

# EFFECT OF EARLY AND DELAYED ORAL FEEDING ON EARLY AMBULATION OF PATIENTS AFTER CESAREAN SECTION: A RANDOMIZED CONTROLLED TRIAL

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## ABSTRACT

**Introduction:** Because the majority of cesarean surgery is performed under regional anesthesia, some studies suggest that women can receive their usual diet as early as 4–8 hours after surgery and oral intake commenced within the first few hours after cesarean section. The aim of this study was to compare early post-operative oral feeding at 6 hours with delayed post-operative oral feeding at 12 hours after cesarean sections in primigravida in terms of early ambulation.

**Materials & Methods:** Randomized Controlled Trial (RCT) was carried out in the Department of Obstetrics and Gynecology, Ayub Teaching Hospital Abbottabad from March to August 2015. A total of 112 pregnant females who underwent a Cesarean delivery were included in the study; they were divided randomly into two groups of 56 each. Those who had been allowed to take oral food 6hrs after surgery were placed in Group A and those who were allowed oral food after 12 hours were put in Group B.

**Results:** Out of these 112 patients, early ambulation was noted in 53 (52.48%) patients. When outcome measure was stratified according to age of patients, the results were insignificant ( $p= 0.07$ ), but were significant when it was stratified according to the feeding group ( $p = 0.04$ ).

**Conclusion:** This study showed that early oral feeding after Cesarean section results in early ambulation among patients. ( $p=0.04$ ).

**Keywords:** Gestation, Pregnancy, Cesarean section, morbidity, mortality, ambulation.

The authors declared no conflict of interest. All authors contributed substantially to the planning of research (SH), data collection (ABK), data analysis (IS) and write-up of the article (SH, IS) and agreed to be accountable for all aspects of the work.

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## INTRODUCTION

The practice of obstetrics and gynecology has undergone many changes in the past century and one of these changes is an increase in the frequency of cesarean section. In fact, cesarean section has become one of the commonest major surgical procedures in some countries.<sup>1</sup> In Pakistan, cesarean section rates ranging from 36.96%-64.7% have been reported.<sup>2,3</sup> There are many reasons for this increase. Commonly cited reasons are late pregnancies, obesity, multi-fetal pregnancies, and a low rate of utilization of vaginal birth after a previous cesarean section.<sup>1</sup> Multiple cesarean sections usually result in a higher rate of maternal

morbidity especially postpartum hemorrhage.<sup>4</sup> After an uncomplicated cesarean delivery, early initiation of oral feeding results in a reduced rate of ileus symptoms as well as other benefits that arise from a shorter delay to bowel movement, intravenous fluid administration and reduced stay at the hospital.

Early initiation of oral feeding was found to be safe and well tolerated in a study by Mehta *et al.* They found that early post-operative feeding resulted in a better outcome when compared with delayed feeding. It did not cause any significant increase in post-operative morbidity or mortality and produced a higher rate of

patient satisfaction.<sup>5</sup> Similar results were reported by Masood *et al* recently when they found that early post-operative oral feeding after cesarean section produced early return to ambulation, a decreased duration of hospitalization and a greater degree of maternal satisfaction in addition to no adverse outcomes.<sup>6</sup> Early oral hydration results in a faster recovery of patients by means of a rapid return to normal feeding habits and an early ambulation and these are two main concerns of any surgeon before discharging any patient. There is a lack of research from this region regarding comparison of early vs. delayed post-operative oral feeding and this study will be the first such study in this region.

The aim of this study was to determine the effect on early ambulation in patients undergoing Cesarean section comparatively in patients with early post-operative oral feeding vs. delayed post-operative oral feeding following cesarean section in primigravida. This study will help us determine the efficacy of early post-operative oral feeding at 6 hours in terms of lesser post-operative complications with early return of bowel movements, passage of flatus, lesser hospital stay, early ambulation, and early discharge from hospital when compared with delayed post-operative oral feeding which is usually allowed at 12 hours after the cesarean section in the primigravida. The results will be useful to the caregivers for implementation of meaningful interventions.

## **MATERIALS & METHODS**

This randomized controlled trial was conducted in the Department of Gynecology and Obstetrics, Ayub Teaching Hospital Abbottabad from March 2015 to August 2015. Consecutive (non-probability) sampling technique was employed to recruit patients. Primigravida with singleton pregnancy at a minimum of 37 weeks of gestation calculated

from the date of last menstrual period and those getting spinal anesthesia were included in the study. Women with previous history of abdomino-pelvic surgery, women with antepartum or post-partum hemorrhage and women with history of peptic acid disease were excluded from the study. Primigravida with singleton pregnancy at  $\geq 37$  weeks of gestation admitted in the Gynae Unit C who required cesarean section were included in the study.

The study was conducted after approval from hospitals ethical and research committee. The purpose and benefits of the study was explained to the patients and / or their relatives and they were assured that the study was being done for research purpose, they were explained about the potential risks involved and after they agreed to it, an informed written consent was obtained from all patients.

This randomized controlled trial enrolled 112 patients who were divided into two groups of 56 patients each by blocked randomization. Women in Group A were allowed oral hydration followed by soft diet after 6 hours following cesarean section and women in Group B were allowed oral feeding after 12 hours.

Early ambulation was defined as the ability of the patient to get out of bed and engage in light activity (such as sitting, standing, or walking) within 15 hours after Cesarean section.

All women underwent lower segment cesarean section under spinal anesthesia through Pfannenstiel incision. Ability to ambulate within 15 hours after surgery was noted for patients in both groups. Patients were discharged as soon as their condition became stable with return of normal bowel movement. All the treatment procedures and in patient assessments were carried out under strict supervision of a consultant gynecologist having a minimum of 5 years of experience.

All the above mentioned information including name, age, gender and address was recorded in a pre-designed Performa.

Data were analyzed using SPSS version 10.0. Quantitative variables like age were described as Mean  $\pm$  SD. Categorical variable, that is, early ambulation was described as percentage or frequency. Data was stratified by age with respect to outcome variable i.e., early ambulation. Chi-square test at 5% significance level was used to determine significant

differences between the groups with respect to the outcome variable.

## RESULTS

The mean age of 112 subjects was  $25.28 \pm 2.22$  years. The youngest study participant was 22 years old and the oldest was 28 years. Overall, 63(56.25%) patients were able to ambulate early while 49(43.75%) patients were not able to ambulate within 15 hours of Cesarean section (Table 1).

**Table 1: Frequency of early ambulation among subjects (n=112).**

#	Ambulation after Lower Segment Cesarean Section	Frequency	Percent
1.	Within 15 hours	63	56.25
2.	After 15 hours	49	43.75
<b>Total</b>		<b>112</b>	<b>100.0</b>

The outcome variable i.e., early ambulation was stratified according to age of patients and the

results were not significant ( $p$  0.07).

**Table 2: Cross tabulation of early ambulation and age of study participants.**

#	Early Ambulation	Age of Patients (years)		Total	$p$ value
		21-25	26-30		
1.	Yes	38	25	63	0.07
2.	No	21	28	49	
<b>Total</b>		<b>59</b>	<b>53</b>	<b>112</b>	

There was, however, significant difference between the early feeding and late feeding groups

with respect to the outcome variable ( $p=0.04$ ).

**Table 3: Cross tabulation of early ambulation and feeding groups of study population.**

#	Early ambulation	Post-Operative Feeding		Total	$p$ value
		Early	Late		
1.	Yes	37	26	63	0.04
2.	No	19	30	49	
<b>Total</b>		<b>56</b>	<b>56</b>	<b>112</b>	

Among the patients in the early and late feeding groups, when the outcome variable was stratified

according to age, the results were found to be significant ( $p=0.02$ ).

**Table 4: Cross tabulation of early ambulation and age in the two feeding groups.**

Early Ambulation	Age of Patients		Total	p value
	21-25 years	26-30 years		
Early Feeding Group				
Yes	26	11	37	0.02
No	7	12	19	
<b>Total</b>	<b>33</b>	<b>23</b>	<b>56</b>	
Late Feeding Group				
Yes	12	14	26	0.02
No	14	16	30	
<b>Total</b>	<b>26</b>	<b>30</b>	<b>56</b>	

## DISCUSSION

Cesarean section continues to be the most common surgical delivery procedure. Its rate of use continues to increase globally. Improvements in this procedure have been shown to reduce the incidence of complications and length of hospital stay. These clinical parameters depend on multiple factors including wound complications, fever, and bowel function. In particular, oral feeding has a major impact on postoperative return of normal bowel function.

It has been suggested that a liquid diet can be successfully introduced on day 1 after uncomplicated surgery. A normal diet can then be given on return of flatus or bowel function. Until recent years, oral fluids were not given until at least 8 h post-cesarean surgery. This rationale relates to potential complications such as nausea, vomiting and abdominal distention, which may follow oral feeding before return of bowel function. These may lead to wound dehiscence, anastomotic complications or aspiration.

With changing surgical attitudes, however, the benefits of early oral feeding, especially after cesarean section, are being reconsidered. Early feeding can reduce the rate of body protein depletion, improve wound healing, impact

positively on psychological status, and reduce the incidence of nosocomial infections, length of hospital stay and treatment costs.

Because the majority of cesarean surgery is performed under regional anesthesia with low intestinal manipulation and patients are mostly young, some researchers believe that these women can receive their usual diet as early as 4–8 h after surgery. There are even some studies which suggest that oral intake can be commenced within the first few hours after cesarean section. However, the optimum time for this has not yet been fully agreed.

This study tested the hypothesis that there is no use delaying feeding in patients after Cesarean section and that early feeding is associated with increased mobility and a better outcome. The study comprised of 112 patients divided into two groups of 56 patients each using blocked randomization. Group A comprised of patients who had been allowed oral feeding as soon as 6 hours after a lower segment Cesarean section while Group B patients were allowed oral feeding only after 12 hours post-Cesarean. Although the study did not find any association between the age of the study participants and the outcome variable, i.e., early ambulation, there was significant association between age and the

outcome variable in patients who were allowed early feeding ( $p=0.02$ ). These results which indicate a possible role of early oral feeding after Cesarean section are in tandem with other results reported across the world.

Recently, a systematic review and meta-analysis by Hsu *et al.* reported that early oral intake after cesarean delivery improves the return of gastrointestinal function and does not increase the occurrence of gastrointestinal complications.<sup>7</sup>In this systematic review and meta-analysis, seventeen studies met eligible criteria and were retrieved, including 14 RCTs and three non-RCTs. The majority of early oral intake was provided within 6–8 hours after cesarean delivery. Early oral intake was significantly related to the return of gastrointestinal functions compared with delayed oral intake (bowel sounds –9.2 hours; passage of flatus –10 hours; bowel evacuation –14.6 hours). Early oral intake did not significantly increase the occurrence of gastrointestinal complications compared with delayed oral intake after cesarean delivery (ileus symptoms 18.7% compared with 18%, odds ratio [OR] 0.98; vomiting 5% compared with 5.5%, OR 0.9; nausea 10.3% compared with 10.3%, OR 1.03; abdominal distention 9.3% compared with 11.6%, OR 0.82; diarrhea 3.4% compared with 5%, OR 0.62).

Similarly, another systematic review from China reported that there was no benefit of withholding food and fluids after a Cesarean section.<sup>8</sup> The researchers included 20 studies in this meta-analysis including 4584 women who had undergone cesarean. No significant differences were identified in patient satisfaction and frequency of postoperative complications. Compared with DOF, EOF promoted a quicker return of bowel sounds, flatus, bowel movement, and regular diet ( $p<0.001$  for all). Significant reductions were also noted in duration and amount of intravenous

fluids, length of hospital stay, and time to first breastfeeding ( $p<0.001$  for all).

In the current study, early ambulation was found to be associated with early oral feeding after surgery. Recently, a study from India has reported that early ambulation is effective in postoperative recovery among post caesarean mothers.<sup>9</sup> In this quasi-experimental study, Total 80 subjects were enrolled by total enumerative sampling technique, 40 in each experiment and control group. Subjects in experiment group were early ambulated at 6 hours of caesarean section covering a distance of 40 meters whereas control group was ambulated as per routine care i.e. after 13-14 hours of caesarean section. Post-operative recovery was assessed in both the groups by structured nursing assessment sheet including intensity of pain perceived by post caesarean 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 breast-feeding and holding baby independently. Pain score was assessed with numerical pain rating scale. Results showed that there was significant difference between the mean post-operative pain score after ambulation among experimental and control group as shown by Independent t-test ( $p<0.05$ ). Other aspects of Post-operative recovery were compared between experiment and control group by independent t-test. This difference was statistically significant in all the variables except duration of catheterization as per the independent t-test ( $p<0.05$ ).

## CONCLUSION

Early oral feeding after Cesarean section plays an important role in patients' return to ambulation and normal lifestyle, particularly in case of younger females.

## STUDY LIMITATIONS

The small sample size does not allow generalization of results to the whole population. Only primigravida were selected, therefore these results cannot be used for the multigravida and grand multigravida.

## RECOMMENDATION

A study with a large sample size and inclusive of multigravida and grand multigravida is needed to determine and check the significance of association found in this study.

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