

Early versus Late Oral Feeding on Selected Post Cesarean Section Outcomes

Mervat Zaghloul Mohammed¹, Tyseer Marzouk¹, Rafeek Barakat²,
Amina El-Nemer¹

¹Department of Maternity and Gynecology of Nursing, Faculty of Nursing, Mansoura University, Egypt,

²Department of Obstetrics and Gynecology, Faculty of Medicine, Mansoura University, Egypt

Abstract

Aim: This study aimed to assess early versus late oral feeding on selected post cesarean section outcomes.

Subjects and Methods: a quasi-experimental research design was used to conduct this study on 80 women who underwent uncomplicated planned cesarean section at Mansoura University Hospital. The intervention group (n=40) initiated oral feeding early; at 2 hours post cesarean section, and the control group (n=40) initiated feeding according to the study setting protocol. The required data were collected using a structured interviewing questionnaire schedule.

Results: Intervention group experienced earlier bowel function return, semi-sitting position, ambulation, breast feeding, and shorter hospital stay compared to the control group.

Conclusion: Early oral feeding post cesarean section was an effective method for early return to bowel function, semi sitting, ambulation, breast feeding initiation, and shorter hospital stay.

Keywords: oral feeding, cesarean section, outcomes.

I. Introduction

Cesarean delivery is a surgical procedure in which incisions are made through a woman's abdomen and uterus to deliver her baby [1]. It is the highest surgical procedure performed by Obstetricians [2]. Cesarean section rates have been rising progressively during recent decades all over the world. In Egypt, cesarean birth rate has been raised dramatically from 27.6, in 2010 to 52% in 2014. It is extreme above the acceptable rate of 10 to 15 percent recommended by World Health Organization [3&4].

In a recent study conducted at Mansoura University Hospital; a tertiary teaching hospital in the delta region in Egypt, the cesarean section rate was significantly increased from 42.7% in 2006 to 55.3% in 2010 [5]. Many reasons have been described for the increasing rate, such as women's choice, fear of and intolerance to pain in vaginal birth, and lack of information and awareness of risks of cesarean section [6].

Cesarean sections are generally short operation involving minimal or no bowel manipulation, so early oral hydration after cesarean deliveries expected to result in less complication and has other benefits, such as early ambulation and a shorter hospital stay [7]. There are many approaches in postoperative dietary management that are followed by health care professionals. Routine practice is to withhold oral intake after cesarean birth until the return of bowel movement or the passage of flatus. This practice is based on the belief that intra-abdominal surgical procedures are followed by paralytic ileus [8]. Thus, the current study aimed to assess early versus late oral feeding on selected post cesarean section outcomes.

1.1 Aim of the study

The current study aimed to assess early oral versus late oral feeding on selected post cesarean section outcomes.

1.2 Study hypotheses

Hypothesis (I): "post cesarean section women who initiate oral feeding early have faster return to bowel function and activities".

Hypothesis (II): "post cesarean section women who initiate oral feeding early have shorter hospital stay".

II. Subjects And Methods

2.1 Study Design

A quasi-intervention research design was selected to achieve the aim of this study.

2.2 Study Setting

This study was conducted at postpartum inpatient ward, Mansoura University Hospital.

2.3 Subjects

A purposive sample of 80 women who underwent primary elective uncomplicated lower segment cesarean section; between the periods of September 2015 to February 2016, was recruited to participate in this study if fulfilled the following **inclusion criteria:** received regional anesthesia, fasted for the same duration

before the surgery, and were free from medical diseases that require special care.

Sample size calculated based on the target variable in this study; the time taken to listen the bowel sound after cesarean section. If the clinically relevant difference in the time period before the initiation of the bowel sound after cesarean section between the intervention and control groups is presumed to be 3.5 hours and the standard deviation 2 (based on data obtained from a previous study[7]; the two-sided significance level of 0.05 (or 5%) is to be used, the power should be 0.8 (or 80%), therefore; by substitution of these data in the sample size formula we have: $2(6)^2(1.96+0.84)^2 / (3.8)^2 = 39.09$. Hence, 80 post cesarean section mothers for two groups were recruited in the current study. Control group (n=40); initiated oral feeding according to the conventional setting protocol; after pass flatus or audible intestinal movements. While, intervention group 2 (n=40); initiated oral feeding early; at 2 hours post cesarean section operation.

2.4 Tool of data collection

One tool was used to collect the required data; namely, structured interviewing questionnaire. It was developed and used by the researcher and consisted of two parts. Part I entailed the participant's general characteristics; such as the participant's age, occupation, residence, and level of education, also it included the obstetric data such as number of parity, presence of previous abortion and indication of current cesarean section. Additionally, it included description of cesarean section operation; in terms of type of anesthesia, duration of the operation, dispensed amount of IV fluids ...etc. While part II Refers to the events related to oral feeding; such as time taken to listen bowel sound and motility, assuming semi sitting position and ambulation, initiation of breast feeding, and duration of hospital stay; all expressed in hours except the hospitalization period.

2.5 Ethical considerations

Ethical approval was obtained from the Research Ethics Committee of the Faculty of Nursing- Mansoura University. Thereafter, study aim was explained to the participants and their consents were obtained.

2.6 Data collection process

Each eligible mother was assigned; by the researcher, to one of two groups, where the first attendance of 40 were assigned to control group; they initiated the oral feeding according to the conventional setting protocol; after return to bowel function; defined as pass flatus or audible intestinal movements. Up to the participants' tolerance, they started to drink sips of plain water, then increased the amount gradually, after that each one was allowed to drink gradually a cup of fenugreek, followed by soft food (e.g., vegetables soup), and thereafter each was allowed to start a regular diet.

The second attendance of 40 were assigned to intervention group, who initiated oral feeding early; at 2 hours post cesarean section operation unrelatedly whether bowel function was returned or no. Participants of this group followed the same oral intake regimen of the control group with one exception; that it was not related to the bowel function return. Once the groups' assignment was done, the assessment sheet of the postoperative events was started to be filled and data on the assigned outcomes were collected.

2.7 Statistical design

The collected data, were coded, organized, categorized, and then transferred into pre designed formats. The statistical analysis of data was carried out using the Statistical Package for Social Science (SPSS). Comparison between the experimental and control groups were done using chi-square test for qualitative variable and t test for quantitative variables at 95% confidence interval. A p-value <0.05 was considered as statistically significant and highly significant when p-value was <0.001

III. Results

Table 1 shows the distribution of the sociodemographic characteristics among the intervention and control groups. It is clear from this table, that there are no statistically significant differences among the two groups in relation to the participants' age, education level, occupation and residence ($P > 0.05$). Participants' of the intervention group was slightly older than those of the control group, with a mean age (27.6 ± 5.9 versus 26.2 ± 5.9 respectively; $t = 1.109$). Secondary school was the highly distributed educational level in the intervention and control groups (72.5% versus 67.5% respectively; $X^2 = 0.887$). Housewives were more than working mothers in both intervention and control groups (82.5% versus 75% respectively; $X^2 = 0.412$). Concerning mother's residence, majority of mothers in both intervention and control groups (82.5% versus 70% respectively; $X^2 = 0.189$) were from rural areas.

Table 2 reveals that post cesarean section mothers who initiated oral intake early required less time to have audible intestinal sounds, pass flatus and opening bowel compared to those in the control group. Differences observed were highly statistically significant ($p < 0.001$).

Mean time elapsed to firstly assume semi-sitting position, walking, and initiate breast feeding among the intervention and control groups displayed graphically in **Figure 1**. It is clear in this figure that participants in the intervention group consumed less time to firstly assume semi-sitting position (3.6 ± 0.6 vs. 8.6 ± 1.6 respectively; $t = 19.044$), walking (4.8 ± 0.8 vs. 10.1 ± 0.6 respectively; $t = 33.524$), and initiate breast feeding (4.2 ± 0.6 vs. 10 ± 2.1 respectively; $t = 16.876$) compared to the control group. Differences observed were highly statistically significant ($p < 0.001$).

Figure 2 shows the comparison of the hospital stay period between the intervention and control groups. This table demonstrates that none of the intervention group's participants stayed in the hospital beyond one day compared to 15% in the control group. However, the majority of the control group (82.5%) spent two days in the hospital, and 2.5% discharged from the hospital after two days. Differences observed were highly statistically significant $p < 0.001$ and $X^2 = 59.130$.

Table 1: Distribution of socio-demographic characteristics among the study groups

Variables	Intervention group		Control group		Chi square test	
	N	%	N	%	X ²	P
Age (years)	27.6 ± 5.9		26.2 ± 5.9		1.109*	0.271
Level of education						
Illiterate	6	15%	7	17.5%	0.239	0.887
Secondary Level	29	72.5%	27	67.5%		
University Level	5	12.5%	6	15%		
Occupation						
Housewife	33	82.5%	30	75%	0.672	0.412
Working	7	17.5%	10	25%		
Residence						
Rural	33	82.5%	28	70%	1.726	0.189
Urban	7	17.5%	12	30%		

Table 2. Frequency distribution of participants of the intervention and control groups according to the time of return to bowel function

Variables	Intervention group		Control group		Chi square test	
	n	%	N	%	X ²	P
Time of audible intestinal sounds						
<4 hours	17	42.5%	0	0%	56.412	<0.001
4 - <12 hours	16	40%	1	2.5%		
12 - <24 hours	5	12.5%	8	20%		
>24 hours	2	5%	31	77.5%		
Time of passing flatus						
<4 hours	7	17.5%	0	0%	34.138	<0.001
4 - <12 hours	9	22.5%	1	2.5%		
12 - <24 hours	18	45%	8	20%		
>24 hours	6	15%	31	77.5%		
Time of opening bowel						
<4 hours	0	0%	0	0%	10.004	0.019
4 - <12 hours	1	2.5%	0	0%		
12 - <24 hours	12	30%	2	5%		
>24 hours	27	67.5%	38	95%		

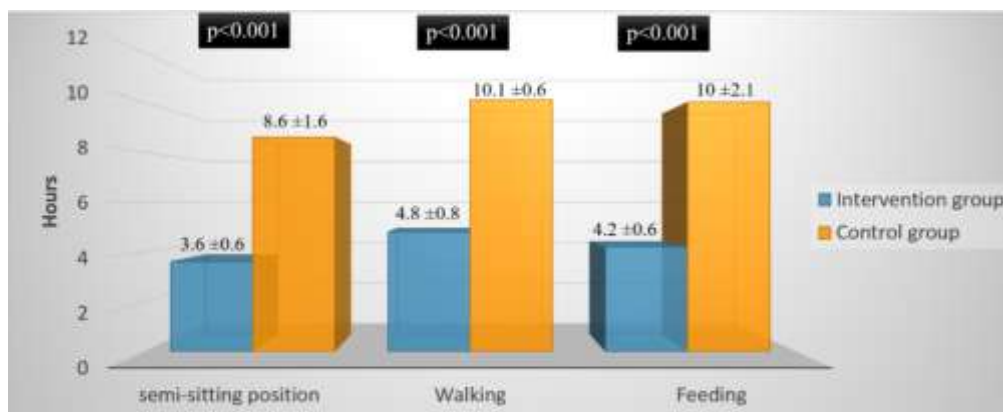


Figure 1: Mean time of selected post cesarean section activities

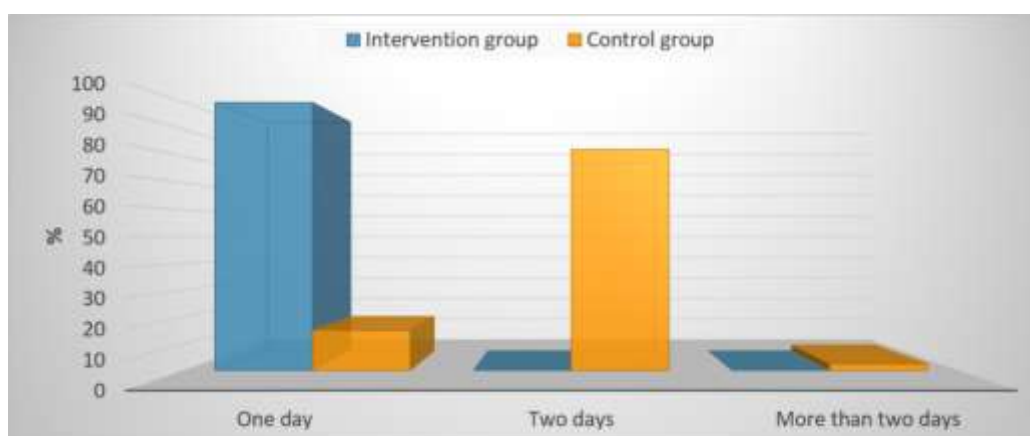


Figure 2. Comparison of the hospital stay period between the intervention and control groups

IV. Discussion

The present study aimed to assess early versus late oral feeding on selected post cesarean section outcomes. This aim was achieved through the present study finding which revealed that the intervention group had earlier onset of bowel function return and assuming certain activities. Thus, the first study hypothesis was achieved "post cesarean section women who initiate oral feeding early have faster return to bowel function and activities".

Concerning bowel function return, intervention group required less time to have audible intestinal sounds, pass flatus and opening bowel compared to those in the control group. Differences observed were highly statistically significant ($p < 0.001$). This finding is consistent with that study [8] which found a highly statistically significant difference in the time of return to bowel movement among both feeding groups. Also, such result was supported by Adupa and colleagues [9] who established that early postoperative feeding did not seem to increase the incidence of postoperative paralytic ileus as it previously expected. Women who fed earlier were more likely to report an absence of symptoms associated with ileus. Similarly, it is consistent with that study which aimed to assess beneficial effects of early feeding post cesarean delivery under regional anesthesia and reported that early feeding group had a more rapid return of bowel function with a shorter time to pass flatus and opening bowel [10]. They stated that the early feeding group had a shorter postoperative time interval to have audible bowel sound, passing flatus and bowel movement.

Concerning post cesarean section mothers' ability to sit and walk, the current study finding indicated that intervention group took less time to semi sit and walk after surgery compared to the control group. This finding is in agreement with the finding of two studies [11&12]; studied the effect of initiation time of oral hydration on the post cesarean section mothers and reported that the early feeding group got out of bed earlier than the conventional group.

Regarding breast feeding initiation, the present study demonstrated that the intervention group started breast feeding before the control group. This finding is consistent with the finding of two studies [10&13], pointed out that the early initiation of feeding post uncomplicated CS led to early commencement of breast feeding. This finding may be attributed to rapid return of normal activity; early assuming semi sitting position, which gave the mothers adequate ability to hold and fed her baby.

Regarding length of hospital stay, differences observed were a highly statistically significant ($p < 0.001$) among both groups, where the intervention group discharged earlier than the control group. Such finding is in accordance with other studies [14&15], reported that early feeding led to a reduced hospital stay. Similarly, a recent study [16] found a significant difference between the previously described groups in service to the early oral intake group ($p = 0.006$). Such agreement between the current study and the other studies finding may be related to the early removal of the urinary catheter, ambulation, initiation of the breast feeding, and the other benefits of early feeding specifically rapid return to the bowel movement.

On the other hand, a more recent study observed a similar hospital stay and no significant difference between the two regimens [13]. In an Iranian study [8], 140 post elective cesarean section with regional anesthesia were assigned randomly into early oral and delayed oral feeding regimens. In the both groups, liquid diets were begun 2 and 8 hours after surgery, respectively. Mothers who were able to tolerate the liquid diet were then gradually introduced to the regular diet. The authors reported a no significant difference among the two groups for the hospital stay. Such disagreement between the current study and the other studies finding may be attributed to the different sample size and the difference in nature of the allowed regimens.

V. Conclusion

Based on the finding of the present study, it can be concluded that early initiation of oral feeding is positively affecting post cesarean section outcomes. It resulted in several advantages for the mothers for example empowering them to return to bowel function rapidly, early assuming semi sitting position, ambulation, breast feeding, and hospitalized shorter.

VI. Recommendation

Based on the current findings, oral feeding shouldn't be withheld from the post cesarean section mothers, they should be allowed to eat and drink when they tolerate and desire.

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