



# Does Prophylactic Use of Postcesarean Section Laxatives Favor Bowel Movements?

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## Abstract

**Introduction** Chronic constipation (CC) is a highly prevalent disease in Western society. Chronic constipation can have a different etiology in patients who underwent a cesarean section and result from postoperative stress and metabolic response to trauma, analgesic agents, immobilization, and dietary restrictions. Chronic constipation may also occur due to puerperium-related psychological changes and to the stretching and weakening of the perineal and abdominal muscles after childbirth.

**Objectives** The present study analyzes intestinal transit restoration after a cesarean section and the influence of osmotic laxative agents.

**Methods** The present prospective, nonrandomized sample study used the ROME III questionnaire and the Bristol stool scale in adult women who underwent a cesarean section. We divided the subjects into 2 groups, each with 30 patients, to compare the effect of the prophylactic administration of an osmotic laxative.

**Results** We evaluated 60 randomly-chosen pregnant women from the Obstetrics ward of Hospital Santa Marcelina, São Paulo, SP, Brazil, from October 2019 to March 2020. Their mean age was 26.8 years old, and the mean gestation time was 37.95 weeks. Ten patients (16.7%) presented with constipation before the cesarean section, and 38 (63.3%) had a bowel movement after the procedure. However, in 84.2% of these patients, the usual stool consistency worsened. After the cesarean section, 46.7% of the women who did not receive laxative agents had a bowel movement, compared with 80% of those who did ( $p = 0.0074$ ).

**Conclusion** Some factors, including those related to the procedure, may hamper intestinal transit restoration after a cesarean section. Osmotic laxative agents can facilitate transit restoration with no negative effects in this group of patients.

## Keywords

- ▶ constipation
- ▶ pregnancy
- ▶ cesarean delivery
- ▶ puerperium
- ▶ laxatives

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## Introduction

Chronic constipation (CC) is a highly prevalent disease in Western society, affecting 15 to 20% of adult subjects, 33% of whom are > 60 years old. Chronic constipation predominates in females,<sup>1</sup> and it is frequent during pregnancy and puerperium.<sup>2</sup>

Chronic constipation may be primary or secondary. Primary CC causes regular intestinal transit, outlet obstruction, or slow colonic transit. On the other hand, secondary CC results from metabolic, mechanical, pharmacological, or psychiatric disorders.<sup>1</sup>

In addition, CC has been the focus of attention of health-care professionals, institutions, and organizations during the last decade. The World Health Organization (WHO) stated that constipation significantly impacts the quality of life mainly because of its associated symptoms, including discomfort, abdominal pain, painful bowel movements, fecal impaction and leakage, nausea, and vomiting.<sup>3</sup>

Some clinicians define constipation based on bowel functionality and stool consistency. However, it is crucial not to overlook incomplete defecation, digital maneuvers, abdominal discomfort, and straining.<sup>4</sup>

Constipation can have a different etiology in patients who underwent a cesarean section.<sup>5-7</sup> Intestinal transit restoration requires some measures, such as education and guidance on nutrition and adaptation to the clinical puerperal conditions.<sup>8</sup>

When these lifestyle and dietary measures fail, the second step in managing constipation involves osmotic laxative agents, such as polyethylene glycol and lactulose.<sup>1</sup> These drugs can alleviate symptoms, minimize fecaloma formation, and reduce straining during bowel movements in subjects prone to anal diseases, such as anal fissures and hemorrhoidal thrombosis, which are more prevalent in pregnant and postparturient women.

Considering the significant undesirable effects and the prevalence of postcesarean section CC, we believe that knowledge of this disorder in Brazil is necessary to analyze the prophylactic adoption of laxative agents in this population.

## Objectives

The present study analyzes intestinal transit restoration after a cesarean section and the influence of osmotic laxative agents.

## Methodology

The present study is a prospective sample clinical trial in pregnant women > 18 years old undergoing cesarean section comparing the prophylactic use or not of an osmotic laxative agent during hospitalization for delivery at the Obstetrics Service from Hospital Santa Marcelina, São Paulo, SP, Brazil.

Patients were interviewed and answered questionnaires on the day of admission and 24 hours after the cesarean section. We divided them into 2 groups: the first 30 patients did not receive laxative agents, and the following 30 received lactulose, 20 mL, every 12 hours.

The interview encompassed age, body mass index (BMI), gestational week at the time of delivery, prepartum bowel movement frequency, and bowel movement after the cesarean section. Next, we applied the ROME III<sup>9</sup> and the stool consistency questionnaires.<sup>10</sup>

All patients who agreed to participate in the present study signed an Informed Consent Form (ICF) approved by the Research Ethics Committee (CEP number 3.725.668).

## Results

We evaluated 60 randomly chosen pregnant women from the Obstetrics ward of Hospital Santa Marcelina, São Paulo, SP, Brazil, from October 2019 to March 2020. Their mean age was 26.8 years old (range: 19 to 40 years old), and the mean gestation time was 37.95 weeks (range: 25 to 40 weeks). Ten (16.7%) of these subjects had constipation before delivery.

The mean BMI was 25.15 kg/m<sup>2</sup> (range: 19.1 to 32.4 kg/m<sup>2</sup>). The 3 pregnant women with a BMI > 29 kg/m<sup>2</sup> presented worse stool consistency after delivery.

► **Table 1** correlates age, ROME III criteria, and stool consistency during pregnancy with the occurrence of bowel movements after the cesarean section. The rate of women who had a postcesarean section bowel movement during hospitalization was 73.1% among those aged 18 to 25 years old, 61.3% among those aged 26 to 35 years old, and 0% among those > 36 years old.

Overall, 38 patients (63.3%) had a bowel movement after the cesarean section. However, 84.2% of these patients presented a worse than usual stool consistency compared with the consistency before delivery. For 10.6%, the stool consistency remained the same, and for 5.2%, the consistency improved after the cesarean section. Stool consistency was worse in 83.3% of the patients receiving laxative agents in comparison with 85.7% of the nontreated subjects.

**Table 1** Stratification of bowel movement parameters according to age before and after a cesarean section

Age	Number of cases	ROME III > 2 before cesarean section	Bristol stool consistency score 3, 4, or 5 before cesarean section	Postcesarean section bowel movement during hospitalization
18 to 25 years old	26 (43.3%)	6 (23.1%)	25 (96.2%)	19 (73.1%)
26 to 35 years old	31 (51.7%)	4 (12.9%)	27 (87.1%)	19 (61.3%)
> 36 years old	3 (5%)	0	1 (33.3%)	0

**Table 2** Comparison of subjects treated or not with a laxative agent regarding mean age, mean body mass index, ROME III criteria, and stool consistency

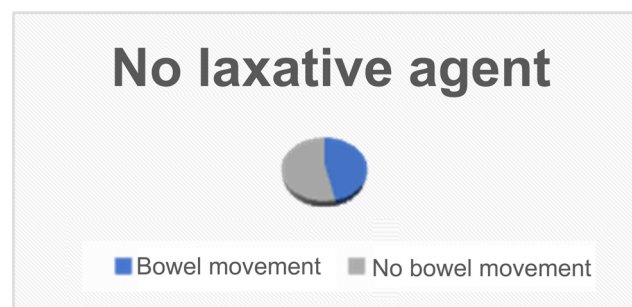
	Mean age (years old)	Mean BMI (kg/m <sup>2</sup> )	ROME III $\geq$ 2 before cesarean section	Bristol 3, 4, or 5 before cesarean section	ROME III $\geq$ 2 after cesarean section	Bristol 3, 4, or 5 after cesarean section
Group treated with a laxative agent after the cesarean section	26.43	24.69	6 (20%)	27 (90%)	6 (20%)	4 (20%)
Group not treated with a laxative agent after the cesarean section	27.20	25.62	4 (13.3%)	26 (86.7%)	10 (33.3%)	2 (14.3%)

Abbreviation: BMI, body mass index.

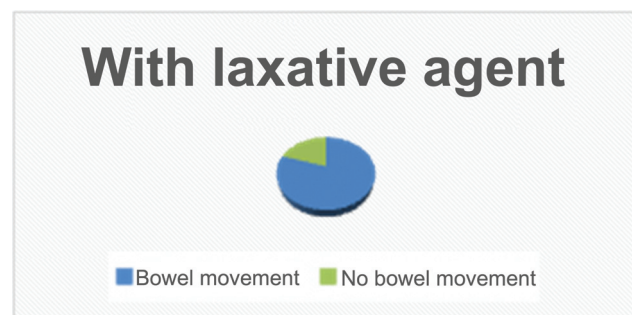
► **Table 2** shows the clinical data from each group.

**Graph 1** reveals that 14 (46.7%) of the women who did not receive laxatives after the cesarean section had bowel movements on admission. Among them, only 2 subjects (14.3%) had a Bristol stool consistency score of 3 or 4. In addition, 13.3% of these women reported constipation on admission.

On the other hand, **Graph 2** shows that 24 (80%) puerperal women receiving 20 mL of lactulose every 12 hours had bowel movements on admission ( $p=0.0074$ ), but only 4 (16.7%) presented a Bristol stool consistency score of 3 or 4. In addition, 20% of the prophylactic treated had  $> 2$  ROME III criteria on admission, emphasizing the relevance of using laxative agents during the puerperal period.



**Graph 1** Bowel movement without the use of laxative agent after cesarean section. Sem uso de laxante = No laxative agent, Evacuaram = Bowel movement, Não evacuaram = No bowel movement.



**Graph 2** Bowel movement with the use of laxative agent after cesarean section. Com uso de laxante = With laxative agent, Evacuaram = Bowel movement, Não evacuaram = No bowel movement.

## Discussion

Chronic constipation is the most common digestive complaint in medical care, with a high prevalence in the general population. It is defined according to intestinal functionality and stool consistency, as well as symptoms of incomplete evacuation, digital maneuvers, abdominal discomfort, and straining.<sup>1</sup>

The present study investigated bowel movements after a cesarean section, aiming to observe the effect of laxative agents during hospitalization. In addition, the present research consisted not only of subjective data and patient reports but also of the objective criteria provided by the ROME III and stool consistency scores.<sup>9,10</sup>

Older publications, with similar goals, compared the institution of laxative measures in pregnant women. Anderson et al.<sup>11</sup> evaluated 40 pregnant women and did not observe a statistically significant benefit from substances to increase fecal bolus formation. In contrast, Greenhalf et al.<sup>12</sup> detected relevant collateral effects from irritative laxative agents.

We must study intestinal function changes during the pregnancy and puerperal cycle due to the high incidence of this comorbidity, whether due to physiological, anatomical, hormonal, dietary, or psychological causes and to the inflammatory response to childbirth-related stress, especially after a cesarean section.<sup>2,13,14</sup>

Estimates report that ~ 11 to 38% of pregnant women have constipation. This rate is consistent with our finding of 16.7%. Constipation is the second most common gastrointestinal complaint during pregnancy after nausea.<sup>13,15</sup> Derbyshire et al.<sup>7</sup> highlighted that the prevalence of CC during pregnancy can vary according to the gestational period, reaching 35% in the 1<sup>st</sup> trimester, 39% in the 2<sup>nd</sup> trimester, and 21% in the last trimester. In addition, these authors observed that 17% of puerperal women present with the condition up to 6 weeks after delivery.

Similarly, our study showed that almost 40% of the women did not have bowel movements in the first 24 hours after the cesarean section. This lack of bowel movements may have several causes, including postoperative stress and

the metabolic response to trauma, rising progesterone levels, use of analgesic agents, immobilization, and dietary restrictions.<sup>5</sup> Other etiologies include the psychological changes resulting from the puerperium<sup>6</sup> and the postpartum stretching and weakening of the perineum and abdominal muscles.<sup>7</sup>

In addition, up to two-thirds of these patients have anal symptoms during the pregnancy and postpartum period, especially hemorrhoid complications and anal fissures. Constipation is one of the main risk factors for these complications.<sup>16</sup> Our study demonstrated that only 46.7% of the patients not receiving a laxative agent had a bowel movement, compared with 80% of the treated patients ( $p = 0.0074$ ). This finding is probably related to lower traumatic aggression to the anoderm.

Early use of laxatives may alleviate constipation. As demonstrated here, bowel movements were more evident in puerperal women receiving prophylactic treatment. However, even in patients with bowel movements after the cesarean section, the vast majority (82.2%) of the subjects presented worsened stool consistency regardless of the administration of laxative agents. This fact exemplifies that even though the laxative agent resulted in bowel movements in the highest percentage of the sample population, some patients still present dry stools (Bristol score 1 or 2), potentially indicating a relevant benefit of stimulation with osmotic laxatives.

In our study, 80% of the women receiving prophylactic laxatives had a bowel movement during hospitalization. Benefits were consistent with the literature evaluating this measure in an attempt to facilitate defecation.<sup>17,18</sup> In a review paper, Jewell et al.<sup>17</sup> demonstrated that when bowel movements do not improve during pregnancy with dietary measures, the use of laxatives is quite favorable. Santana et al.<sup>18</sup> reported increased effectiveness of the medication when associated with abdominal massages during pregnancy and puerperium.

Among the limitations of the present study are the number of patients, determined by convenience, and not based on a calculation of analysis power. In addition, this was not a randomized study, and the evaluation of bowel movements occurred only in the first 24 hours after the cesarean section. Moreover, we did not question bowel habits before pregnancy. However, the present prospective study was carried out in a single center, and it analyzes a simple measure of prophylactic pharmacological intervention in postparturient women.

## Conclusion

Procedural and situational factors may hamper the restoration of intestinal transit after a cesarean section. Osmotic

laxative agents can facilitate transit restoration with no negative effects in this group of patients.

## Conflict of Interests

The authors have no conflict of interests to declare.

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