Thai Journal of Obstetrics and Gynaecology
September 2000, Vol. 12, pp. 189-194

OBSTETRICS

The Effects of Early Oral Feeding Protocol on Postcesarean Gastrointestinal Functions

Charnchai Pinmuang-ngam MD, MHS,
Suwanna Rakkanpat B Sc,
Piyawan Suwattanarut D Sc.

Maternal and Child Hospital, Health Promotion Center 8, Nakornsawan, Thailand

ABSTRACT

Objective To compare the gastrointestinal morbidity of early oral feeding protocol of water to soft diet in first twelve hours postoperation to the traditional 24 hours NPO.

Design Prospective randomized clinical trial.

Setting Maternal and Child Hospital, Health Promotion Center 8, Nakornsawan.

Material and methods 181 postcesarean patients were random assigned to the study group of which will be served with water, liquid and soft diet at 2, 6 and 12 hours postoperation brespectively. 155 patients were assigned to control group of which progress of water to soft diet will be started 24 hours postoperation. Gastrointestinal functions and morbidity were compared.

Results There were no differences in gastrointestinal morbidity between both groups, while bowel sound and flatus were detected earlier significantly in study group. Average intravenous fluid and analgesic used were also lesser in study group than control group.

Conclusion Early oral feeding protocol after cesarean delivery was not increase gastrointestinal morbidity. Economic advantage also evident were, lesser used of intravenous fluid volume, amount of analgesia and duration of retaining Foley's catheter.

Key words: Early feeding, cesarean section, gastrointestinal morbidity

Thailand has new baby born just below one million each year.[1] As reported from Health System Research Institute in 1997,[2] national cesarean section rate and private hospital cesarean section rate were 22.4% and 51.4% respectively. Care of nearly 200,000 post cesarean patients was a big burden not only on heath personels workload but also on the economic status of our country. Traditionally the postcesarean patients had nothing per oral and received parenteral fluid maintenance and retained Foley's catheter for 24 hours for fear of gastrointestinal complications. This traditional postoperative care also delayed the patients ambulation which may increase respiratory and urinary tract infection.[3]

The purpose of this study is to compare the gastrointestinal complications of our new post cesarean early oral feeding protocol of water to soft diet in first twelve hours postoperation to the traditional care of 24 hours NPO.

Materials and Methods

From February 16,1998 to July 31,1998, 336 cesarean patients who had no severe obstetrics, medical, surgical and anesthetic complications were allocated to the study and control group at the postoperative ward. Random assignment was performed by using digit number from statistic random number table and sealed in the envelope.

No any medical personels knews which patients be assigned to study or control group until the patient arrived at postoperative ward where the envelope was opened.

181 postoperative patients in study group be permitted to drink water 2 hours post operation. Liquid and soft diet was served at six and twelve hours respectively. Regular diet was served to the patient desire but must be after flatus occurred. Intravenous and Foley catheter were removed about 12 hours postoperation.

The 155 patients in the control group was served with water at 24 hours postoperation. Liquid , soft and regular diet was followed sequently.

Bowel sound was auscultated for 5 minutes every 2 hours. Flatus and defecation was detected by asking every 4 hours.

If gastrointestinal complications such as abdominal discomfort, nausea, vomiting and diarrhea occurred, responsible doctors was consulted and treated accordingly.

Volume of water and liquid diet consumed by each patients will be recorded in millilitres.

Results

Previous operative experience were similar in both groups (Table 1)

Table 1. Past operative experiences

	Study group		Control group		p-value
	No.	%	No.	%	
No experience	136	75.0	118	76.2	
Previous cesarean section	42	23.2	33	21.3	
Appendectomy	1	0.6	2	1.3	
Hernia	1	0.6	1	0.6	
Orthopedic	1	0.6	-	-	
Tonsillectomy	-	0.0	1	0.6	
	181	100	155	100	0.78

Table 2. Operations performed

	Study group		Control group		p-value
	No.	%	No.	%	
C/S	124	68.5	113	72.9	
C/S c̄ TR	44	24.3	35	22.6	
C/S c̄ TR c̄ Appendectomy	13	7.2	7	4.5	
	181	100	155	100	0.51

There were no difference in type of anesthesia between both groups. (Table 3)

Table 3. Types of anesthetic used

	Study group		Control group		p-value
	No.	%	No.	%	
General anesthesia	64	35.3	52	33.5	
Epidural anesthesia	72	39.8	77	49.7	
Spinal anesthesia	45	24.9	26	16.8	
	181	100	155	100	0.10

There were no difference in estimated blood loss (EBL) between both groups. Analgesic drugs and intravenous fluid used were higher in control group. (Table 4)

Table 4. Compare EBL , IV fluid and Analgesic used

	Study		Control		p-value
Estimated blood loss (EBL)	**No.**	**%**	**No.**	**%**	
< 500 ml	37	20.5	19	12.3	
501-1,000 ml	128	70.7	122	78.7	
> 1,000 ml	16	8.8	14	9.0	
	181	100.0	155	100.0	0.13
Average blood loss (ml)	**682.87 ± 298.49**		**729.68 ± 289.69**		**0.15**
Intravenous fluid	**No.**	**%**	**No.**	**%**	
< 1,000 ml	1	0.6	-	-	
1,001-2,000 ml	174	96.1	8	5.2	
2,001-3,000 ml	6	3.3	85	54.8	
> 3,000 ml	-	-	62	40.0	
	181	100.0	155	100.0	0.00
Average fluid used (ml)	**1,294.86 ± 268.33**		**2,892.58 ± 447.02**		**0.00**
Analgesia	**No.**	**%**	**No.**	**%**	
Not used	167	92.2	125	80.6	
Pethidine	9	5.0	15	9.8	
Morphine	1	0.6	1	0.6	
Tramal+Pethidine	-	-	1	0.6	
Tramal	3	1.6	12	7.8	
Voltaren	1	0.6	1	0.6	
	181	100.0	155	100.0	0.005

There were no differences in preoperative NPO time , operative and anesthetic time between both groups.

Base on study designed and intervention, duration of retaining Foley's catheter and intravenous fluid administration were about fifty percent less in study group than control group. Time from sip of water to regular diet was about one day earlier in study group. (Table 5)

Table 5. Compare operative and postoperative conditions in early feeding and traditional groups

	Study group	Control group	p-value
Preoperative NPO time (hours)	7.78 ± 3.77	8.10 ± 3.47	0.42
Operation time (min)	27.88 ± 8.83	28.62 ± 7.94	0.42
Anesthetic time (min)	36.01 ± 11.90	36.39 ± 10.36	0.75
Duration of IV fluid admin.	606.41 ± 151.58	1,234.06 ± 201.45	0.000
(min) [hours]	[10.60]	[20.34]	
Duration of retaining of Foley	589.26 ± 136.61	1,180.01 ± 214.81	0.000
catheter (min) [hours]	[9.49]	[19.40]	
Time to start (min) [hours]			
- Sip of water	215.97 ± 106.45	1,276.29 ± 198.75	0.000
	[3.35]	[21.16]	
- Liquid diet	447.45 ± 119.88	1,339.32 ± 232.17	0.000
	[7.27]	[22.19]	
- Soft diet	984.98 ± 635.75	1,804.27 ± 317.72	0.000
	[16.24]	[30.42]	
- Regular diet	2,801.74 ± 791.01	3,953.89 ± 737.69	0.000
	[46.41]	[65.53]	

Bowel sound and flatus were evident significant earlier in early feeding group. (Table 6)

Table 6. Gastrointestinal function findings

	Study group	Control group	p-value
Duration of gastrointestinal			
finding (min) [hours]			
- Bowel sound	324.83 ± 150.33	390.49 ± 264.40	0.005
	[5.24]	[6.30]	
- Flatus	1,570.74 ± 836.71	1,871 ± 867.38	0.002
	[26.10]	[31.11]	

Postoperative gastrointestinal morbidities were not statistically significant different between both groups. (Table 7)

Table 7. Severity of GI symptoms

Signs and Symptoms		Study group		Control group		P-value
		No	%	No	%	
No Complication		128	70.7	119	76.8	0.32
Abdominal	Mild	52	28.7	30	23.2	0.17
Discomfort	Severe	1	0.6	0	0	
Vomiting	Mild	18	9.9	11	7.1	0.62
	Severe	0	0	1	0.6	
Diarrhea	Mild	2	1.1	0	0	0.15
	Severe	0	0	0	0	

Discussion

Many obstetricians and general practitioners who still familiar with traditional postoperative care let their patients received water or liquid diet 24 hours postoperation or when bowel sounds were detected.[4] During the NPO period, patients were fixed by the intravenous line and Foley's catheter which delayed the ambulation and increase risk of respiratory and urinary tract infection.[3] However, recent gynecologic experience show that post laparoscopic or major gynecologic surgery such as radical hysterectomy patients now can start oral feeding early on the first postoperative day or even on the day of operation without severe gastrointestinal complication.[5-7] From these experiences many obstetricians who realized that cesarean section is the operation with less bowel manipulation ,shorter operative time, less risk to infection than many other surgical operations and usually perform on young healthy patients[8], introduce solid foods to their patients in the first postoperative day.[9]

There are many studies of early feeding in obstetrical and gynecologic surgery, some of them prepared special low residue diet for the patients,[4-5] but these forms of diet are not available or can not prepared in most of our community and provincial hospitals.

This study used the common form of diet available in most of the Thai provicial hospital and set the new protocol of timing to serve water to regular diet.

This protocol start first oral feeding with water 2 hours postoperation which favorably decrease thirsty and refresh the patients after a long period of NPO during labor. Liquid diet used is malt extract beverage which has very low residue and used commonly in many hospitals.

There were no differences in gastrointestinal complications between traditional and early feeding groups. Flatus was passed slightly earlier in early feeding group which possibly due to positive stimulation on the gastrointestinal tract and caused the decrease in length of postoperative ileus.[9] This early feeding protocol can also be used in case of appendectomy performed with C/S without increase gastrointestinal morbidities.

In conclusion , the early oral feeding protocol after cesarean sections did not increase gastrointestinal morbidities. It should be considered by the obstetricians who still used traditional protocol.

Nevertheless, the benefits of less amount of intravenous fluid, analgesic drugs and shorter duration of retaining Foley's catheter in study group need further specific designed study, which was not the

objectives of this study, to evaluate the health economic impacts in terms of the decrease in the following :-

- Cost of IV fluid and analgic drugs.
- Workload of nursing care.
- Nosocromial infection rate from shorter duration of intravenous and urethral catheterization.
- Postoperative adhesion from early ambulation after discontinuing intravenous and urethral catheteriazation.

References

1 Ministry of Public Health , Public Health Statistics AD 1997, 33.

2 Tangcharoensathien V , Chantharasathi N , Sithitool C' Ung P. Pattern of Hospital Delivery in Thailand 1990-1996. Health System Research Instilute. Bangkok.: 1997 : 1-42.

3 Thomson JD , Rock JA. Te Linde's Operative Gynecology. Seventh ed. Philadelphia : JB Lippincott 1992 : 87-115.

4 Weinstein L , Dyne PL , Duerbeck NB. The PROEF diet - A new postoperative regimen for oral early feeding. Am J Obstet Gynecol 1993 ; 168 : 128-31.

5 Binderow SR , Cohen SM , Wexner SD , Nogueras JJ. Must early postoperative oral intake be limited to laparoscopy?. Dis Colon Rectum 1994 ; 37 : 584-9.

6 Hessov I , Larsen KR , Sodergaard K. Improved early alimentation after radical hysterectomies without the traditional use of stomach tube. Acta Obstet Gynecol Scand 1988 ; 67 : 225-8.

7 Bufo AJ , Feldman S , Daniels GA , Lieberman KC. Early postoperative feeding. Dis Colon Rectum 1994 ; 37 : 1260-5.

8 Strong TH Jr , Brown WL Jr , Brown WL , Curry CM. Experience with early postcesarean hospital dismissal. Am J Obstet Gynecol 1993 ; 169 : 116-9

9 Soriano D, Dulitzki M , Keidar N , Barkai G , Mashiach S, Seidman D. Early oral feeding after cesarean delivery. Obstet Gynecol 1996 ; 87 : 1006-8.