Effect of early postoperative feeding on gastrointestinal tract motility after cesarean section

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Effect of Early Postoperative Feeding on Gastrointestinal Tract Motility after Cesarean Section

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ABSTRACT

Background: Cesarean section is a delivery of the baby by an abdominal and uterine incision. It is considered one of the most frequently surgical intervention performed in the world about from 37% to 67%. Cephalopelvic disproportion, repeat cesarean section, fetal distress, Malpresentation and multifetal gestation are the most common indications for cesarean section.

Aim of the work: To detect the effect of early postoperative feeding on patient satisfaction and gastrointestinal function after cesarean delivery.

Patients and methods: A randomized controlled study included 200 women admitted to the labor ward in Al-Hussein and Sayed Galal Hospitals, Al-Azhar University during the period from March 2021 to December 2021 Study group: 100 cases, early feeding irrespective hearing bowel sounds and Control group: 100 cases, delayed oral semisolid foods after bowel opening.

Results: There were non-significant differences between both groups as regard BMI, gestational age, and duration of surgery, blood loss, and ambulation.. There were statically significant difference between the two groups regarding age, bowel sounds, and bowel opening. In the early group, return of bowel sounds and movement of bowel are earlier. Concerning nausea and vomiting are less in early group but with no significant difference. The study group had much satisfaction than group B with statically significant differences between both groups.

Conclusion: Early oral feeding after uncomplicated cesarean section is much better, early feeding without hearing bowel sounds, after 6 hours after operation has many advantages; it resulted in more rapid return in bowel functions, more satisfaction, less vomiting and nausea.

Keywords: Early postoperative feeding; Gastrointestinal function; Cesarean section.

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. Cesarean section rates ranging from 36.96%-64.7% have been reported. 1

“Early oral eating after CS increases recovery to bowel function and does not increase the incidence of postoperative complications,” according to a recent meta-analysis of trials comparing between early oral feeding and delayed oral feeding following Cesarian section. 2

Solid food was traditionally withheld for the first 24 hours after a caesarean section in the idea that this would prevent gastrointestinal issues. Early feeding, on the other hand, has been found to be as safe as delayed progress in multiple clinical trials and a comprehensive review. approach to save money. Furthermore, several other advantages have been documented, including a faster audible intestinal sounds and a more regular oral feeding , also less hospital stay.3

Despite the fact that data on the safety of early oral feeding folowing a CS appears to be conclusive, the effect of various postoperative feeding regimens on patient satisfaction has not been adequately investigated, with the only available data coming from one quasi-randomized trial. 4

After a caesarean delivery, women’s needs for hydration and nutrition are critical. Traditionally, post-operative hydration after a caesarean section

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entailed administering 2–3L of intravenous fluids throughout the first 12–24 hours to compensate for fluid loss during surgery as well as maintenance needs. In the absence of nausea and noticeable bowel motion, oral intake is normally permitted after 24 hours. After flatus has passed, a regular diet is started.5

Some studies now feel that after a low-risk caesarean delivery, women can start drinking oral liquids as soon as they are awake. They can also acquire a regular diet sooner than with the old way.6

In a study by Mehta et al., early oral feeding was shown to be safe and well tolerated. When compared to delayed feeding, they discovered that early post-operative feeding resulted in a better outcome. It resulted in a better rate of patient satisfaction while causing no substantial increase in post-operative morbidity or mortality.4

The aim of this work was to detect the effect of early oral feeding after cesarean section on gastrointestinal function and patient satisfaction.

PATIENTS AND METHODS

During the period March 2021 to December 2021, 200 women were admitted to the labour wards of Al-Hussein and Sayed Galal Hospitals, Al-Azhar University, after a decision to perform a caesarean section due to obstetric indications. Only elective caesarean sections were included in the study.

Patients with a maternal age of 20 to 40, an elective CS, spinal anaesthesia, and a singleton pregnancy were included in the study.

While woman with Medical illnesses like hypertension, diabetes, liver or kidney disease, emergency caesarean section, general anaesthesia, multiple pregnancies and age more than 40 or less than 20 were excluded from this study.

All caesareans were performed under spinal anaesthesia with a spinal needle no. 25 injecting heavy Marcaine. Every step of the caesarean was conducted by an obstetrics-gynecology resident following hospital guidelines, including suturing the uterus in two layers, delicate tissue manipulation, and an operative period of 30-129 minutes. The operation period was the period from the start of the surgery until the skin closure was completed.

PATIENTS: This study included 200 patients who were randomly assigned to one of two groups: The study group (Group A) consisted of 100 patients who were given oral fluids and semisolid food within 6 hours of surgery, regardless of intestinal noises, flatus, or faeces. A total of 100 patients made up the control group (Group B). Patients should resume drinking oral fluids after 6 hours, but no solid or semi-solid food should be consumed until flatus or stool has passed..

Methods:

All patients were asked about their personal history: age and parity; their medical history: a history of medical disorders, history of cesarean section: the exact indication of the section, operative time, gestational age, postoperative feeding: either early or late, after or before passage of flatus, self-satisfaction, gastrointestinal symptoms such as nausea, vomiting and distention.

Patients examined every hour by resident in first 6 hours and postoperative data were registered during a standard questionnaire. They were examined for signs of ileus, time of return of bowel sounds, time of ambulation and satisfaction of the patient.

Ethical considerations

Study protocol was submitted for approval by the Ethical Committee of Faculty of Medicine – AL-Azhar University – Ethical committee of the Obstetric and Gynecology Department. Informed verbal and written consent was obtained from each participant sharing in the study after explanation of the purpose and procedures of the study. Personal privacy and confidentiality were respected in all levels of our study.

Statistical analysis:

When appropriate, data were statistically reported using mean, range, standard deviation (SD), frequencies (number of cases), and percentages. The one-way analysis of variance (ANOVA) test was used to compare numerical variables between research groups, with posthoc multiple 2-group comparisons. When comparing two groups, the paired t test was used to compare numerical variables within each group.

The Chi square (χ²) test was used to compare categorical data. When the anticipated frequency is less than 5, the exact test was utilised instead. Statistical significance was defined as a P value of less than 0.05.

RESULTS

In the present study, different points of comparison were studied between group A (early feeding) and group B (delayed feeding). The experimental data were collected; spastically analyzed according to factorial experiment in a completely randomized design to study the effect of the individual factors as well as the interactions. Data were computed in order to ascertain that the observed effects were real and discernable from chance effect.

Descriptive data was summarized as means and standard deviations (±SD), differences were considered significant when P value ≤ 0.05 and were considered Non-significant when P value ≥ 0.05.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group A Mean ±S.D.</th>
<th>Group B Mean ±S.D.</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>25.05 ± 4.90</td>
<td>27.26 ± 4.551</td>
<td>.001</td>
</tr>
<tr>
<td>GA</td>
<td>38.24 ± 1.033</td>
<td>38.28 ± 0.944</td>
<td>.800</td>
</tr>
<tr>
<td>BMI</td>
<td>30.30 ± 5.039</td>
<td>29.11 ± 4.318</td>
<td>0.076</td>
</tr>
</tbody>
</table>
Table 1: Demographic data of both groups

The mean age for group A (early feeding) was 25.05 years, while the mean age for group B was 27.26 years, the mean gestational age for group A was 38.24 weeks while it was 38.28 weeks for group B. The mean BMI for group A was 30.30, while it was 29.11 for group B. (Tables 1 & 2). There were non-significant statistical differences between both groups as regarding gestational age and BMI.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group A</th>
<th>Group B</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation time</td>
<td>Mean ±S.D.</td>
<td>Mean ±S.D.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.19 ±0.47</td>
<td>1.07 ±0.43</td>
<td>0.058</td>
</tr>
<tr>
<td>Blood loss in milliliters</td>
<td>451.46</td>
<td>476.19</td>
<td>0.067</td>
</tr>
</tbody>
</table>

Table 2: Operative details in both groups

Duration of surgery was recorded for all patients, the mean duration for group A (early feeding) was 1.19 hours, while mean duration for group B (late feeding) was 1.07 hours. Blood loss was recorded for all patients; the mean blood loss for group A (early feeding) was 451.46 ml, while mean blood loss for group B (late feeding) was 476.19 ml. There was non-significant statistical difference between both groups regarding operative time and blood loss.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group A</th>
<th>Group B</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of feeding (hrs)</td>
<td>Mean ±S.D.</td>
<td>Mean ±S.D.</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>6 ±0.00</td>
<td>10.65 ±2.15</td>
<td></td>
</tr>
<tr>
<td>Bowel sounds (hrs)</td>
<td>6.07 ±1.60</td>
<td>7.32 ±2.156</td>
<td>0.000</td>
</tr>
<tr>
<td>Bowel opening (hrs)</td>
<td>8.53 ±1.55</td>
<td>10.56 ±2.156</td>
<td>0.000</td>
</tr>
<tr>
<td>Discharge (hrs)</td>
<td>34.24 ±1.330</td>
<td>36.39 ±1.562</td>
<td>0.320</td>
</tr>
</tbody>
</table>

Table 3: Postoperative follow up in both groups

The mean time of start of oral feeding in group A was after 6 hours, while mean time of start of oral feeding in group B was after 10.65 hours. The mean bowel sounds for group A (early feeding) were heard after 6.07 hours, while mean bowel sounds for group B (late feeding) were heard after 7.32 hours. The mean bowel opening for group A (early feeding) was after 8.53 hours, while mean bowel opening for group B (late feeding) was after 10.56 hours. Ambulation were recorded for all patient, the mean ambulation for group A (early feeding) was after 6.67 hours, while mean ambulation for group B (late feeding) was after 6.92 hours. Discharge time were recorded for all patients, the mean discharge for group A (early feeding) was after 34.24 hs, while the mean discharge for group B (late feeding) was after 36.39 hs.

Statistically significant difference was recorded between the two groups regarding start of oral feeding, bowel sounds and bowel movements, but there was statically non-significant difference between both groups regarding ambulation time and discharge time.

<table>
<thead>
<tr>
<th>Satisfaction</th>
<th>No</th>
<th>Count</th>
<th>% within Satisfaction</th>
<th>Group</th>
<th>Total</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Early</td>
<td>Late</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>20.6%</td>
<td>23</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>% within Group</td>
<td>6%</td>
<td>23%</td>
<td>14.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>94</td>
<td>54.9%</td>
<td>77</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>% within Group</td>
<td>94%</td>
<td>77%</td>
<td>85.5%</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Satisfaction in both groups

Satisfaction was recorded for all patients, regarding satisfaction for early feeding group A 94 patients of 100 tested patients had the feeling of satisfaction with a percent 94%, while 77 patients of 100 patients had a feeling of satisfaction with a percent 77%, statistically significant difference was recorded between both groups.

<table>
<thead>
<tr>
<th>Neusea</th>
<th>No</th>
<th>Count</th>
<th>% within Neusea</th>
<th>Group</th>
<th>Total</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Early</td>
<td>Late</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>87</td>
<td>52.4%</td>
<td>47.6%</td>
<td>100.0%</td>
<td>0.186</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% within Group</td>
<td>87%</td>
<td>77%</td>
<td>83.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>38.2%</td>
<td>61.8%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>% within Group</td>
<td>38.2%</td>
<td>61.8%</td>
<td>17%</td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Nausea in both groups

Regarding the effect of early feeding (group A) on nausea 13 patients of 100 tested patients had the feeling of nausea with a percent 13%, while in late feeding (group B), 21 patients of 100 patients had nausea with a percent 21% (Table 5).
Table 6: Vomiting in both groups

<table>
<thead>
<tr>
<th>Vomiting</th>
<th>No</th>
<th>Early</th>
<th>Late</th>
<th>Total</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% within Vomiting</td>
<td>% within Vomiting</td>
<td>% within Vomiting</td>
<td>% within Vomiting</td>
<td>% within Vomiting</td>
</tr>
<tr>
<td>Count</td>
<td>93</td>
<td>87</td>
<td>180</td>
<td>0.278</td>
<td></td>
</tr>
<tr>
<td></td>
<td>51.7%</td>
<td>48.3%</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>93%</td>
<td>87%</td>
<td>90.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>7</td>
<td>13</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>35%</td>
<td>65%</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7%</td>
<td>13%</td>
<td>10.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Regarding the effect of early feeding (group A) on vomiting only 7 patients of 100 with a percent 7% while in late feeding (group B) 13 patients of 100 had vomiting with a percent 13%. Statistically non-significant difference between both groups (Table 6).

**DISCUSSION**

Cesarean delivery is one of the most prevalent surgeries in modern obstetrics all around the world. Because of the risk of postoperative complication, oral intake is normally restricted for the first day after a caesarean section (CS). In spite of all the evidences of the benefits and safety of early oral feeding following Cesarean section, this practice continues to be practiced in clinical settings.5

This study was performed to detect the effect of early postoperative feeding on patient satisfaction and gastrointestinal motility following cesarean sections. It also compared the results between early and late feeding after cesarean delivery.

Concerning demographic data, the case group and control group was similar regarding most background variables, except our study group is younger than control group. The mean age for group A (early feeding) was 25.05 years, while the mean age for group B was 27.26 years (Table 1). Our patients, in general, were young.

The demographic, obstetric, and surgical features of the trial participants in the two groups did not differ statistically significantly. The mean age was 30.23 ± 4.7 for early group against 30.81 ± 4.7 for delayed group, P = 0.458, and the mean parity was 2.01 ± 1.11 for early group versus 2.39 ± 1.3 for delayed group, P = 0.001. STUDY DONE BY Adamu, Ogbadu, et al. 3

Concerning postoperative follow up:

In our study the mean bowel sounds and bowel opening for group A (early feeding) were after 6.07/8.53 hours. While mean bowel sounds and bowel opening for group B (late feeding) were after 7.32/10.56 hours. A statistically significant difference was recorded between the two groups. (Table 3). These results are in accordance with the study, 9 they found audible bowel sounds and passage of flatus were earlier in early feeding group (21.6h and 34.5 h, respectively) as compared with delayed feeding group (31.7h and 49.2 h, respectively). Huang et al. 10 calculated a sample size of 152 women (76 women for each group of the study) and found that the early feeding group had a faster development of bowel sounds, a faster passage of flatus post-surgery, and a faster bowel movement (faeces), which is consistent with earlier research. Women in the feeding study group had a considerably shorter time to acquire bowel sounds than women on delayed control group; 7.3 hours versus 11.5 hours (P value = 0.005). The early study group had a shorter mean duration of initial flatus passage than the late control group (30.7 hours versus 37.5 hours) (P = 0.009).

The early feeding study group (group A) had a statistically significant shorter mean interval in return of bowel movement as shown by passage of faeces than the late feeding control group (group B), 62.6 hours against 69.9 hours (P = 0.035). Patients in the early feeding study group (group A) had a shorter duration of IV fluid intake, 18.9 h versus 25.0 h (P value < 0.001) which also in accordance with our study. But result in study done by Masood et al. 11 The time to first appearance of bowel sounds after 17.09hs with p value <0.19, and time of passage of flatus after 19.78 hs with p value <0.25 which show statically non-significant difference. This due to study on 1176 and early oral feeding start from 2 hours to 12 hours.

In the present study, ambulation showed a statically non-significant difference between both groups. The mean ambulation for group A (early feeding) was after 6.67 hours, while mean ambulation for group B (late feeding) was after 6.92 hours. In controversy with study Da Silva et al. 12 53.8% of the early feeding group were able to ambulate after 15 h post surgery while 27.9% of the control group were able to ambulate after the same time. Intensities of thirst and hunger were significantly higher in the CF group (P<0.001 for both measures) which show statistically significant difference.

In our study nausea and vomiting had no statistically significant difference which in accordance with Guo et al. 3 which studied on 100 cases, Early oral feeding group start oral feeding as early as 2 hours to 12 hours post operatively. All found to have no statistical significant difference in post-operative gastrointestinal complications e.g. nausea, paralytic ileus, vomiting.

In our study Satisfaction was recorded for all patients, regarding Satisfaction for early feeding group A 94 patients of 100 tested patients had a feeling of satisfaction with a percent 94%, while 77 patients of 100 patients had a feeling of satisfaction with a percent 77%, statistically significant difference was recorded between both groups which in accordance Razmjoo et al. 13 which showed: The
early feeding study group shows higher maternal satisfaction than the late feeding control group. This was consistent with the findings of other investigations. The favourable benefits of early ambulation, early discharge from hospital, benefits of early recovery, and financial benefits could explain the higher satisfaction indicated by the early feeding study group. The mothers’ satisfaction was higher in the early group than in the late group, 96.4 versus 90.7 (P value 0.001) on a VAS scale of 0–100. However, the difference was statistically significant. However, a research by Teoh, Teoh et al. included trials that utilised multiple metrics to assess women's happiness, but only studies that employed the VAS were included in the current analyses, as EOF was often defined as any oral intake beginning within 12 hours following surgery. There were 4584 women who had had a caesarean section. Because the study had a large number of mothers, early oral feeding within 12 hours, and was conducted in Pakistan, no significant variations in patient satisfaction were discovered. We conclude that early oral feeding is feasible and well tolerated and is associated with reduced postoperative discomfort, gastrointestinal complications (e.g. nausea, vomiting and paralytic ileus) and increased patient satisfaction, we recommend early oral feeding to be routine in uncomplicated cesarean section under regional anesthesia. In the future we plan to perform the same design to compare early oral feeding in patients whom cesarean section is done under regional anesthesia versus patients in whom cesarean section is done under general anesthesia on postoperative tolerance of early oral feeding.

CONCLUSION

Cesarean section is considered the most common surgical intervention done by Obstetricians. This study showed that intake of oral feeding after uncomplicated cesarean section is much better, early feeding without hearing bowel sounds, after 6 hours after operation has many advantages, it resulted in more rapid return in bowel functions, more satisfaction, less vomiting and Nausea.

Conflict of interest : none

REFERENCES