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EFFECTIVENESS OF EARLY AMBULATION ON POST-OPERATIVE RECOVERY AMONG PRIMIPAROUS POST CESAREAN MOTHERS- A RANDOMIZED CONTROL TRIAL

Nursing

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ABSTRACT

Introduction: A caesarean section is a surgical procedure by which one or more babies are delivered through an incision made on a mother's abdomen and uterus. After caesarean section, early ambulation and oral intake need to be encouraged, when the effect of anesthesia is minimized. The present study was done to find the association between early ambulation and post operative recovery in primi post caesarean mothers.

Methods: Study design used was Randomized controlled trial. Total 124 samples were chosen by random sampling with block randomization method and divided into two groups. In experimental group, the researcher assessed the pain level and initiated early ambulation after 6 hours of surgery for covering the distance of 40 meter and post operative recovery was assesses by structured observational schedule for first 5 post operative day and in control group mothers were ambulated after 18 hours of surgery as per the hospital protocol.

Results: There is a significant difference between the mean post-operative pain score after ambulation among experimental and control group (7.23,7.98) on day 1, (4.74,6.82) on day 2, (3.11,5.10) on day 3, (1.75,3.27) on day 4 and (1.11,2.28) on day 5 as shown by Independent t-test ($p<0.01$). Other aspects of Post-operative recovery i.e. number of analgesic required, passage of first flatus, initiation of oral intake, initiation of breast feeding, holding baby independently and Incisional pain after ambulation were compared between the group and found to have a significant difference at the level of <0.05.

Conclusion: Therefore early ambulation was effective in postoperative recovery among primi post caesarean mothers and enables the nurses to involve in assisting in early ambulation.

KEYWORDS

Early ambulation, Post operative recovery, Primi , Post caesarean mothers

1. INTRODUCTION

Childbirth is considered a vital aspect of life when a natural, and normal physiologic event brings a newly experience in a woman's life and also the emergence of a baby creates a great emotional, physiological and social impact on a woman and her family.[1]

Those mothers who are going for a cesarean section may be described as a varying degree of uneventful to extreme distress. Early ambulation, initiation of oral intake, holding the baby independently need to be encouraged when the effect of anesthesia is minimized. Studies from the Randomized trials have shown that early ambulation helps in stimulating the gastrocolic reflex and helps in the returning of bowel function after surgery.[2]In India, the Cesarean Section rate has been increased from 2.9 percent of childbirth in 1992-93 to 7.1 percent during 1998-99 and further rise to 8.5 percent in 2005-2006 and a steady rise to 17.2 percent in 2015-2016. So, we can say that there is an unprecedented level of rising in Cesarean Section rates which will ultimately lead to more complications. So, to avoid complication the midwives must be tactful in providing care during the postoperative period[3].

Midwives can play a important role in assisting mothers after cesarean section for ambulation and early recovery. These viewpoints motivate the researcher to assess the effect of early ambulation in terms of postoperative recovery. The study findings will be helpful to identify the best time to ambulate the mothers after the cesarean section and can be implemented in the hospital settings. In this regard, the study is of utmost importance.

2. MATERIAL AND METHODS

We conducted a prospective randomized controlled trial assessing the effectiveness of early ambulation in terms of post operative recovery.

2.1 Participants and randomization

We included primi caesarean mothers who was undergone for cesarean section and admitted in LSCS ward WCH, JIPMER, Puducherry from August to September 2018.Total 124 samples were selected by computer generated block randomization and divided into experimental and control group. The sample size for Seven outcome variables (use of analgesics after ambulation, duration of catheterization, self-void after removal of catheter, passage of first flatus, initiation of oral intake and initiation of breastfeeding and holding baby independently) assuming an alpha error of 5% and power of 80%. The largest sample size was 124 for self void after removal of catheter within one hour(expected 45% in experimental group vs 20% in control group- difference of 25%) and smallest is 22 for initiation of breastfeeding after cesarean section Sample size was calculated by open epi software version 3.1

2.2 Procedure

Before ambulation, the pain score was assessed along with pulse and blood pressure by using a numerical pain rating scale in both experimental and control groups. In experimental group, ambulation was done for primi post cesarean mother after 6 hours of cesarean section covering 40 meters of distance starting from day of surgery to the first 5 postoperative days. The ambulation was done for three times in a day with a time interval of 6 hours. On day 1 ambulation was done for 3-5 minutes, 5-7 minutes on day 2,7-9 minutes on day 3,9-11 minutes on day 4, 11-13 on day 5. The parameter of post-operative recovery was assessed in both the groups by structured observational schedule after completion of 24 hours for every first five postoperative days. It includes intensity of pain perceived by primi post cesarean mother before and after ambulation, use of analgesics after ambulation, duration of catheterization, self-void after removal of catheter, passage of first flatus, initiation of oral intake and breastfeeding and holding baby independently.

Whereas in the control group, the participants received only the routine post cesarean medical and nursing care, as per hospital routine i.e. after 18 hours and they are assessed by using the same structured observational schedule.

To assess the effectiveness of postoperative recovery after cesarean section was assessed by structured observational schedule. Socio-demographic data including age, education, Occupation, Religion, Type of family, Residence, locality, monthly income, Period of gestation, Indication for cesarean section, age at marriage, number of fetus were collected by direct interview and from patients records. The pain score was assessed before and after ambulation with numerical pain rating scale .Postoperative recovery was assessed after every 24 hours of scheduled ambulation for the first 5 postoperative days with structured observational schedule. The study was approved by the

institutional ethics committee Human studies (JIP/IEC/2018/048)

2.3 Outcome
The primary outcome of the study was to assess the effectiveness of early ambulation on post-operative recovery among both the groups. We performed ambulation after 6 hours of surgery in experimental group and after 18 hours in control group and post operative recovery was assessed and compared in both the groups including pain.

2.4 Statistical analysis
The distribution of categorical variables such as education, occupation, type of family, parity, period of gestation etc was expressed in terms of frequency and percentage. The distribution of continuous variables such as age and early ambulation was expressed in terms of mean with standard deviation. Chi-square test was used for comparison of early ambulation and postoperative recovery between the groups. The comparison of postoperative recovery with the categorical variable was also carried out by chi-square test. The difference in the duration of postoperative recovery among both group was tested by independent t-test. All the statistical analysis was carried out at 5% level of significance with a p-value <0.05 as statistically significant.

3. RESULTS
Primary outcome
A total 124 were included. **Table -1** shows distribution of demographic variables. In terms of age, majority of the women were in the group of 24-29 years, 56.5% and 51.6% in control and experimental group respectively. 50% in control group and 45.2% in experimental group were graduates. With regard to period of gestation, 88.7% in control group and 95.2% in experimental group were completed 34 weeks. In case of indication of surgery fetal indication was more as compared to maternal complication,67.7% in control group and 64.5% in experimental group. Most of the mother got married at the age group of 18-23 years in both the groups. Results of mean pain level scores are summarized in **Table-2** shows the comparison between control and experimental groups in terms of level of pain which shows that there was a significant decrease in pain level from day 1 to day 5 in both groups. There is a significant difference between the mean post-operative pain score after ambulation among experimental and control group (7.23,7.98) on day 1, (4.74,6.82) on day 2, (3.11,5.10) on day 3, (1.75,3.27) on day 4 and (1.11,2.28) on day 5 as shown by Independent t-test ($p<0.01$).

Figure-1 shows the Comparison between control and experimental groups of structured observational schedules among primiparous post cesarean mothers. The structured observational schedule which includes Number of analgesic required after ambulation, Passage of first flatus after ambulation, Initiation of oral intake after ambulation, Initiation of breastfeeding, Holding baby independently after cesarean section and Incisional pain after ambulation shows p-value are significant ($p< 0.05$).

Secondary outcome
Table-3 shows the association between the structured observational schedules among primiparous post cesarean mothers with selected demographic and obstetrical variables in the experimental group. While finding association of structured observational schedules with selected demographic variables, significant association was found between initiation of oral intake and type of surgery at the level of <0.05. However there was no association found between analgesics used and passage first flatus after ambulation with selected demographic variables. Significant association was seen between initiation of breast feeding and indication of surgery. In case of holding the baby independently there was association found with type of surgery and age at marriage at level of <0.05. Incisional pain was also found to have significant association with age at marriage at the level of <0.05

4. DISCUSSION
The present study is conducted to assess the effectiveness of early ambulation in terms of post operative recovery. Our study shows that ambulation after 6 hours of caesarean section is effective in terms of post operative except duration of catheterization and passage of urine after removal of catheter at the level of <0.001. Our study result are consistent with other study conducted on early ambulation on selected postnatal activities of post caesarean patients **(Jyoti V Dube,2013)[5].** The result showed that there was a significant difference in the activities carried out by the study subjects of experimental and control group. This indicated the beneficial effect of planned early ambulation on resumption of activities of post caesarean patients.

In addition we have assessed blood pressure and pulse rate of the mothers before ambulation just to prevent from any other complications. Our study has selected 6 parameter for assessing post operative which includes intensity of pain perceived by primi post cesarean mother after ambulation, use of analgesics after ambulation, passage of first flatus, initiation of oral intake and breastfeeding and holding baby independently. To find the association with demographic variables we have selected four variables, those are period of gestation, type of surgery, indication of caesarean section and age at marriage.

We have seen that 56.50% in control and 51.60% in experimental group was from age group of 24-29 years which was also seen in a study where 62.4% in experimental and 57.5% in control group was from age group of 24-29 years **(Pooja Sikha,2015)[6]** . In our study most of the mothers were having gestational weeks more than 34 weeks whereas a study conducted by Pooja Sikha shows gestational weeks were more than 36 weeks.

As most of the surgical cases are due to some emergency purpose or if there is any complication to their health. In our study 74.20% in control and 80.60% in experimental group has undergone emergency LSCS. This is supported by a study on impact of early ambulation and late ambulation shows that 68% in experimental and 64% in control group had undergone through emergency LSCS **(Reema Jacqueline,2017)[7].** In case of indication of caesarean section most of te mothers had undergone LSCS due to fetal indication whereas studies shows that mothers are going for LSCS due to maternal indication instead of fetal indication.

The major findings of the study is significant difference in early ambulation and post operative recovery in both the groups, which was similar to a study conducted on effectiveness of early ambulation on selected post operative recovery **(Suvarna V.M, 2014)[8]** which shows that mean scores of experimental group were more when compared with control group, 8.83 and 3.84 respectively. We noticed a low level level of pain after ambulation in both the groups while comparing the mean level of pain from Day 1 to Day 5 which was more evident in experimental group and further indicated by independent t-Test. However a study conducted **(Kaur H, 2015)[4]** which shows that the difference in pain score in both the group was not significant difference before ambulation but significant difference was observed after ambulation.

Similarly, while comparing between control and experimental groups in terms of structured observational schedules among primiparous post cesarean mothers there was significant association found which was supported by previous study **(Kaur H, 2015)[4].**

Our study failed to find the association between initiation of oral intake and initiation of breastfeeding after LSCS, but significant association was found between holding the baby independently , Incisional pain after ambulation and initiation of breast feeding with selected demographic variables.

There are some limitations in our study. Since we conducted the study only in one hospital, the findings may not be generalizable.

5. CONCLUSION
The present study revealed that Early ambulation is effective in terms of postoperative recovery after cesarean section. The mothers can work independently who ambulated early as compared to those who followed the hospital regimen. There is a need to replicate the study with larger samples for better generalization.

6. Implications of nursing
The implications of the study in various areas of nursing are discussed below which includes Nursing service, education, administration, and research.

6.1 Nursing Practice
Nurse midwives can play an important role in assisting the mother in early ambulation after cesarean section which helps in speedy

recovery. Nurses can conduct the CNE programme, Workshop about early ambulation. Nurses can deliver health education regarding the importance of ambulation during the postoperative period, about early initiation of breastfeeding, how to hold the baby independently etc which will help the mother to do her activities independently.

6.2 Nursing Education

The nursing education can take efforts to teach their students about the effectiveness of early ambulation after cesarean section. Teachers can teach the student about the prevention of complication by early ambulation and student can assist the mother in early ambulation in the supervision of their teachers and Nursing officers

6.3.3 Nursing Administration

Nursing Administration can conduct some classes to educate the nurses about the Importance of initiation of early ambulation. They can also motivate the nurses in conducting CNE programmes. Written policy about the ambulation and guidelines can be implemented in the clinical setting so that the newly entering nurse midwives and doctors will be aware of the protocol of ambulation.

6.4 Nursing Research

The nurse researcher should conduct more research studies. Extensive and vigorous research activities should be carried out by the nurses and nursing students regarding early ambulation in terms of postoperative care. The research study result should be discussed properly and can be implemented for evidenced-based intervention

Table 1: Frequency and Percentage wise distribution of Demographic and obstetrical Variables among primiparous post cesarean mothers in both Control and Experimental Groups

(n=62)

Demographic data	Categories	CON. GROUP		EXP. GROUP		X2	P-value
		N	%	N	%		
Age	18-23years	15	24.2	20	32.3	1.07	0.78
	24-29 years	35	56.5	32	51.6		
	30-34 years	10	16.1	8	12.9		
	Above 34 years	2	3.2	2	3.2		
Educational	Illiterate	0	0	0	0	0.35	0.83
	Primary	10	16.1	10	16.1		
	Secondary	21	33.9	24	38.7		
	Graduate or above	31	50	28	45.2		
Occupation	Housewife	36	58.1	41	66.1	1.79	0.61
	Skilled	11	17.7	6	9.7		
	Semi-skilled	5	8.1	5	8.1		
	Professional	10	16.1	10	16.1		
Type of family	Nuclear family	25	40.3	13	21	16.06	<0.001
	Joint family	26	41.9	47	75.8		
	Extended family	11	17.8	2	3.2		
Religion	Hindu	59	95.2	58	93.5	0.34	0.84
	Muslim	1	1.6	2	3.3		
	Christian	2	3.2	2	3.2		
	Others	0	0	0	0		
Period of gestation	32-34 weeks	0	0	0	0	1.74	0.31
	35-37 weeks	7	11.3	3	4.8		
	>34 weeks	55	88.7	59	95.2		
Type of surgery	Elective	16	25.8	12	19.4	0.73	0.52
	Emergency	46	74.2	50	80.6		
Indication of surgery	Maternal	17	27.4	15	24.2	1.77	0.41
	Fetal indication	42	67.7	40	64.5		
	Combined	3	4.8	7	11.3		
Age at marriage	18-23 years	43	69.4	45	72.6	1.97	0.57
	24-29 years	16	25.8	11	17.7		
	30-34 years	2	3.2	4	65		
	>34 years	1	1.6	2	3.2		

Table 2: Comparison between control and experimental groups of the level of pain among primiparous post cesarean mothers

(N=124)

Day	Control Mean (S.D)	Experimental Mean (S.D)	t-value	p-value
1	7.98 (±0.23)	7.23 (±0.89)	6.41	<0.001**
2	6.82 (±0.66)	4.74 (±0.97)	13.91	<0.001**
3	5.10 (±0.82)	3.11 (±0.90)	12.79	<0.001**
4	3.27 (±0.83)	1.75 (±0.76)	10.47	<0.001**
5	2.28 (±0.69)	1.11 (±0.88)	8.18	<0.001**

Figure 1: Comparison between control and experimental groups of structured observational schedules among primiparous post cesarean mothers

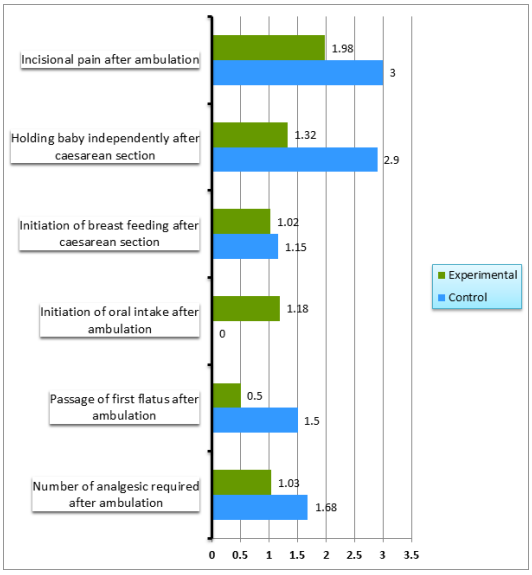

Table 3: Association between the structured observational schedules among primiparous post cesarean mothers with selected demographic and obstetrical variables in the experimental group

Structured observational schedule	Demographic variables	X2	df	P-value
Analgesics required after ambulation	Period of gestation	0.10	1	0.90
	Type of surgery	1.24	1	0.35
	Indication of surgery	3.31	2	0.19
	Age at marriage	0.78	3	0.85
Passage of first flatus after ambulation	Period of gestation	2.43	2	0.29
	Type of surgery	0.27	2	0.87
	Indication of surgery	1.92	4	0.75
	Age at marriage	4.67	6	0.58
Initiation of oral intake after ambulation	Period of gestation	0.68	1	0.55
	Type of surgery	5.83	1	0.028
	Indication of surgery	0.11	2	0.94
	Age at marriage	2.47	3	0.47
Initiation of breast feeding after cesarean section	Period of gestation	0.52	1	0.95
	Type of surgery	0.24	1	0.80
	Indication of surgery	0.98	2	0.01
	Age at marriage	0.38	3	0.94
Holding baby independently after cesarean section	Period of gestation	1.39	2	0.49
	Type of surgery	6.25	2	0.04*
	Indication of surgery	3.48	4	0.48
	Age at marriage	31.8	6	<0.001*
Incisional pain after Ambulation	Period of gestation	0.84	2	0.66
	Type of surgery	2.00	2	0.37
	Indication of surgery	4.6	4	0.33
	Age at marriage	21.3	6	0.002*

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