group, majority 13(43.3%) had mildly healed episiotomy wound healing, 11(36.7%) had healed episiotomy wound healing and 6(20%) had moderately healed episiotomy wound healing whereas in control group post-intervention majority 20(66.7%) had not healed episiotomy wound healing and 10(33.3%) had moderately healed episiotomy wound healing.

The study finding was supported by **Resmy v, kardirvelu Divya (2019)** conducted a study on effectiveness of salt water application on episiotomy wound among postnatal mothers. The results shows that post-test in experimental group 22 (73%) were healed and 8(27%) were moderately healed, in the control group 2(7%) were healed, 15(50%) were moderately healed and 13(43%) were mild healed.[16]

Objective 3: To compare the pre interventional and post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group.

The comparison of pre interventional and post interventional level of episiotomy wound healing among postnatal mothers in experimental group showed that mean pre-interventional score was 12.10±0.995 and in post-interventional mean score was 2.80±2.976 with mean difference was 9.30. The comparison of mean difference was tested using paired t test

with obtained t value is (t=16.38) was statistically significant at p<0.05 level.

The comparison of pre interventional and post interventional level of episiotomy wound healing among postnatal mothers in control group showed that mean pre-interventional score was 12.23±1.305 and in post-interventional mean score was 11.53±1.814 with mean difference was 0.70. The comparison of mean difference was tested using paired t test with obtained t value is (t=1.555) was statistically non significant at p<0.05 level.

The finding of the present study was supported by **Jameela S. (2018)** conducted a study on effectiveness of sodium chloride application on episiotomy wound healing among postnatal mothers at Government Rajaji Hospital, Madurai. The result showed that in interventional group mean pre-test score was 7.05±0.08 and in post test mean score was 3.80±1.67 with mean difference was 3.70. The comparison of mean difference was tested using paired t test with obtained t value is (t=11.38) was statistically significant at p<0.05 level.Whereas in control group mean pre-test score was 7.73±1.05 and in post test mean score was 7.13±1.22 with mean difference was 0.60. The comparison of mean difference was tested using paired t test with obtained t value is (t=1.92) was statistically not significant at p<0.05 level. [15]

Objective 4: To compare the post interventional level of episiotomy wound healing among postnatal mothers in experimental group and control group.

The comparison of post interventional level of episiotomy wound healing among postnatal mothers in experimental group showed that mean post-interventional score was 2.80±0.976 and in control group mean post-interventional score was 11.53±1.814 with mean difference was 8.73. The comparison between experimental and control group was tested using unpaired t test with obtained t value (t=14.80) was statistically significant at p<0.05 level.

The present study was supported by by**Beula J. (2018)** conducted a study to assess the effectiveness of normal saline in healing of episiotomy wound among postnatal mothers at Govt. Hospital for Women & Children, Chennai.8. The result showed that in the experimental group mean post-interventional score was 0.93±0.87 and in control group mean post-interventional score was 4.53±1.93 with mean difference was 3.60. The comparison between experimental and control group was tested using unpaired t test with obtained t value (t=9.33) was statistically significant at p<0.05 level.[12]

Objective 5: To associate the post interventional level of episiotomy wound healing among postnatal mothers with selected demographic variable.

There was a significant association between the level of healing and demographic variables. Education, Monthly income, and source of information of postnatal mothers were statistically found significant association at p<0.05 level. Statistical significance calculated using chi square test.

This result was supported by **P. Manjula (2012)** conducted a descriptive study which was conducted to examine the factors influencing episiotomy wound healing among 60 postnatal women in Government Talk Hospital, Kundapura. The study reveals that episiotomy wound healing is influenced by parity, frequency of self perineal care, length of episiotomy wound and no of episiotomy sutures present.[18]

8. Nursing Implication

Nursing education

- The result of the study emphasize learners to utilize the knowledge of normal saline application to enhance the healing of episiotomy wound, decubitus ulcers and surgical wound. This procedure can be incorporated in the nursing curriculum.
- Encourage the students to learn about the assessment of episiotomy wound and remedial measures to improve wound healing.

Nursing administration

- The nursing administrator should make arrangements to see that sufficient manpower; money and materials are available for applying normal saline.

Nursing practice

- In this area, nurses could utilize the normal saline application along with the routine perineal care. These measures would help to reduce the wound sepsis, general infection and hasten healing.

Nursing research

- Further research studies can be conducted enhancing the healing and relief of episiotomy wound in the field of warm, moist compression, cold compression, sitz bath, dry heat and various antibiotic ointment applications.

9. Recommendation

The study recommends the following for the future research

- This study results can be implemented in all settings like hospitals and community.
- A similar study can be done for large samples.
- A comparative study can be conducted between various alternative complementary methods to promote episiotomy wound healing among postnatal mothers.
- An exploratory study can be conducted to find out the effect of normal saline for other wound healing.
- A study can be conducted to assess the knowledge and practice of the nurses regarding application of normal saline for wound healing.

10. Conclusion

The investigation had conducted the study to assess the effectiveness of normal saline application on episiotomy wound healing among postnatal mothers at GMCH, Guwahati, Assam. The study findings evidenced that normal saline application is an effective intervention to enhance the episiotomy wound healing which increases the comfort to the postnatal mothers while feeding the babies and for their daily activities during postnatal period. Further the study revealed that there was a significant association between the

post interventional level of episiotomy wound healing with selected demographic variables.

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