

# Effect of Regular Progression of Diet, Early Oral Feeding and Early Oral Feeding with Domperidone on Post Cesarean Diet Tolerance in a Tertiary Hospital \*

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## ABSTRACT

The rate of admission in the Obstetrics and Gynecology Department in a tertiary hospital in Quezon City is continuously increasing, sometimes more than its bed capacity. An average of 2-3 mothers occupying a single bed with their newborn children can be overwhelming, to the point where the comfort hygiene and wellness of the patients after delivery are sacrificed. It is important for us to find a way in which the ward can accommodate all patients without any risk of losing the comfort that the hospital can offer during their stay. A faster patient turnover can at least help in this kind of situation.

This study aims to investigate if early feeding can lead to early return of normal bowel function which could mean shorter hospital stay due to lesser post-operative discomfort and early ambulation. A randomized, three arm study was done in a tertiary hospital from June 2016 to September 2016. Ninety three women who underwent elective Cesarean Section were admitted and were randomly assigned into three groups. Group A had regular progression of diet, Group B were those who were fed early and Group C those who were given Domperidone before they were fed early. The primary outcome would be the time to regular diet tolerance. Secondary outcomes include the time of first flatus, time to ambulation out of bed, duration of intravenous infusion, duration of indwelling foley catheter and finally, length of hospital stay.

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## **OBJECTIVES**

### **General Objective:**

To compare the effect of regular progression of diet, early feeding and early feeding with Domperidone on the diet tolerance of post cesarean patients in the Obstetrics and Gynecology Department in a tertiary hospital.

### **Specific Objectives:**

- To compare the time to regular diet tolerance among the three Groups
- To compare the time of return to normal bowel function among the three groups
- To investigate if these protocols have significant effect on the other aspects of post-operative well-being like time to first flatus, time to ambulation out of bed, duration of intravenous fluid, duration of indwelling catheter and length of hospital stay.

## **INTRODUCTION**

Around the globe, cesarean section rates have increased dramatically. This can be attributed to many factors including more births among older women and technological advances<sup>11</sup>. The World Health Organization reported that 18.5 million cases of cesarean section are performed yearly worldwide<sup>8</sup>. In the Philippines alone, we have a cesarean section rate of 7-10% of all live births<sup>10</sup>. In the Department of Obstetrics and Gynecology in a Tertiary hospital in Quezon City the Cesarean Section Rate is 10-15 % per month.

Cesarean Section involves a variable amount of bowel manipulation causing temporary impairment of bowel motility, leading to abdominal discomfort and delayed post-operative recovery<sup>1</sup>. Conventionally, patients are not allowed any oral intake 18-24 hours postoperatively because bowel sounds should be appreciated first.

In the normal physiologic recovery of the digestive tract, the small bowel and stomach resume their function within 8 hours; large bowel activity returns within 48 hours while the recto sigmoid recovers within 72 hours post operatively<sup>2</sup>. However some studies revealed that early oral feeding can enhance early gastrointestinal function which would result to

early ambulation, good nutritional status and thus shorter hospital stay<sup>5</sup>.

Studies have reported that early oral feeding enhanced gastrointestinal function recovery, resulting in good nutritional status, rapid wound healing, early ambulation and an early return to normal daily life activities. Others, however, have reported that early oral feeding did not have an effect on gastrointestinal function recovery<sup>6</sup>.

Regular diet tolerance is defined as the ability to eat at least two regular diet meals and consume more than half of the food at each meal without vomiting<sup>6</sup>.

When a patient undergoes cesarean section, visceral irritation occur which in turn causes dopamine and serotonin secretion. Dopamine and serotonin stimulate the medullary vomiting center and then cause postoperative nausea and vomiting<sup>2</sup>. Domperidone, a prokinetic and antiemetic drug acts as a peripherally selective dopamine receptor antagonist that relieves vomiting and stimulates peristalsis<sup>7</sup>. This study investigates whether early oral feeding and early feeding with Domperidone can be a potential accelerator of gastrointestinal recovery of post cesarean section patients.

The objective of this study was to compare the efficacy of early oral feeding and early oral feeding with Domperidone with the conventional diet schedule in terms of return of tolerance to regular diet in women who had undergone cesarean delivery. It aims to provide the post cesarean patients in a tertiary hospital the comfort of a shorter hospital stay.

## **METHODOLOGY**

This is a randomized controlled trial study conducted in a tertiary institution in Quezon City, Department of Obstetrics and Gynecology from June 1, 2016 to September 30, 2016.

In the outpatient department, pregnant women 16-35 years old at 34 weeks age of gestation scheduled for elective cesarean section under spinal anesthesia were recruited. The study was presented and thoroughly explained to each subject. If an informed consent was signed, the subject would be asked to get a number from a box. The number would be the basis of her group. They were counseled about the preoperative preparations including fasting for eight hours prior to the procedure.

The patients were divided into three groups. Group A would have the conventional progression of diet, that is, nothing per oreum postoperatively for 18-24 hours, after which, diet is progressed to sips of water and tea and crackers. When the patient passes flatus she is allowed to have soft diet and later on diet as tolerated once they had bowel movement. Group B would be started with sips of water as early as 6 hours post operatively then after 2 hours soft diet and then after another 2 hours regular diet. Group C would follow the same diet as Group B with the addition of Domperidone 10mg tablet taken orally before the meals were given.

The exclusion criteria are: 1. History of major gastrointestinal surgery; 2. Any signs of infection prior to surgery like fever; 3. Medical complications like Hypertension and Diabetes Mellitus; 4. Operative complications requiring longer fasting like bowel injuries.

Intraoperatively, all patients underwent an infraumbilical incision, low transverse cesarean section with an average duration of one to one and a half hour operating time.

Postoperatively, intravenous fluids were given to all groups until the women tolerated oral intake well. Indwelling foley catheter was inserted to all patients preoperatively and was removed after the patient was ambulating freely. At the obstetrics ward, the type and amount of food each patient consumed, the time of the first flatus and defecation, the time of ambulation out of bed and any gastrointestinal symptoms like nausea and vomiting were recorded.

Drop-out criteria include those with allergy to Domperidone and those who had intraoperative complications. The surgeon when doing ward rounds would assess the condition of each patient, observe bowel sounds, watch out for any signs of ileus and infection and check wound condition. Patients were discharged after they had tolerated a regular diet with no other post-operative complications present.

Sample size was set to a minimum of 31 women for each group who underwent elective cesarean section at a tertiary hospital. All of them should satisfy the inclusion criteria for the study based on 5 percent level of significance, 90 percent power and observed maximum average difference of 24.3 hours. Descriptive statistics of demographic and clinical data of the patients were reported as mean and standard deviation (mean $\pm$ SD) or frequency and

percentages (n(%)). Nonparametric statistical tests were used in the study since it was found out that the data were not normally distributed.

The Pearson Chi-square Test or Fisher's Exact Test was computed to test significant differences among the three groups based on the categorical variables, whichever was appropriate. Continuous data was compared by Kruskal-Wallis analysis of variance tests, according to the distribution of data. The level of significance was set to 0.05 and P-values less than this value were considered statistically significant. The analysis of the data was aided with the statistical software IBM-SPSS version 20.

## RESULTS

Among ninety eight pregnant women interviewed for this study, ninety three patients were enrolled. All of them were interviewed and counseled at the outpatient clinic. Thirty one patients were brought to each of the three groups.

Table 1 represents the demographic profile and clinical characteristics of the sample patients. These sample patients were randomly distributed to the three post cesarean groups namely the regular progression, early oral feeding, and early oral feeding with Domperidone.

It was noted however that patients distributed in the early oral feeding group (mean=25.9, SD=4.1) were older compared to the other groups. Most of the patients ages were between 20 to 29 years old, but the age groupings showed no significant differences between post cesarean groups (Pvalue=0.493). When it comes to the gravidity, majority of these patients had gravidity equivalent to 1. However, gravidity classifications was not significantly different between groups (P-value=0.081).

Table 2 shows the post cesarean outcomes among the three groups. As to diet tolerance, all of the patients among the three groups developed no complications. The data however revealed that there were significant differences among the three groups in the number of hours to regular diet tolerance (P-value<0.000). Patients in the regular progression group tends to have higher average time (mean=33.1, SD=1.9) as compared to the other groups. There were also significant differences between groups in the outcomes of time to flatus (P-value<0.000), duration of indwelling foley catheter (P-value<0.000),

and length of hospital stay ( $P$ -value $<0.000$ ). Patients in the regular progression group would have statistically higher average values in these outcomes as compared to EOF and EOF with Domperidone. On the other hand, the time to ambulation out of bed ( $P$ -value=0.217) and the duration of intravenous infusion ( $P$ -value=1.000) showed no statistically significant differences among the 3 post cesarean groups.

The outcomes showed that the median time to regular diet tolerance in Group A was thirty three hours while both Group B and Group C were twenty three hours. The median time of the length of hospital stay for the women who had conventional diet was forty one hours and thirty hours for both groups of women who were fed early.

The secondary outcomes which include the time to first flatus and duration of indwelling foley catheter were noted to be significant. The time to first flatus in the women who had conventional diet as compared to the women who were fed early with or without the Domperidone was twenty two hours and thirteen hours respectively. There were no difference among the three groups with regards to the time of intravenous infusion and the time of ambulation out of bed.

## **DISCUSSION**

Because of the belief that early oral feeding would cause distention of the gastrointestinal tract and thereby result in additional abdominal discomfort, nausea and vomiting, most Obstetricians are still reluctant to give early oral feeding to post cesarean patients. Thus the challenge to investigate the effect of early oral feeding and addition of Domperidone to post cesarean diet tolerance arose.

In this study, the outcomes showed that post-operative women who had early oral feeding compared to those who had conventional diet had an earlier tolerance to regular diet with no significant complications noted. Likewise, the secondary outcomes that were observed like the time to first flatus and duration of indwelling foley catheter were significantly decreased in those who were fed early. There was no difference among the three groups with regards to the time of intravenous infusion and the time of ambulation out of bed.

Notably, there were no adverse complications that were seen in all the patients. All of them tolerated their diet well and those who were fed early had a shorter hospital stay of an average of less than 48 hours.

Meanwhile it was also noted that the post-operative women who were given Domperidone before being fed early and those who were fed early without any medications had no significant difference on all parameters of the study as shown in the outcomes presented. Visceral manipulation in cesarean delivery may not be to the extent that any benefit would be perceived from the antiemetic mechanism of Domperidone. This may be an advantage because this means that we can achieve an early diet tolerance and among hospital stay without any added medication and expense.

## **CONCLUSION AND RECOMMENDATION**

In conclusion, the two early oral feeding groups demonstrated a significantly shorter time to regular diet tolerance when compared with a conventional diet schedule. Domperidone did not enhance the return of gastrointestinal function in the elective post cesarean patients in this study. To facilitate an accelerated return to normal activity and shorten the duration of hospital stay of post cesarean section women, early oral feeding should be used in routine practice. There were no adverse effects that were noted in this study.

It is recommended that future studies would include more subjects. Other parameters observed from the post cesarean woman should be included in the data collection like surgical site condition and maternal lactation.

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**TABLE 1: Demographic and Clinical Characteristics of Patients**

	<b>Regular Progression (n=31)</b>	<b>EOF (n=31)</b>	<b>EOF with Domperidone (n=31)</b>	<b>P-value</b>
<b>Age (in years), mean±SD</b>	22.9±3.8	25.9±4.1	24.4±4.4	0.019*
<b>Age Groups, n(%)</b>				0.493
<=19	5(16.1)	2(6.5)	4(12.9)	
20-29	24(77.4)	23(74.2)	22(71.0)	
>=30	2(6.5)	6(19.4)	5(16.1)	
<b>Gravidity, n(%)</b>				0.081
1	17(54.8)	10(32.3)	15(48.4)	
2	11(35.5)	9(29.0)	11(35.5)	
3	3(9.7)	12(38.7)	5(16.1)	
>=4	-	-	-	

Note: \*Significant at 0.05 level.

**Table 2: Post Cesarean Outcomes**

	<b>Regular Progression (n=31)</b>	<b>EOF (n=31)</b>	<b>EOF with Domperidone (n=31)</b>	<b>P-value</b>
<b>Diet Tolerance, n(%)</b>				-
<b>With complications</b>	-	-	-	
<b>Without complications</b>	31(100.0)	31(100.0)	31(100.0)	
<b>Time to regular diet tolerance (in hours), mean±SD</b>	33.1±1.9	23.5±1.1	23.4±1.2	<0.000*
<b>Time to first flatus (in hours), mean±SD</b>	22.5±1.9	13.5±1.1	13.4±1.2	<0.000*
<b>Time to ambulation out of bed (in hours), mean±SD</b>	13.9±1.3	14.5±1.1	14.4±1.2	0.217
<b>Duration of Intravenous infusion, mean±SD</b>	24.0±0.0	24.0±0.0	24.0±0.0	1.000
<b>Duration of Indwelling foley catheter, mean±SD</b>	18.2±1.5	11.5±1.1	11.4±1.2	<0.000*
<b>Length of Hospital stay (in hours), mean±SD</b>	41.1±1.9	31.5±1.1	31.4±1.2	<0.000*

Note: \*Significant at 0.05 level.

## KASULATAN NG PAHINTULOT

**TITULO NG PANANALIKSIK:** Effect of Regular Progression of Diet, Early Feeding and Early Feeding with Domperidone on Post Cesarean Diet Tolerance in a Tertiary Hospital

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## PANINIMULA

Ako po ay manggagamot mula sa kagawaran ng Obstetrics at Gynecology ng Quezon City General Hospital. Kayo po ay inaanyayahan ko na sumali sa aking pag-aaral na pinamagatang Effect of Regular Progression of Diet, Early Feeding and Early Feeding with Domperidone on Post Cesarean Diet Tolerance in a Tertiary Hospital. Ilalahad ko po sa iyo ang mga impormasyon ukol sa pagsasagawa ng aing pag-aaral. Kapaga mayroon po kayong hindi maunawaan, ipapaliwanag ko po yon ng masinsinsan sa abot ng aking mkakaya. Bibigyan ko po kayo ng panahon na siyasatin ang pag-aaral na ito at panahong ipakita ang kasulatan na ito sa kung sinumang nais mo.

## BOLUNTARYONG PAGSALI

Ang pagsali mo po sa pananaliksik na ito ay sarili mong kusa at maari kang tumiwalag sa anumang oras sa kahit na anong kadahilanan. Hindi po maapektuhan ang iyong pagpapagamot at serbisyong iyong makakamtansa pagamutan na ito sakaling ikaw ay tumigil sa paglahok sa pag-aaral.

## PANGANIB

Ikaw po ay magsasabi ng anumang nararamdaman na maaringmaging epekto ng pagaaral na ito. Alam mo rin po na kung sakaling may mangyari na di kanais-nais na epekto mula sa anumang prosesong kaugnay sa pagaaral na ito, gagawin ng manunuri ang lahat ng nararapat upang siguraduhin ang iyong kaligtasan at kalusugan ng walang anumang bayad na manggagaling sa inyo.

## KARAPATANG TUMANGGI O PAGBAWI NG KAGUSTUHANG MAKILAHOK

Hindi po sapilitan ang paglahok sa pagaaral na ito. Maari po kayong tumigil sa pakikilahok anumang oras ninyo gustuhin

## KASULATAN NG PAHINTULOT

Nabasa ko at aking naintindihan ang mga nabanggit na impormasyon. Ako ay binigyan ng pagkakataong magtanong at ang mga ito ay naliwanagan. Ako ay kusang loob na lumalahok sa pananaliksik na ito.

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Saksi

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Pangalan at Lagda ng Kalahok  
Mananalisik