

## IMPACT OF EARLY VS DELAYED ORAL FEEDING ON HOSPITAL STAY AFTER CAESAREAN SECTION UNDER REGIONAL ANESTHESIA

Nadia Arif, Raja Qaseem Ahmed, Ayesha Arif\*, Bushra Zafar, Farrukh Shehzad

Combined Military Hospital, Okara Pakistan, \*Combined Military Hospital/National University of Medical Sciences (NUMS) Rawalpindi Pakistan

### ABSTRACT

**Objective:** To compare the impact of early versus delayed oral feeding on postoperative hospital stay and patient satisfaction after an uncomplicated cesarean section under regional anesthesia.

**Study Design:** Comparative prospective study.

**Place and Duration of Study:** Gynecology and Obstetrics department Combined Military Hospital Bannu, from Dec 2017 to Dec 2018

**Methodology:** Initially 215 patients were enrolled; who were planned for cesarean section under spinal anesthesia but in 8 patients spinal was converted to general anesthesia, while 7 patients refused to participate in trial. Patients were randomly allocated by lottery method to each group. Women in the early feeding group were allowed to start oral sips of fluids 2 hours post operatively while in delayed feeding group oral fluids were started after 12 hours. Primary outcome measures were hospital stay and patient satisfaction. Secondary outcome measures were nausea, vomiting, passage of flatus, and return of bowel sounds.

**Results:** Hospital stay was short in early feeding group being  $19 \pm 1.95$  hours versus  $29 \pm 6.7$  hours ( $p$ -value 0.03) in delayed feeding group. Early feeding group has higher level of satisfaction 80% as compared to 49% in delayed feeding group ( $p$ -value  $<0.04$ ).

**Conclusion:** Early commencement of oral feeding after uncomplicated cesarean section under regional anesthesia is associated with short hospital stay and higher level of patient satisfaction.

**Keywords:** Cesarean section, Delayed feeding, Early feeding, Hospital stay, Patient satisfaction.

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### INTRODUCTION

Caesarean section is a commonly performed surgical procedure and it accounts for more than 25% of all deliveries in USA<sup>1</sup> and UK<sup>2</sup>. The estimated prevalence of caesarean delivery in developing countries like Pakistan is approximately 27%-45%<sup>3,4</sup>. After abdominal surgery it is customary for the patient to remain nil by mouth for certain hours or until the return of bowel movements which is characterized by presence of bowel sounds or passing the flatus. In obstetrics after performing the caesarean section, time for starting of oral fluids or food for the patient vary considerably between different institutions and individual practitioners, which may range from starting of fluids or food early to after 24hrs or more<sup>5</sup>. Common practice until recent years was to

restrict oral fluids after caesarean section as the potential complications such as epigastric discomfort in form of nausea, vomiting and abdominal distention may occur when oral feeding is started before return of bowel functions. Thus the main purpose of keeping the patient nil by mouth postoperatively was to prevent the occurrence of ileus and avoiding the untoward side effects after an abdominal surgery<sup>6</sup>. However in case of caesarean sections as compared to other abdominal surgical procedures there is generally minimal bowel manipulation as well as the duration of surgery is relatively short thus bowel functions are restored early<sup>7</sup>. It is for this reason that nowadays recommendation of early oral intake is advocated as compared to the traditional delayed dietary regimen for the patients after caesarean section<sup>8</sup>. Moreover early postoperative feeding has been related to some additional advantages such as a rapid return of bowel sounds<sup>9</sup> and a significant decrease in hospital stay, prompt

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**Correspondence:** Dr Nadia Arif, Consultant Gynaecology, Combined Military Hospital, Okara Pakistan  
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recovery of the patient and early initiation of breast feeding in obstetrical patients. The logical basis of an early enteral feeding is that the food intake can stimulate a reflex that produces propulsive co-ordinated gut activity and it also may elicit the secretion of some gastro-intestinal hormones, thus causing an overall positive effect on bowel motility and hence having an advantage over the concept of waiting for bowel sounds to return and then to start orally in postoperative scenario<sup>10</sup>.

The rationale of the study was to analyze the impact of early postoperative oral feeding as compared to the conventional feeding protocol, on maternal satisfaction and the length of hospital stay, in women with uncomplicated caesarean section under regional anesthesia.

## **METHODOLOGY**

It was a comparative prospective study done in Gynaecology and Obstetrics department Combined Military Hospital (CMH) Bannu from Dec 2017 to Dec 2018.

Assuming 25% prevalence of caesarean section with a 90% power and a 4% margin of error the sample size was calculated. This was done using a WHO sample size calculator. The inclusion criteria for the study were, all patients having a term, singleton pregnancy and planned caesarean section under spinal anesthesia. Exclusion criteria were caesarean section under general anesthesia, intra-partum blood loss was >1000 ml, patients having previous history of bowel surgery, patients having any other co-morbid illnesses and all those patients who had intra-operative or immediate post-operative major complications. After approval of study protocol by the Ethics Committee of the Hospital, IERC/OBS/2018/02. A total of 215 patients were recruited for the study, but in 8 patients spinal was converted to general anesthesia, while 7 patients refused to participate in trial. Informed consent was obtained from every patient. The Women were allocated to the early feeding group (EF) and delayed feeding group (DF) by lottery method.

In the patients assigned to Early Feeding group, oral fluids were started 2 hours after the surgery while the patients in Delayed Feeding group were allowed to take oral fluids 12 hours after the surgery. The EF group was given 30 ml (half a cup) of liquid (plain water, green tea) 2 hours after the surgery. If tolerated well, this amount was doubled and they received 60 ml (one cup) of fluids and other fluids like soup, fresh juices, tea and milk were added so that they could consume total of 200-250 ml of liquid. Solid diet was started 12 hours after the surgery. Women in DF group received oral fluids 12 hours after surgery and a solid diet 24 hours after surgery. Only in case of any untoward symptomatology like nausea, vomiting or clinical deterioration of the patient, the allocated regime for feeding was changed and symptomatic management was carried out. All the durations were recorded as hours from the completion of surgery. Mild ileus was defined as nausea and abdominal pain in the first 12 hours and severe ileus was defined as persistent nausea, vomiting (>3 episodes), abdominal pain and abdominal distension of >6 cm at the level of umbilicus within 12-24 hours after surgery. The level of maternal satisfaction was measured on a visual analogue scale (0-5 unsatisfied, 5-10 satisfied). For abdominal distension base line abdominal girth was recorded immediately after the surgery and then 8hrly in all patients.

Soon after the patient had taken her full meal and there were no complaints like nausea and vomiting, the intravenous fluids were stopped and foley catheter was removed in both the groups and patient was mobilized. Early ambulation was encouraged in both the groups. Length of hospital stay was calculated from the time of surgery (zero hr) to the time the patients were discharged from the hospital. The criteria for discharge of the patients from hospital were all those who tolerated the normal diet without nausea, vomiting, had normal bowel movements and were afebrile for at least 18 hours after surgery. The primary outcomes were hospital stay and patient satisfaction. The secondary

outcomes included nausea, vomiting, return of bowel sounds, passage of flatus and abdominal distension.

Statistical analysis was performed using SPSS version 22. Quantitative variable like age, hospital stay, return of bowel und and passage of

**Table-I: Primary and secondary outcomes between both groups.**

Outcomes	Early feeding n=100	Late feeding n=100
Bowel sound (hrs)	7.8 ± 0.93	11.75 ± 0.91
Flatus (hrs)	12.38 ± 0.66	15.12 ± 0.54
Nausea (%)	35	32
Vomiting (%)	16	12
Distention (%)	2	6

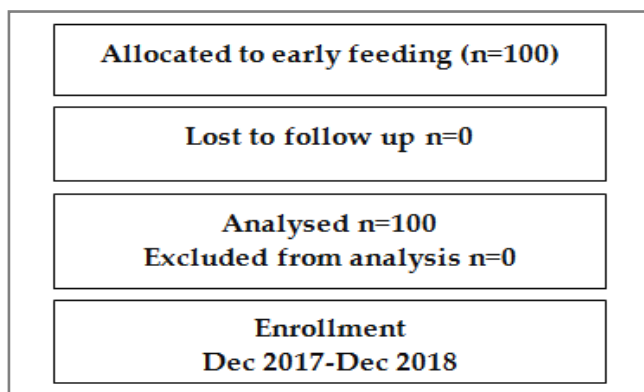
**Table-II: Cross tables for patient satisfaction.**

	Early feeding	Delayed feeding
Yes	80 (80%)	48 (48%)
No	20 (20%)	52 (52%)

flatus were reported as mean and standard deviation and analyzed using paired sample t-test. For qualitative variables like patient satisfaction, nausea, and vomiting, abdominal distention frequencies were calculated and analyzed using chi-square test. A *p*-value <0.05 was considered statistically significant.

**RESULTS**

Out of total 200 patients, 100 in each early feeding and delayed feeding group demographic



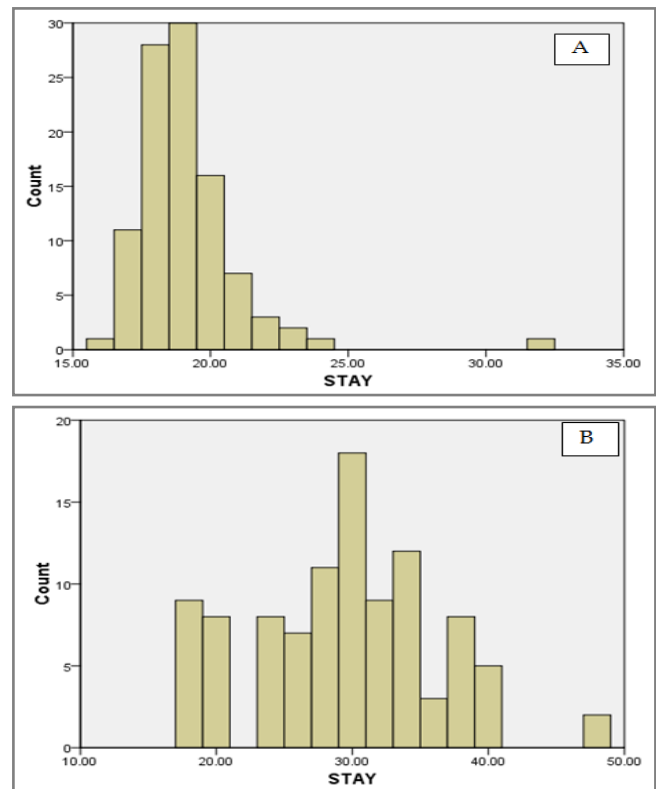
**Figure-1: Study flow diagram.**

characteristics including age, parity, gravidity, gestational age and indications for caesarean section were approximately similar in both

groups. Early feeding group has early return of bowel sounds and passage of flatus. Frequency of nausea, vomiting was slightly higher in early feeding group as shown in table-I.

**DISCUSSION**

All over the world there has been a rise in the rate of caesarean section during recent decades<sup>10,11</sup>. The traditional concept of starting the oral feeding of women after caesarean section until return of the bowel activity is under review. Recent advances in the surgical practices, early



**Figure-2: Histogram to show hospital stay (hrs) A: early feeding, B: delayed feeding.**

oral feeding after caesarean section is advocated<sup>12</sup>. In our study the maternal satisfaction rate was higher in EF group (80% vs 48%) because the women were less thirsty and hungry than DF group. Similar maternal satisfaction rates were observed in other studies<sup>13,14</sup>. In the study 77% of women in the EF group were able to ambulate within 15 hours post-operatively and 65% of participants in DF group. Similar results were obtained in the study conducted by Masood *et al*<sup>3</sup>.

Nausea was a little higher in EF group 32% EF versus 35% in DF group but no significant difference was observed in terms of abdominal distension and paralytic ileus. Study by Kovavisarach and Attakorn<sup>4</sup> showed comparable results. No significant difference was observed in time of first auscultation of bowel sounds and passage of flatus in the two groups. Encouraging results about early start of oral sips were obtained during an audit of an early feeding program in France<sup>15</sup> which showed that during the post-operative period, thirst was the major concern of patients rather than being hungry and after the early feeding program was introduced, the satisfaction level of the patients was much improved during the immediate postoperative period<sup>15</sup>.

It has become very important to reduce the morbidity and increase satisfaction rate of the patient related to this frequently performed procedure. Toeh *et al*<sup>16</sup> randomized 196 women undergoing caesarean section under regional anesthesia to compare the incidence of ileus in early and late feeding groups. As a secondary outcome they measured maternal satisfaction. They found a higher rate of satisfaction in the early feeding group which is comparable to our study. Jalalian *et al*<sup>7</sup> randomized 140 patients into early feeding and delayed feeding groups (2 hours versus 8 hours after caesarean section) who underwent caesarean section under regional anesthesia. They concluded that early oral feeding given 2 hours after caesarean section has positive impact to reduce time to return of normal bowel functions with no significant effect on gastrointestinal complications.

Al-Ghareeb conducted a study and found that early intake of a low residue diet is well tolerated in women after caesarean section under general anesthesia. He found no significant difference in the incidence of ileus between early fed and traditionally fed women. In a study conducted by Masood *et al*<sup>5</sup> 1174 women undergoing uncomplicated caesarean section were allocated to early (after 2 hours) or conventional (after 12 hours) feeding groups. They found low intensity

of thirst and hunger and a higher rate of maternal satisfaction in early feeding group ( $p < 0.05$ ). Teoh<sup>16</sup> in their study in USA found that women who received early feeding had a short hospital stay and a consequent impact on hospital charges, the incidence of mild ileus was 14% in early fed and 8% in those fed at the traditional post-operative times<sup>17</sup>. Among the 200 patients in our study the overall incidence of ileus was 84% vs 91% with 1% patient with severe ileus<sup>18,19</sup>. In a Review of early compared with delayed oral sips and food after caesarean section Mangesi found no evidence from the randomized trials reviewed to justify a policy of withholding oral fluids after uncomplicated caesarean section. No disadvantages of early fluids or food were identified in the studies reviewed. However the overall numbers reviewed were too small to exclude the possibility of rare adverse events. Mehta<sup>13</sup> and Devi conducted a study in India and Orji from Nigeria also reported short hospital stay with early feeding. In the study conducted by Masood *et al*<sup>20</sup> from Pakistan the length of hospital stay between early feeding and delayed feeding groups differed by only 3 hours while in our study the duration for which patient stayed in hospital differed by 10 hours.

## CONCLUSION

This trial shows that early feeding after uncomplicated caesarean section under regional anesthesia in low risk women resulted in short hospital stay, higher level of maternal satisfaction and is as safe as traditional approach. This augments the approach of clinicians worldwide who are safely implementing early feeding following caesarean section.

## CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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