

Randomised Controlled Trial on Early versus Late Feeding After Caesarean Section at a Teaching Hospital in Southwest Nigeria

Adelekan OE¹, Olofinbiyi BA², Aduloju OP², Akintayo AA², Adeyiolu OT¹, Olofinbiyi RO³, Akintoye OO⁴

Departments of ¹Obstetrics and Gynaecology and ³Nursing Services, Ekiti State University Teaching Hospital, Departments of ²Obstetrics and Gynaecology and ⁴Human Physiology, Ekiti State University College of Medicine, Ado-Ekiti, Nigeria

ABSTRACT

Objectives: To compare the effect of timing on initiation of feeding following caesarean delivery on: incidence of post-operative ileus (POI), time of discontinuation of intravenous fluids (IVFs), length of hospital stay and patient's satisfaction.

Study Design: This was a prospective randomised controlled study carried out at the obstetric unit of Obstetrics and Gynaecology Department of Ekiti State University Teaching Hospital, Ado-Ekiti, Nigeria. A total of 118 women undergoing elective or emergency primary caesarean section under regional anaesthesia were randomised into early and late feeding group. Data were collated, and Statistical Package for Social Sciences version 20 was used for analysis. Continuous variables were presented as mean \pm standard deviation and categorical variables in frequencies and percentages. Test of significance was done using student *t*-test for continuous variables and Chi-square for categorical variables. $P < 0.05$ was considered as statistically significant.

Materials and Methods: A total of 118 women undergoing elective or emergency primary Caesarean section under regional anesthesia were randomized into early and late feeding group. Data were collated and SPSS version 20 used for analysis. Continuous variables were presented as mean \pm standard deviation and categorical variables in frequencies and percentages. Test of significance was done using student *t* test for continuous variables and chi-square for categorical variables. *P* value less than 0.05 was considered as significant.

Results: The incidence of mild POI was 3.4% for both early and late groups. There were statistically significant differences between the early and late feeding groups in the discontinuation of IVF (79.9% vs. 20.3%, $P < 0.001$), mean length of hospital stay (3.10 ± 0.31 vs. 3.73 ± 0.45 , $P < 0.001$) and level of satisfaction with timing of onset of oral feeding (100% vs. 20.3%, $P < 0.001$).

Conclusion: Early post-operative feeding is safe, well-tolerated with no adverse surgical outcomes in women following primary caesarean section.

Key words: Early feeding, late feeding, post-caesarean section

How to cite this article: Adelekan OE, Olofinbiyi BA, Aduloju OP, Akintayo AA, Adeyiolu OT, Olofinbiyi RO, *et al.* Randomised controlled trial on early versus late feeding after caesarean section at a teaching hospital in Southwest Nigeria. Niger J Health Sci 2018;18:31-6.

INTRODUCTION

Caesarean section (CS) is one of the most commonly performed surgical procedures in obstetrics, and it is certainly one of the oldest operations in surgery.¹ It is defined as the delivery of a viable baby by abdominal and uterine incisions.² The number of CS performed each year is increasing at a dramatic rate all around the world.³ An estimated 18.5 million CSs are performed annually worldwide; the rate varies from country to country; in Nigeria, it ranges between 20.8% and

34.5% and differs from region to region with some as low as 2%.^{4,5}

In time past, patients who had abdominal surgery had traditional or routine approach of post-operative feeding in which nothing is given orally till return of bowel functions as evidenced by passage of flatus or bowel motion.⁶ This is because of the feared complications which include nausea, vomiting and abdominal distension which may follow oral feeds before return of bowel functions.⁷⁻¹³ These complication

Submitted: 02-May-2019 Revised: 01-November-2019

Accepted: 19-November-2019 Published: 27-February-2021

Access this article online

Quick Response Code:



Website:
www.chs-journal.com

DOI:
10.4103/njhs.njhs_12_19

Address for correspondence: Dr. Olofinbiyi BA,
Department of Obstetrics and Gynaecology, Ekiti State University College of
Medicine, Ado-Ekiti, Nigeria.
E-Mail: babatunde.olofinbiyi@eksu.edu.ng

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: wkhlrpmedknow_reprints@wolterskluwer.com

are thought to be due to some forms of bowel manipulations that may occur during surgery, leading to temporal impairment of bowel motility from visceral irritation.¹⁴

In CS, bowel handling is usually minimal and operation time short allowing rapid post-operative return of bowel functions even before clinical detection.^{7,8} This has encouraged the need to introduce early oral feeding post-caesarean delivery although early feeding following caesarean delivery remains a controversial issue.⁶⁻⁹ Early initiation of oral feeding has been advocated for a number of benefits. Early nutrition has been evaluated and used as a possible strategy to reduce the negative impact of the metabolic response to injury and post-operative ileus (POI).¹³ Enhanced recovery of gastrointestinal functions which will lead to good nutritional status, rapid healing of wound, early ambulation and rapid return to normal life has been reported in some studies of early oral post-operative feeding.^{14,15} However, other studies have shown that there were no significant differences in respect to nausea, vomiting, time to bowel movement, passage of flatus, a paralytic ileus and number of analgesic doses between the early and late initiation of post-operative feeding.^{6,10,13} The current evidence suggests that there is no justification for delayed commencement of fluid and food following uncomplicated CS; however, there is still ongoing debate about its universal acceptability with practice ranging from few hours after surgery to delayed feeding for more than 24–48 h among surgeons.⁹ Early feeding can reduce the rate of protein depletion, improve wound healing, impact positively on psychological status, reduce incidence of nosocomial infections and reduce length of hospital stay with eventual reduction in overall cost of management.^{10,11}

POI is a common complication of abdominal and several other surgeries leading to increased hospital stay and healthcare cost.¹¹ Therefore, post-operative care of these patients demands attention.³ Many hospitals in Nigeria still practise delayed graduated dietary regimen to reduce the likelihood of POI, although this is not evidence based.¹² In recent times, researchers believe that after a non-complicated CS, patients could receive oral fluids as soon as they recover from anaesthesia and experience thirst, and they can start solid diets in a far shorter time than the delayed method.¹² This has been suggested because it may be associated with reduced protein store depletion, improved wound healing, faster recovery with early hospital discharge and reduced cost.^{10,13,16}

Although there have been published studies on early post-caesarean feeding, to the best of our knowledge, there is paucity of data on this in sub-Saharan Africa and most especially in Nigeria.¹³ This research will rather serve to provide evidence either in support of the current traditional method practised here or inform a need for modification of the practice of early feeding. This study would impact on quality of care received by parturients in Nigeria and outside.

MATERIALS AND METHODS

This was a prospective randomised controlled study carried out at the obstetric unit of Obstetrics and Gynaecology Department of Ekiti State University Teaching Hospital, Ado-Ekiti, Nigeria. Recruitment of patients was done from the antenatal clinic at term (elective cases) and antenatal/labour wards (emergency cases). The study population comprised all women who had primary CS performed under spinal anaesthesia.

The ethical clearance for this study was obtained from the Ethics and Research Committee of the Ekiti State University Teaching Hospital, Ado Ekiti. Taking part in the study was by voluntary participation. The participants were fully informed about the study both verbally and with the use of patient's information sheet. Informed consent was taken by a consent form that was signed by each participant. Participants were given the right to withdraw for whatever reasons at any stage of the study without any penalty. Confidentiality was ensured by only identifying patients using sequential numbers which were only available to the investigator.

Sample size (N) was determined based on a formula for estimating sample size in a comparative research study;¹⁷ previous study showed that 6.45% of women on late feeding schedule following CS developed paralytic ileus.¹⁸ With the assumption of difference of 20% in the incidence of POI, with the level of significance of Type I error at 95% and Type II at 80%, sample size in each group was calculated to be 59, making a total of 118 patients.

Explanation of the study protocol was given to the patients to reduce violation of research protocol. Randomisation to one of the two groups 'early feeding' and 'late feeding' was done in the post-natal ward. Random selection was done according to computer-generated sequences which were placed in a sealed and consecutively numbered opaque envelopes. The sealed envelopes were secured and placed in the post-operative ward from where they were drawn consecutively till completion of the study. Neither the surgeons nor the investigators were aware of the group assignment.

Early feeding group (Group A) had a total of 59 women who received oral sips of water (15 ml) 6 h after CS under supervision, irrespective of the presence or absence of bowel sounds. If the water was well tolerated, 100–150 ml of light pap was commenced 2 h after oral sips of water. Pap was supplied by the hospital kitchen for uniformity.

Then rice was commenced by 12 h post-operation, after ruling out symptoms and signs suggestive of ileus. Bowel sounds were checked for at 6 h, 8 h and 12 h post-surgery. Patients were asked to note the time of passage of first flatus and stool.

In the late feeding group (Group B), a total 59 women received oral sips of water (15 ml) by 24 h post-operative, after confirming presence of bowel sounds. If the water was well tolerated, 100–150 mls of light pap was commenced 2 h after oral sips of water. Then, rice was commenced by 30-h post-operation,

after ruling out symptoms and signs suggestive of Ileus. Patients were asked to note the time of passage of first flatus and stool.

Both groups were placed on the same analgesic regimen (pentazocine and diclofenac) and intravenous antibiotics (cefuroxime and metronidazole). The end of surgery was designated as zero hour. Duration of intravenous fluid (IVF) administration was from the onset of surgery to the discontinuation of fluid.

IVF was stopped once the patient was capable of taking adequate liquid diet. Parenteral antibiotics and analgesia were changed to oral route once regular diet was established.

Mild ileus symptoms were symptoms of abdominal cramps, non-persistence of nausea and vomiting and mild abdominal distension on examination, with absent ultrasound features of ileus.^{18,19}

Severe ileus symptoms were inability to tolerate oral liquids, more than 3 episodes of vomiting within 24 h and marked abdominal distension on examination, with ultrasound diagnosis showing absent peristalsis, dilated small and large bowel loops.^{18,19} Patient's satisfaction was tested using the Likert scales: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree and (5) strongly agree options;²⁰ and patients' recommendation of option for post-operative management was also assessed using the same scale.

The sociodemographic data and clinical information obtained were imputed into a questionnaire. Data obtained were coded and entered into Statistical Package for Social Sciences (SPSS)

version 20 (IBM, Armonk, NY, USA) for analysis. Continuous variables were presented as mean \pm standard deviation and categorical variables in frequency tables and percentages. Test of significance was done using *t*-test for continuous variables and Chi-square for categorical variables. $P < 0.05$ was considered as statistically significant.

RESULTS

The incidence of POI (mild) was 3.4% in both early and late groups.

Table I shows the demographic characteristics of the groups. More than 60% of both groups were within the age range of 20–30 years; with the mean age for Group A being 29.22 ± 3.39 years and Group B, 28.75 ± 2.92 years. About 54% of both groups were primigravidae. There were no significant differences in the mean age for early group and late group (29.22 ± 3.39 vs. 28.75 ± 2.92).

Table II shows the comparison of the obstetrics parameters. There was no significant difference in mean gestational age between the 2 groups (39.17 ± 1.70 weeks vs. 39.24 ± 1.38 weeks). There was no difference in timing of CS as majority had emergency CS in Group A (72.9%) and Group B (69.5%). The most common indication for CS was cephalopelvic disproportion in both groups. However, there was no difference in mean parity (1.78 ± 1.07 vs. 1.56 ± 0.70).

Table III shows significant differences in the mean length of hospital stay (3.10 ± 0.31 vs. 3.73 ± 0.45), discontinuation of IVF within 48 h as noted in 79.9% of early group compared with

Table I: Comparing the demographic variables of the study groups (n=59)

	Group A, n (%)	Group B, n (%)	Total	χ^2/t	P
Age (years)					
21-30	37 (62.7)	44 (74.6)	81 (68.6)	1.929	0.165
31-40	22 (37.3)	15 (25.4)	37 (31.4)		
Mean \pm SD	29.22 \pm 3.39	28.75 \pm 2.92		0.814	0.417
Range	21-36	22-36			
Occupation					
Civil servant	24 (40.7)	28 (47.5)	52 (44.1)	13.821	0.003*
Artisan	6 (10.2)	10 (16.9)	16 (13.6)		
Trader	21 (35.6)	5 (8.5)	26 (22.0)		
Others	8 (13.6)	16 (27.1)	24 (20.3)		
Level of education					
Tertiary	42 (71.2)	40 (67.8)	82 (69.5)	1.830	0.401
Secondary	14 (23.7)	19 (32.2)	33 (28.0)		
Primary	3 (5.1)	0 (0.0)	3 (2.5)		
Religion					
Christianity	45 (76.3)	47 (79.7)	92 (78.0)	0.197	0.657
Islam	14 (23.7)	12 (20.3)	26 (22.0)		
Parity					
1	32 (54.2)	32 (54.2)	64 (54.2)	0.016	0.992
2-4	26 (44.1)	27 (45.8)	53 (44.9)		
>4	1 (1.7)	0 (0.0)	1 (0.8)		
Mean \pm SD	1.78 \pm 1.07	1.56 \pm 0.70		1.325	0.188

*Statistical significance set at 0.05. SD: Standard deviation

20.3% in the other group and level of satisfaction with timing of onset of oral feeding (100% vs. 20.3%). All early groups recommended the same feeding for others, while only 17% did in late group, which is significantly different ($P > 0.001$).

Table IV shows the post-operative outcomes in the study groups. The bowel movement returned by 12 h in all early feeding groups, while all in late group had presence of bowel sounds by 24 h before commencing oral intake. There was significant statistical difference in passage of flatus within 24 h in both groups (54.2% vs. 10.2%) (mean of 9.05 ± 3.92 h vs. 10.84 ± 4.28 h). About 86% in early group passed stool by 48 h, compared to 10.2% in late group, with mean of 16.09 ± 6.11 versus 18.81 ± 4.67 which was statistically significant.

Table II: Comparing obstetric parameters of the groups (n=59)

Variable	Group A, n (%)	Group B, n (%)
Gestational age on admission (weeks)		
Mean±SD	39.17±1.70	39.24±1.38
Type of CS		
Emergency	43 (72.9)	41 (69.5)
Elective	16 (27.1)	18 (30.5)
Indication for CS		
Transverse lie	6 (10.2)	4 (6.8)
Breech	14 (23.7)	14 (23.7)
Foetal distress	8 (13.6)	11 (18.6)
Maternal choice	-	2 (3.4)
Failed progression secondary to CPD	27 (45.8)	22 (37.3)
Placenta previa	2 (3.4)	6 (10.2)
Cord prolapse	2 (3.4)	-

CPD: Cephalopelvic disproportion, SD: Standard deviation, CS: Caesarean section

DISCUSSION

This prospective randomised study was carried out to determine the advantages of early feeding following CS over late onset of feeding. The return of bowel movement, passage of flatus, patient's satisfaction and desire to recommend the feeding option were significantly different in early feeding group compared with the late group.

Most obstetricians, especially in Nigeria follow a certain trend in post-operative initiation of oral feeding; which is withholding oral intake till after the presence of bowel sounds or passage of flatus,¹ thus, commencing oral intake 24–48 h following CS. This usually is borne out of the belief that initiation of feeding before the presence of bowel sounds will increase the incidence of POI as evidenced by nausea, vomiting and abdominal distension.¹³ However, various studies have discredited this belief and shown that early initiation of oral feeding is beneficial, well-tolerated by patients who were also very satisfied.^{8,13,21}

The mean maternal age in this study was not significantly different among the two study groups. This is comparable to the findings from Orji *et al.*¹³ and Jalilian and Ghadami.¹¹ Furthermore, there was no significant difference in the mean gestational age and parity between the two groups; which is in consonance with the results obtained by Bar *et al*⁹ and Göçmen *et al*²² in similar studies.

This study showed no significant difference in the incidence of mild POI in both groups (3.4% vs. 3.4%). None of the patients had any form of severe ileus. This incidence is comparable to the finding of Göçmen *et al.*²² and MacMillan *et al.*²³ However, this is different from the finding of Orji *et al.*¹³ and Adupa *et al.*²⁴ The difference noted from the stated studies is at variance possibly because majority of the women

Table III: Comparing secondary outcomes of the study groups (n=59)

	Group A, n (%)	Group B, n (%)	Total	χ^2/t	P
Discontinuation of intravenous fluids (h)					
Within 24	8 (13.6)	0 (0.0)	8 (6.8)	60.306	<0.001*
Within 48	47 (79.7)	12 (20.3)	59 (50.0)		
Within 72	4 (6.8)	47 (79.7)	51 (43.2)		
Length of hospital stay					
3	53 (89.8)	16 (27.1)	69 (58.5)	47.779	<0.001*
4	6 (10.2)	43 (72.9)	49 (41.5)		
Mean±SD	3.10±0.31	3.73±0.45		-8.884	<0.001*
Satisfaction					
Unsatisfied	0 (0.0)	43 (72.9)	43 (36.4)	73.076	<0.001*
Indifferent	0 (0.0)	4 (6.8)	4 (3.4)		
Satisfied	59 (100.0)	12 (20.3)	71 (60.2)		
Will recommend feeding option					
Strongly disagree	0 (0.0)	20 (33.9)	20 (16.9)	87.862	<0.001*
Disagree	0 (0.0)	19 (32.2)	19 (16.1)		
Indifferent	0 (0.0)	10 (16.9)	10 (8.5)		
Agree	19 (32.2)	8 (13.6)	27 (22.9)		
Strongly agree	40 (67.8)	2 (3.4)	42 (35.6)		

*Statistical significance set at 0.05. SD: Standard deviation

Table IV: Comparing post-operative outcomes of the study groups (n=59)

Variable	Group A, n (%)	Group B, n (%)	Total	χ^2/t	P
Presence of bowel movement (h)					
6 and 8	27 (45.8)	0 (0.0)	27 (22.9)	118.000	<0.001*
12	32 (54.2)	0 (0.0)	32 (27.1)		
24	0 (0.0)	59 (100.0)	59 (50.0)		
Commencement of water (h)					
Within 24	53 (89.8)	0 (0.0)	53 (44.9)	96.215	<0.001*
Within 48	6 (10.2)	59 (100.0)	65 (55.1)		
Commencement of pap (h)					
Within 24	53 (89.8)	0 (0.0)	53 (44.9)	96.215	<0.001*
Within 48	6 (10.2)	59 (100.0)	65 (55.1)		
Commencement of rice (h)					
Within 24	53 (89.8)	0 (0.0)	53 (44.9)	96.215	<0.001*
Within 48	6 (10.2)	59 (100.0)	65 (55.1)		
Passage of flatus (h)					
Within 24	32 (54.2)	6 (10.2)	38 (32.2)	25.492	<0.001*
Within 48	27 (45.8)	47 (79.7)	74 (62.7)		
Within 72	0 (0.0)	6 (10.2)	6 (5.1)		
Passage of stool (h)					
Within 48	51 (86.4)	6 (10.2)	57 (48.3)	68.723	<0.001*
Within 72	8 (13.6)	53 (89.8)	61 (51.7)		
Mean±SD	16.09±6.11	18.81±4.67		-2.716 ^c	0.008*
Number of IV bags					
Mean±SD	5.08±1.12	7.43±1.27		-10.632	<0.001*

*Statistical significance set at 0.05. SD: Standard deviation

in these studies had general anaesthesia administered while all women in this study were administered regional anaesthesia. Exposure to general anaesthesia has been reported from previous research as a risk factor for post-operative paralytic ileus.^{25,26}

This study also showed a significant difference in the rate at which bowel functions returned.

Bowel functions returned faster in early group compared to the late group. These findings were in contrast to the results of Orji *et al.*¹³ and Adupa *et al.*²⁴ This can also be due to the type of anaesthesia used in this study because the time interval to the passage of flatus and bowel movement in both groups were less than what was obtained in the previous studies.

About 93% of early groups had IVF discontinued within 24–48 h post-surgery using a mean of 5.08 ± 1.12 bags which was significantly different from late group where IVF was discontinued 48–72 h post-surgery with a mean of 7.43 ± 1.27 bags. This finding was similar to that of Orji *et al.* and Adupa *et al.*^{13,24}

The mean length of hospital stay was significantly different between the early group and late group. This was due to the departmental policy of not discharging uncomplicated CS patients until third post-operative day.²¹ This finding is in agreement with the findings from previous studies.^{8,10,13,22,24} The length of hospital stay reported in this study was shorter than what was obtained in the previous studies;^{8,10,13,22,24} this may

also be related to the use of general anaesthesia for surgery in these studies.

The level of satisfaction in this study was significantly different between the early group (100%) versus late group (20.3%). This is in agreement with the study by Chantarasorn and Tannirandorn where 99.9% of early feeding group were satisfied.²⁵ However, this is in contrast to Izbizky *et al.* who showed equal level of satisfaction in both groups in their study.²¹ All (100%) women in early group recommended this feeding option for others as opposed to 17% in the late feeding group.

A limitation of the study was the relatively small sample size; therefore, larger prospective multicentre studies are recommended to validate the finding and power of this study, with a view to conducting a meta-analysis. Nevertheless, there are limited studies in this area, especially in Africa and the available few studies made use of general anaesthesia, which had effects on the outcomes of the studies. In addition, the randomised nature of the study left minimal space for bias.

CONCLUSION

This study showed that early initiation of feeding has the positive impacts of reduction in the number of IVFs taken, early bowel movement and short hospital stay. Early feeding was well-tolerated, safe and with no increase in occurrence of POI. These will definitely have a cumulative reduction in the

total hospital bill. Early feeding after CS should be encouraged in obstetric practice without fear of complications.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Kwawkume EY, Laryea HN. Cesarean section. In: Kwawkume EY, Emuveyan EE, editors. In Comprehensive Obstetrics in the Tropic. 1st ed. Accra: Graphic Packaging Limited; 2005. p. 405-14.
2. Arulkumaram S. Malpresentation, malposition, cephalopelvic disproportion and obstetric procedures. In: Edmond DK, editor. Dewhurst's Textbook of Obstetrics and Gynecology for Postgraduates. 7th ed. Oxford, London. Blackwell Scientific Publications Ltd; 2007. p. 171-99.
3. Adeli M, Razmjoo N, Tara F, Ebrahimzade S. Effect of early post cesarean feeding on gastrointestinal complications. *Nurs Midwifery Stud* 2013;2:176-81.
4. Owonikoko KM, Akinola S, Adeniji O A, Bankena AJ. Women's perception and experience of cesarean delivery in Ogbomoso, Southwest Nigeria. *J Preg Child health* 2015;2:161.
5. Nigeria Demographic and Health Survey. Reproductive Health. National Population Commission (NPC) [Nigeria] and ICF International 2014. Nigeria Demographic and Health Survey; 2013. p. 127-54.
6. Mangesi L, Hofmeyr GJ. Early compared with delayed oral fluids and food after caesarean section. *Cochrane database of systematic reviews*. 2002;(3):CD003516.
7. Teoh WH, Shah MK, Mah CL. A randomised controlled trial on beneficial effects of early feeding post-Caesarean delivery under regional anaesthesia. *Singapore Med J* 2007;48:152-7.
8. Masood SN, Masood Y, Naim U, Masood MF. A randomized comparative trial of early initiation of oral maternal feeding versus conventional oral feeding after cesarean delivery. *Int J Gynaecol Obstet* 2014;126:115-9.
9. Bar G, Sheiner E, Lezerovitz A, Lazer T, Hallak M. Early maternal feeding following caesarean delivery: A prospective randomised study. *Acta Obstet Gynecol Scand* 2008;87:68-71.
10. Adupa D, Wandabwa J, Kiondo P. A randomised controlled trial of early initiation of oral feeding after caesarean delivery in Mulago Hospital. *East Afr Med J* 2003;80:345-50.
11. Jalilian N, Ghadami MR. Randomized clinical trial comparing postoperative outcomes of early versus late oral feeding after cesarean section. *J Obstet Gynaecol Res* 2014;40:1649-52.
12. Kovavisarach E, Atthakorn M. Early versus delayed oral feeding after cesarean delivery. *Int J Gynaecol Obstet* 2005;90:31-4.
13. Orji EO, Olabode TO, Kuti O, Ogunniyi SO. A randomised controlled trial of early initiation of oral feeding after cesarean section. *J Matern Fetal Neonatal Med* 2009;22:65-71.
14. Nantasupha C, Ruengkachorn I, Ruangvutitert P. Effect of conventional diet schedule, early feeding and early feeding plus domperidone on postcesarean diet tolerance: A randomized controlled trial. *J Obstet Gynaecol Res* 2016;42:519-25.
15. Patolia DS, Hilliard RL, Toy EC, Baker B. Early feeding after cesarean: Randomized trial. *Obstet Gynecol* 2001;98:113-6.
16. Johnson Casto C, Krammer J, Drake J. Postoperative feeding: A clinical review. *Obstet Gynecol Surv* 2000;55:571-3.
17. Kirkwood BR, Sterne JA. Calculations of required sample size. *Essent Med Stat* 2003;2:413-28.
18. Devi SS, Sheila KP, Jaya VA. Comparative study of early versus conventional delay in postoperative oral intake in women undergoing cesarean section under regional anesthesia. *Indian J Obstet Gynecol Res* 2015;2:276-82.
19. Seitz K, Merz M. Ultrasound ileus diagnosis. *Ultraschall Med* 1998;19:242-9.
20. Allen IE, Seaman CA. Likert scales and data analysis. *Qual Prog Milwaukee* 2007;40:64-5.
21. Izbizky GH, Minig L, Sebastiani MA, Otaño L. The effect of early versus delayed postcaesarean feeding on women's satisfaction: A randomised controlled trial. *BJOG* 2008;115:332-8.
22. Göçmen A, Göçmen M, Saraoğlu M. Early post-operative feeding after caesarean delivery. *J Int Med Res* 2002;30:506-11.
23. MacMillan SL, Kammerer-Doak D, Rogers RG, Parker KM. Early feeding and the incidence of gastrointestinal symptoms after major gynecologic surgery. *Obstet Gynecol* 2000;96:604-8.
24. Saha L, Chowdhury SB. Study on primary cesarean section. *Mymensingh Med J* 2011;20:292-7.
25. Chantarasorn V, Tannirandorn Y. A comparative study of early postoperative feeding versus conventional feeding for patients undergoing cesarean section; a randomized controlled trial. *J Med Assoc Thai* 2006;89 Suppl 4:S11-6.
26. Ay AA, Kutun S, Ulucanlar H, Tarcan O, Demir A, Cetin A. Risk factors for postoperative ileus. *J Korean Surg Soc* 2011;81:242-9.