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ORIGINAL ARTICLE

Early Maternal Feeding Versus Traditional Delayed Feeding After Cesarean Section: A Pilot Study

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About the Author

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Abstract

Background Cesarean section is on the rise all over the world; it has become a safe surgery due to better anesthesia, asepsis, blood transfusion and antibiotics. Traditionally, the patients are kept nil orally till they pass flatus. This study was performed to find out acceptance and tolerability of early feeding, its side effects and complications if any.

Methods This comparative study was conducted in a service hospital. There were two groups of 70 cases each where one was administered early feeding and the second group was put on standard delayed feeding as is traditionally done in most of the hospitals. Gastrointestinal outcomes and other parameters were noted in both the groups and analyzed.

Results During the study period, every alternate willing case without any exclusion criteria was allotted to each group. Early feeding was started 6 h after surgery in the study group, whereas it was withheld till passage of flatus in the control group. Appearance of bowel sounds and passage of flatus were earlier in study group (21.6 and 34.5 h, respectively) as compared with control group (31.7 and 49.2 h, respectively). There were no complications or side effects of early feeding.

Conclusion There is no justification to withholding oral feeds as is traditionally done. Early feeding should be initiated without fear of any side effects. Patients have an

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early postoperative recovery; it is cost-effective and results in higher patient satisfaction.

Keywords Early oral feeding · Cesarean section · Gastrointestinal effects

Introduction

Incidence of cesarean section (CS) [1] has been rising all over the world; probably, this is the most common major abdominal surgery. Its incidence has been quoted at 13–39%. It is as high as 50% in certain private settings, and China has been cited as having the highest rates of CS in the world [2]. According to the World Health Organization [3], its acceptable incidence should be 5–15%, but the previous recommendation of 15% CS rate was withdrawn in June 2010. Their official statement read, 'There is no empirical evidence for an optimum percentage. What matters most is that all women who need CS receive it.'

CS has become extremely safe over the years; this has been possible due to low transverse uterine and abdominal incision, safe and better anesthesia techniques, strict adherence to asepsis, antibiotics, blood and blood products availability, and high-quality suture material. Other contributing factors are better understanding of physiology of wound healing and improved surgical skills along with doing away of old and archaic non-scientific practices. Today, this procedure is so safe that Caesarean Delivery on Maternal Request (CDMR) has been accepted by many doctors and institutions [4].

Though CS is a major abdominal surgery, it is different from other abdominal surgeries. Most CS are performed for obstetrical indications rather than medical indications, and patients are well prepared preoperatively, especially in elective cases. These patients are young, in good health and well nourished. It is a relatively short operation, without much bowel manipulation and usually not infected. In the past, CS was equated with other major abdominal surgeries and postoperative management too was on similar lines. It was believed that abdominal surgery including CS restrained bowel mobility; thus, postoperative ileus was feared to be a common complication. Hence, ambulation was delayed; oral feeding was started only after the bowel sounds were heard and patient had passed flatus. It was believed that the bowels need rest after all abdominal surgeries, and feeding will interfere with the function of resting bowels. This belief was not only prevalent among the lay public but even the medical staff felt the same. Masood et al. [5] found in their study that 61.6% of the doctors in Obstetrics and Gynecology had the perception that early start of solid diet may lead to ileus and wound dehiscence, whereas 3.4% feared burst abdomen.

There is no scientific evidence to withhold oral feeds for a long duration after CS yet it is the practice in most hospitals. Early oral feeding is claimed to improve patients' satisfaction, helps in early mobilization and results in shortened hospital stay. Cost of oral feeding is much less than the daily cost of intravenous fluids, intravenous sets, cannulas and nursing care.

This pilot study was undertaken to introduce early oral feeding in uncomplicated CS, and to find out the acceptability, tolerability, gastrointestinal outcomes, compared with traditional delayed feeding.

Materials and Methods

This pilot study was conducted in a tertiary hospital of Indian Armed Forces; it was performed with the aim to find out the acceptance, tolerability and benefits of early oral feeding, if any, and to compare with those who were started on delayed feeding as traditionally done. Gastrointestinal outcomes were studied in the two groups and analyzed if the differences were significant. The study was conducted over a period of 6 months after obtaining clearance from institutional ethics committee. The staff working in the postoperative wards was briefed initially about the project. All CS cases done during the study period, elective or emergency, irrespective of the period of gestation, whether under regional or general anesthesia without exclusion criteria were offered to be a part of the study. Those willing were included in the study after obtaining informed consent.

Sample size was calculated using $n = \frac{2\sigma^2(z_1-\alpha+z_1-\beta)^2}{(|\mu_T-\mu_S|-\delta)^2}$ formula in consultation with statistician, taking 'Equivalence limit in difference in means' = 2, 'Expected difference' = 0, 'Standard deviation' = 4, 'Effect size' = 0.5, 'Power (%)' = 80, 'Alpha Error (%)' = 5. By using this formula, minimum sample size was 49 in each group. Seventy cases could be included in each group as the pilot study was performed over a period of 6 months.

There were two groups, Group 1 consisted of early feeding and Group 2 consisted of patients who were on delayed feeding as traditionally followed. Both the groups consisted of 70 cases each, the cases which qualified for the study were allotted to each group alternately. Group 1 was administered 50–100 ml of plain water, weak tea or lime water depending on the patient's choice, 6 h after surgery. This was done only after confirmation of stable general condition and normal vital parameters and only if there was no nausea/vomiting or pain abdomen. This was continued every 30–60 min for 4–6 h according to her preference and acceptability. Total of 500–600 ml of fluid was administered over 6 h. They were fed biscuits or toast after 12 h of

Table 1 General parameters

Parameter	Subgroup	Group 1 ($n = 70$)		Group 2 ($n = 70$)		p value
		n	%	n	%	
Gravida	Primigravida	24	36.6	30	45.0	0.385
	Multigravida	46	63.3	40	55.0	
Type of CS	Elective	54	76.6	42	70.0	0.469
	Emergency	16	23.3	18	30.0	
Anesthesia	Spinal	65	92.9	64	91.4	0.208
	Epidural	3	4.3	3	4.3	
	General	2	2.9	3	4.3	
Age (years)	Mean ± SD	23.9 ± 3.7		22.5 ± 4.3		0.041
	Range	19–34		19–41		

surgery. Thereafter feeding was left to patient's choice. Next day, that is after 24 h, patients were given soft diet; if tolerated, it was followed by normal diet during the next meal time. Oral intake was stopped if the patient complained of pain abdomen, vomiting or abdominal distension. Second group was kept nil orally for 24 h, oral fluids were started the next day after confirmation of bowel sounds, and solids were given only after the patient had confirmed passage of flatus.

Exclusion criteria were cases of severe preeclampsia on magnesium sulfate therapy, obstructed labor, impending rupture uterus and cases of chorioamnionitis. The cases where the duration of operation was more than 60 min, for whatever reason, were excluded from the study. All the patients had standard postoperative monitoring and care including six hourly auscultation of abdomen for appearance of bowel sounds. Time of first passage of flatus and movement of bowels was recorded. Gastrointestinal symptoms like pain abdomen, nausea with or without vomiting, return of bowel sounds, constipation, loose motions or abdominal distension were noted. Other relevant parameters like fever above 38 °C, total intravenous intake and date of discharge were recorded in both the groups. The differences if any were statistically analyzed. All cases in Group 1 were asked about the acceptance and tolerability of early feeding.

Statistical Analysis

All the quantitative variables were measured; mean (SD) and categorical variables in frequencies and corresponding percentages. The Student's t-test or Mann–Whitney U test was used for scale variables and Chi-square/Fisher's exact test was used for categorical variables to find out statistical significance difference. All statistical analysis was performed using SPSS version 18, and p value <0.05 was considered as level of significance.

Results

One hundred and seventy-four cases underwent CS during the study period; 15 were not willing to take part in the study; and 19 did not qualify for the study as they had one or more exclusion criteria. Demographic data of both the groups was comparable as shown in Table 1. Abdomen was auscultated six hourly to find out the appearance of bowel sounds. Among the Group 1, bowel sounds could be detected within 18 h in 32 cases and within 24 h in 28 cases; on an average, the time for appearance of bowel sounds was 21.6 h. On the contrary, the corresponding figures were 7 and 14 in 18 and 24 h in Group 2; average time in Group 2 was 31.7 h, indicating that bowel sounds were heard earlier in Group 1, and the difference in the return of bowel sounds was significantly earlier in Group 1.

The time of passage of flatus was 34.5 and 49.2 h in Group 1 and 2, respectively. Thirty-four cases in Group 1 had moved their bowels within 48 h, while only 19 cases did so in Group 2 (statistically significant). Thirteen cases in Group 2 were administered laxative for relief of constipation after 48 h and only 2 cases required laxative in Group 1. No case was administered enema to relieve constipation. The incidence of fever, sepsis, postoperative blood transfusion and paralytic ileus recorded in both the groups is shown in Table 2. Average number of IV bottles consumed in both the groups was noted; more number of intravenous bottles were consumed in Group 2.

Discussion

There has always been fear and belief that the gut undergoes paralysis after any kind of abdominal surgery. This paralysis [6] is believed to last up to 24 h in small intestines, 24–48 h in the stomach and 48–72 h in the colon. Our study had demonstrated that early oral feeding

Table 2 Postoperative morbidity

Characteristics of study	Group 1 ($n = 70$)	Group 2 ($n = 70$)	p value
Fever	6 (8.6)	4 (5.7)	0.0001
Sepsis	2 (2.9)	2 (2.9)	–
Post-op blood transfusion	2 (2.9)	1 (1.4)	0.031
IV fluids administered (bottles)	4.2 ± 1.2	6.1 ± 0.8	0.0001
Average time to ambulation (h)	16.3 ± 1.7	22.5 ± 1.7	0.0001

resulted in rapid return of bowel function. An early feeding should improve the symptoms which occur due to bowel paralysis/dysmobility, especially in uncomplicated cases of CS where bowel manipulation is minimal.

In this study, there were distinct advantages of early oral feeding. Both the groups had comparable incidence of nausea, vomiting and pain abdomen, thereby indicating that early feeding is tolerable. Early feeding does not increase gastrointestinal symptoms. Oral feeding was started after 6 h in this study though there have been studies where it has been commenced as early as 2 h after surgery [7, 8]. Many studies [9, 10] in the literature have mentioned that the acceptance and tolerance of early oral feeds are very good. Another advantage was that those who were fed early needed less number of IV fluid bottles (4.2 vs 6.1). Early feeding group moved out of bed earlier (16.3 h) than controls (22.5 h) as shown in Table 2. There was no case of paralytic ileus in either of the groups, as such early feeding does not increase chances of its occurrence [11].

Our study indicated that early oral feeding improves the return of gastrointestinal functions after CS; our results were comparable to the observations made by other studies. A meta-analysis where 1800 patients were started on early feeding showed faster return of bowel motility and function [10]. There is no evidence which justifies the policy of withholding oral fluids after uncomplicated CS; rather it is beneficial. Early feeding is well tolerated and is associated with less postoperative gastrointestinal morbidity, yet most of the hospitals follow the traditional method of withholding oral fluids till the return of bowel sounds or passage of flatus. There is a need to bring awareness about advantages of early feeding among the staff catering to postoperative cases, and this should be offered to all women after uncomplicated CS.

There was no significant difference in total hospital stay in both the groups as no attempt was made to change the policy of discharging the patient. Many studies have indicated shortened hospital stay for patients who are started on early feeding after CS [6, 10, 11]. The incidence of fever and sepsis in both the groups was comparable (Table 2). The satisfaction level of Group 1 was very high; 56 were satisfied, and 14 did not give any comments. Thirty-two cases in Group 1 had undergone CS in the past; 27 of 32 were happy with initiation of early oral feeding.

Sumita et al. [12] had concluded in their study 'early oral intake following uncomplicated cesarean section under regional anesthesia is safe and well tolerated; produces better outcome, compared to delayed feeding, without causing any significant increase in postoperative morbidity, including paralytic ileus; and results in higher patient satisfaction.' Our study too confirmed that early oral feeding after uncomplicated CS whether under regional or general anesthesia is well tolerated. There was no untoward event which could justify withholding oral feeds till passage of flatus as is conventionally done. One of the major concerns is the effect of early feeding on wound healing and wound complications [6]. Study conducted by Razmjoo et al. [13] reported that this practice does not interfere with wound healing. Patients after any kind of surgery are relieved and satisfied when they move their bowels. The movements of bowel can be stimulated by early feeding, even chewing gum after surgery is known to stimulate the bowels [14].

Limitations of the study: It could not be blinded as it was done in the same ward. Many parameters like nausea, pain abdomen and passage of flatus were subjective and could not have been measured objectively. This was a pilot study; a large-scale multicentric study may benefit the patients and bring about a positive change in the conventional practice of withholding fluids after CS. Practice of early feeding will cut down the costs too.

Compliance with Ethical Standards

Conflict of interest It is certified that there is 'No Conflict of Interest' by the author.

Informed Consent Consent was obtained from all the participants, and those unwilling were not included in the study.

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