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Effect of Caffeine Intake on Bowel Movement After Cesarean Section

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Abstract

Background: Coffee is a common beverage that benefits the human body, particularly the cardiovascular and central neurological systems, as well as one's mood. Young individuals who drink coffee have improved intestinal motility.

Aim: The purpose of this research is to look at how coffee consumption affects bowel movements after cesarean delivery.

Patients and methods: Two hundred patients who underwent elective cesarean section (CS). Age range from 20 to 40 years old, Body mass index (BMI) from 18 to 29.9, gestational age from 37 to 42 weeks. They were all submitted to clinical examination, a history, primary outcome, and secondary outcome.

Results: Time for first passage of flatus was significantly shorter among caffeine group than among control group ($P < 0.001^*$). In comparison to the control group, the caffeine group's time for the first intestinal sound was substantially shorter ($P < 0.001^*$). The coffee group's first bowel movement was substantially faster than the control group's ($P < 0.001^*$). The caffeine group had a lower incidence of postoperative stomach discomfort, fullness, nausea, vomiting, and paralytic ileus than the control group; the changes were statistically substantial in all cases other than paralytic ileus.

Conclusion: According to the present research, the coffee group had considerably lower mean beginning of bowel motions and first defecation following cesarean section (CS) than the control group. Coffee is thus a secure and affordable treatment among CS patients, given the significance of early commencement of gastrointestinal motions in persons having CS.

Keywords: Bowel, Caffeine, Cesarean section

1. Introduction

The most frequent major hospital surgical operation carried out in both developed and developing countries is a cesarean section (CS), which is regarded as a regular treatment and has a minimal risk of maternal and fetal death.¹

After abdominal procedures, particularly CS, postoperative intestinal paralysis is frequent. It often increases the length of hospital stay. Regular coffee drinking following a CS has been linked to a noticeably quicker return of intestinal motility and a shorter period before the first bowel movement, according to recent research.² Following a CS,

postoperative care is crucial, especially for the gastrointestinal system. Ileus is a serious gastrointestinal issue that may develop after abdominal procedures, decrease intestinal motility, and last for two to five days. Ileus is a major contributing factor to postoperative hospital stays and the source of many problems.³

Coffee is a common beverage that benefits the human body, particularly the cardiovascular and central neurological systems, as well as one's mood. Foods with high caloric content, acidity, osmolarity, or volume loads may all stimulate the digestive tract. Young people's intestinal motility is positively impacted by coffee use.⁴

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The same randomized clinical research was conducted by Muller and colleagues, who discovered that coffee quickens postoperative bowel movement.⁵

2. Patients and methods

A total of 200 patients who had elective caesarean sections were included in this prospective cohort research, which was carried out in a tertiary care hospital at Al-Hussein and Bab El-Sheirya (Sayed Galal) Hospitals, Al-Azhar University, between November 2021 and November 2022.

Inclusion criteria: age range from 20 to 40 years old, BMI from 18 to 29.9, Gestational age from 37 to 42 weeks, Elective CS, Primigravida patient or previous one CS patient, type of anesthesia is spinal anesthesia.

Exclusion criteria: any CS complicated with bowel injury, other conditions in which caffeine intake is inadvisable e.g. peptic ulcer, Diabetic mellitus (DM) or hypertensive, known hypersensitivity or allergy to caffeine, any diseases which affects gastrointestinal tract (GIT) movement e.g. inflammatory bowel disease, two previous CS or two previous abdominal surgery, any drugs which affects bowel movement e.g. opioid.

3. Methods

Ethical considerations: after being informed of the research's goals and methods, obtained from each individual who participated in the study.

Detailed history taken from women include: personal history: including name, age, place of residence, line of work, and any distinctive behaviors of medical significance.

Obstetric history: included parity, method and place of previous deliveries, asked about time of the last delivery or abortion. We also asked them about any complications happened after deliveries or abortions.

Past medical and surgical history: special interest was directed towards past history of systemic disease such as hypertension, DM, and history of any previous operations or any complications. **Family history:** they were questioned about their family's history of cancer, hypertension, autoimmune illnesses, and DM.

Primary outcome: the first passage of flatus, the first intestinal sound, and the first passage of stool.

Secondary outcome: postoperative side effect: abdominal pain, feelings of fullness, nausea and vomiting and paralytic ileus.

3.1. Statistical analysis

IBM SPSS statistics (Statistical Package for Social Sciences), version 22.0, IBM Corp., Chicago, USA,

Table 1. Time for first intestinal sound in hours among the studied groups, time unit is hour.

Measures	Caffeine group (N = 100)	Control group (N = 100)	P-value
Mean \pm SD (in hours)	5.5 \pm 1.0	6.7 \pm 1.1	<0.001 ^a
Range (in hours)	3.8–8.3	5.0–10.8	

Independent *t*-test.

^a Substantial.

2013, and Microsoft Office Excel 2007 were used to code, tabulate, and statistically investigate the acquired data.

For quantitative regularly distributed data, descriptive statistics were calculated as lowest and maximum of the range, mean \pm SD (standard deviation), whereas for qualitatively dispersed data, they were calculated as number and percentage.

4. Results

This research conducted on 200 patients who underwent elective CS.

In group A: the patients drank 100 ml sugar-free caffeinated coffee at 2, 8, and 14 h after the surgery.

In group B: the patients drank warm water at same intervals.

Our result showed that the caffeine group's time for the first intestinal sound was substantially less than that of the control group Table 1 and Fig. 1.

Comparing caffeine group to control group, time for initial passage of flatus was considerably shorter in the caffeine group Table 2 and Fig. 2.

First bowel movement time was substantially quicker in the caffeine group compared with the control group Table 3 and Fig. 3.

Postoperative stomach discomfort, sensations of fullness, nausea, vomiting, and paralytic ileus were all less common in the caffeine group than in the

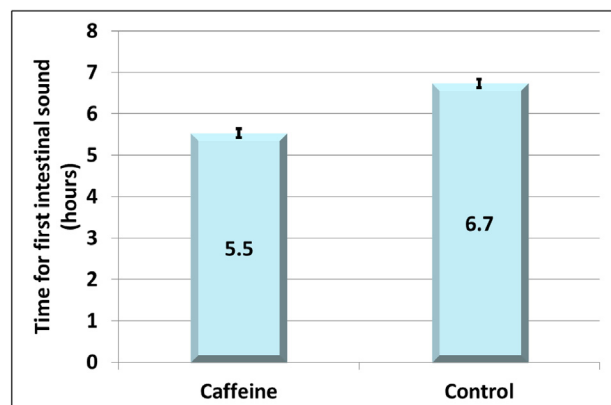


Fig. 1. Time for first intestinal sound among the studied group.

Table 2. Time for first passage of flatus in hours among the study groups, time unit is hour.

Measures	Caffeine group (N = 100)	Control group (N = 100)	P-value
Mean ± SD (in hours)	8.2 ± 1.1	10.8 ± 1.1	<0.001 ^a
Range (in hours)	6.1–11.1	9.1–14.6	

Independent t-test.

^a Substantial.

control group, with the exception of paralytic ileus, where variations in frequency were statistically substantial. Table 4 and Fig. 4.

5. Discussion

Consuming coffee after surgery is a modern technique to speed up gastrointestinal motility and prevent ileus.⁶

By affecting the formation of stomach acid, bile, and pancreatic secretions, coffee is thought to aid digestion. Coffee drinking has increased in popularity since it is so accessible and affordable. Evaluating the impact of postsurgical coffee intake on bowel motility, first time to flatus passage, defecation, and ileus advancement was highlighted as a primary point of interest because early bowel motion after caesarean reflects major conflict and may be connected with postoperative paralytic ileus.⁷

As regards bowel motility, our study results revealed that time for first intestinal sound (5.5 ± 1.0 vs. 6.7 ± 1.1 h), time for first passage of flatus (8.2 ± 1.1 vs. 10.8 ± 1.1 h) and time for first passage of stool (12.6 ± 1.1 vs. 16.3 ± 1.2 h) were substantially shorter among caffeine group than among controls (P value < 0.001).

As regards postoperative side effects, our study results revealed that the coffee group had less postoperative stomach discomfort, fullness, nausea,

Table 3. Time for first passage of stool in hours among the study groups, time unit is hour.

Measures	Caffeine group (N = 100)	Control group (N = 100)	P-value
Mean ± SD (in hours)	12.6 ± 1.1	16.3 ± 1.2	<0.001 ^a
Range (in hours)	10.4–15.5	13.8–20.5	

Independent t-test.

^a Substantial.

vomiting, and paralytic ileus than the control group, and all except paralytic ileus showed statistically substantial changes. The impact of coffee on bowel performance after gastrointestinal surgery has been the subject of contradictory observations in the literature.⁸

Consuming coffee after surgery is a common habit that has been studied. Patients who drank coffee had better gastrointestinal function without aggravating postoperative morbidity, according to the first randomized controlled experiment. Müller et al.,⁵ conducted this research on patients receiving open or laparoscopic colectomy for both benign and malignant diseases. Muller observed that drinking coffee after surgery dramatically speeds up the time it took for the first bowel movement.

In agreement with our results, Rabiepour et al.,⁹ planned a prospective trial to determine the impact of coffee on CS patients' gastrointestinal motility and discovered that the intervention group's first flatus time was 5 h shorter.

In order to determine whether giving coffee to optional abdominal surgery patients immediately after surgery would reduce postsurgical ileus, Kane et al.,¹⁰ carried out a systematic review with meta-analysis of six randomized studies. They found that

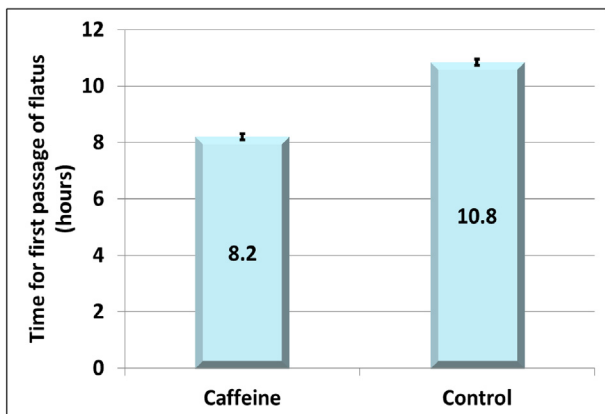


Fig. 2. Time for first passage of flatus among the studied groups.

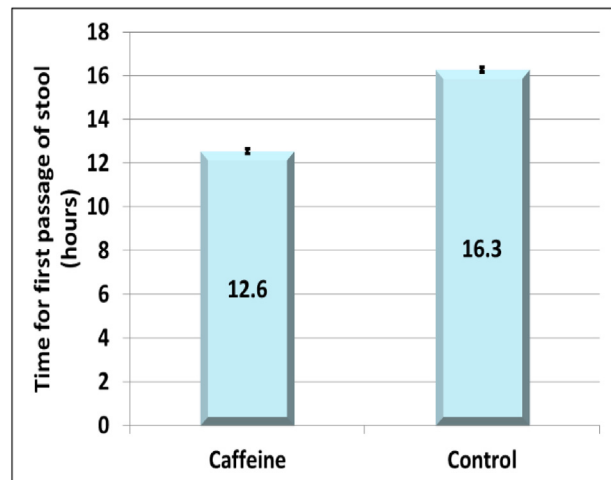


Fig. 3. Time for first passage of stool among the study groups.

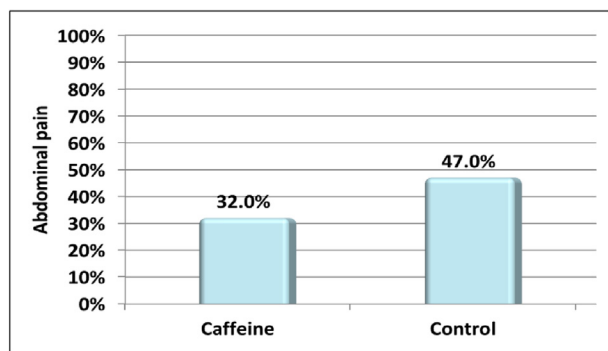


Fig. 4. Postoperative abdominal pain among the studied groups.

Table 4. Postoperative side effects among the study groups.

Side effects	Caffeine group (N = 100)	Control group (N = 100)	P-value
Abdominal pain	32 (32.0%)	47 (47.0%)	^a 0.030 ^c
Feeling of fullness	16 (16.0%)	29 (29.0%)	^a 0.028 ^c
Nausea	11 (11.0%)	23 (23.0%)	^a 0.024 ^c
Vomiting	4 (4.0%)	12 (12.0%)	^a 0.037 ^c
Paralytic ileus	0	1 (1.0%)	^b 0.999

^a Chi square test.

^b Fisher's exact test.

^c Substantial.

coffee was statistically substantial in reducing the time between surgery and the first passage of stools (average variance, 9.38; 95% confidence interval, 17.60 to 1.16; $P = 0.03$), which is consistent with other studies.

The prospective cohort research design and the fact that no patients were lost to follow-up after three months are the study's strong aspects. In comparison to other research, the sample size for this study was substantially bigger, which significantly lowers the possibility of publication bias. Additionally, since the research was carried out at a single facility with the same surgical team and anesthesia regimen, the validity of our findings was probably strengthened.

5.1. Conclusion

According to the present research, the coffee group had considerably lower mean beginning of bowel motions and first defecation following CS than the control group. Coffee is a safe and affordable treatment among cesarean delivery patients

because of the significance of early commencement of gastrointestinal motions in persons having CS.

Disclosure

The authors have no financial interest to declare in relation to the content of this article.

Authorship

All authors have a substantial contribution to the article.

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Conflicts of interest

Conflict of interest statement: The authors declared that there were NO conflicts of Interest.

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