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Turkish coffee effect on postcaesarean section bowel motility

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Abstract

To investigate the effect of coffee consumption on bowel motility on postcaesarean patients. This study is designed as a prospective randomized trial. Patients who are operated between dates June 2017-July 2017 are assessed for eligibility. We included patients who are operated under elective conditions. Leading exclusion criteria were; emergency caesarean section, patients diagnosed with inflammatory bowel disease, chronic constipation, irritable bowel syndrome and who had previous bowel or endometriosis surgery. Simple randomization scheme is used. Patients allocated to intervention group drank 65 cc Turkish coffee at postoperative 4th and 12th hour; control group patients drank warm water starting from postoperative 4th hour. Time to first flatus, presence of stool passage and nausea, vomiting are questioned and recorded. Sixty five patients' data was available for final analysis. General characteristics of control and intervention group patients were similar regarding mean age, body mass index (BMI), operation time, type of anesthesia, postoperative analgesic requirement. Mean time to first flatus was 17.7±6.1 and 13.0±5.7 hours respectively for control and intervention group (p:0.004). Number of patients whose stool passage assured before discharge were 7 (22.6%) in control and 3 (8.8%) in intervention group (p:0.174). There was not any patient who had nausea and vomiting in both groups. Postoperative coffee consumption is a cheap, attainable and safe practice that can be utilized to expedite gastrointestinal motility during postcaesarean period.

Keywords: Postoperative coffee consumption, postoperative ileus, time to first flatus, postcaesarean ileus

Introduction

Early recovery after surgery (ERAS) is a multimodal care pathways that evolved in effort to achieve early recovery, and to reduce the stress response to surgery. Preoperative, intra and postoperative elements constitute ERAS protocol. Implementation scope of ERAS protocol in gynecology and obstetrics has also been studied thus far [1-3]. One of the most prominent postoperative component of ERAS protocol is the avoidance of ileus.

Postoperative paralytic ileus could be defined as slowdown or loss of progressive peristalsis of gastrointestinal system. Incidence of postoperative ileus varies between 8.5% and 24% after major abdominal surgeries, it is one of the leading cause of morbidity, furthermore increases hospital stay and cost burden [4].

Caesarean section (c-section) is the mostly performed operation in the gynecological field. Postoperative care of c-section patients differs regarding this postoperative time is critical for both mother-baby attachment and breastfeeding. Thus optimization of postoperative care of c-section patients is important.

Postoperative ileus is one of the major complication after cesarean section also.

Simple preventive measures for postoperative ileus have been studied in this patient group in literature [5-7].

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Postoperative early feeding has been recommended with high evidence level [8]. Sham feeding like gum chewing has also been studied in various trials [9,6,10]. It is particularly recommended for patients who are planned to delay oral intake. Beside recommendation level is low for sham feeding [8]. Post-operative coffee consumption is another contemporary practice to expedite gastrointestinal motility and thus avoid ileus. Coffee is considered to favor digestion by acting on acid production of the stomach, on bile and pancreatic secretion. Coffee consumption has gained popularity since it is readily available and cheap implementation.

In a recent randomized trial by Güngördük et al., 114 gynecological oncology surgery patients have been reviewed and it has been concluded that; coffee consumption significantly reducing the first time to flatus, time to defecation and ability to tolerate food [7]. Similar findings have been revealed for laparoscopic gynecological operations by the same author. Moreover incidence of ileus was found to be significantly lower in coffee group than control group [11]. Effect of coffee consumption on postoperative bowel movement of cesarean section patients has also been investigated; first time to flatus was found to be significantly reduced whereas defecation time, first time to bowel sound and hospital stay were not different between intervention and control groups [12].

The aim of the current study is to examine the effect of postoperative Turkish coffee consumption on bowel motility, first time to flatus passage, defecation and ileus development.

Materials and Methods

The present study is designed as a prospective randomized controlled trial and carried out in a tertiary referral center between dates June 2017-July 2017. Patients aged between 20-35 years and planned to have cesarean section in elective conditions are reviewed for eligibility. Exclusion criterias were as follows; emergency caesarean section, presence of diabetes mellitus, irritable bowel syndrome, inflammatory bowel disease, chronic constipation, gestational hypertension or preeclampsia. Also patients who had previous bowel or endometriosis surgery, more than two cesarean sections are not included since these type operations may effect bowel motility. Simple randomization modality is used and simple random table is utilized to allocate patients. Type of anesthesia is determined by anesthesiologist and patient. Operation time is defined as time from induction of anesthesia to exit from operation room. Consumption of caffeine containing beverages during pregnancy is questioned and bowel function is also evaluated by bowel function index scoring system for each patient.

Patients in the control group are given onyl warm water starting from postoperative 4 th hour. Intervention group patients are planned to given a cup of Turkish coffee (each coffee cup contains 65cc.) at postoperative 4 th and 12 th hour. Caffeine or teine containing fluid consumption, except study group's caffeine intake , is restricted during the study. Coffee is prepared with one standard package of Turkish coffee (Kurukahveci Mehmet Efendi®-single cup coffee) which is containing 60 mg caffeine as standard. Study nurse prepared the coffee in a standard manner with an automatic coffee machine (Fakir® Kaave coffee machine). Same nurse delivered

coffee to intervention group and ensured that all patients consumed whole cup. Time to first flatus, presence of defecation, nausea and vomiting are queried by another nurse and recorded. Solid food intake is allowed after bowel motility is determined by flatus or stool passage. All patients have been mobilized under a nurse supervision at 8 th postoperative hour and, after first mobilization all patients are regularly asked for mobilization with 2 hour intervals. Breastfeeding is encouraged immediately after admission to service.

Aim of the study has been explained in detail to all participantans and informed consent forms are signed by all patients. Ethical approval of the study is taken from Baskent University Ethical Committee with the Project number KA 16/382. Power analysis has been performed according to study of Güngördük et al. considering the 80 % power and 95 % confidence interval .Thirty patients to each group were determined, according to power analysis. Seventy patients are planned to allocate when possible drop outs are taken into account.

Statistical analysis

Statistical analysis was performed using the statistical package SPSS software (Version 25.0, SPSS Inc., Chicago, IL, USA). If continuous variables were normal, they were described as the mean±standard deviation ($p>0.05$ in Kolmogorov-Smirnov test or Shapira-Wilk ($n<30$)), and if the continuous variables were not normal, they were described as the median. Comparisons between groups were applied using Student T test for normally distributed data and Mann Whitney U test were used for the data not normally distributed. The categorical variables between the groups were analyzed by using the Chi square test or Fisher exact test Values of $p<0.05$ were considered statistically significant.

Results

Sixty-five patients found to be available for final data analysis. Thirty patients were in control group whereas 35 were in intervention group. Details of study flow is shown in figure 1. General clinical characteristics of participantans are demonstrated in table 1. Mean age, body mass index (BMI), mean weight gain during current pregnancy, previous number of caesarean sections, bowel function index score, type of anesthesia, and requirement of postoperative narcotic type analgesic are not found to be significantly different between groups.

Mean time to first flatus was 17.7 ± 6.1 hours and 13.0 ± 5.7 hours for control and intervention groups respectively. Difference between them was statistically significant ($p:0.004$).

Beside passage of stool during hospitalization period was lower in intervention group though difference was not statistically significant (Table 2).

There are not any correlation detected between first time to flatus and patients' age, operation time, anesthesia type, BMI, postoperative analgesic utilization or previous surgical histories. So we did not perform a regression analysis regarding these parameters and intervention and control groups' first time to flatus.

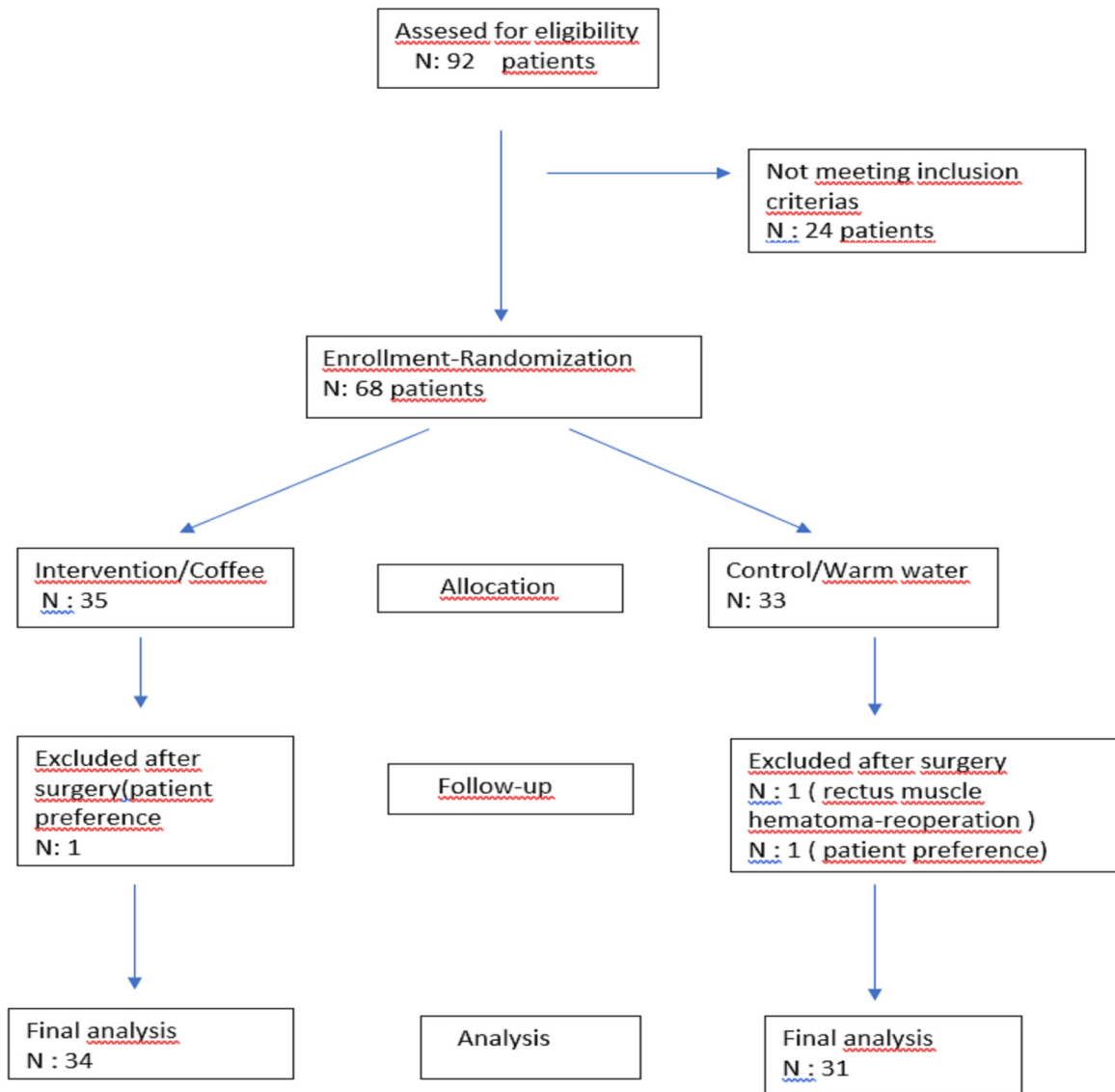


Figure 1. Flow diagram of the study

Table 1. General characteristics of study population

	Control group (n:31)	Intervention (n:34)	P value
Age (Mean±sd)	28.6±2.4	28.8±2.4	0.803
BMI	28.7±2.7	29.3±2.9	0.465
Weight gain (kg.)	15.8±5.4	14.9±4.9	0.967
Operation time (min.)	26.0±4.2	26.1±5.2	0.922
Bowel Function Index (BFI) Score	34.9±12.8	34.1±7.4	0.747
Number of patients with previous c-section	4(13.3%)	9(26.5 %)	0.228
Type of anesthesia	Spinal 28(90.3%) General 3(9.7%)	Spinal 26(76%) General 8(23%)	0.190
Postoperative narcotic analgesic	7(22.6 %)	8(23.5%)	0.228

Table 2. Time to first flatus and defecation results of patients

	Control group	Study group	P value
First time to flatus (hours)	17.7±6.1	13.0±5.7	0.004
Defecation n (%)	7(22.6 %)	3 (8.8 %)	0.174

Discussion

Coffee consumption during postoperative period seems to expedite gastrointestinal motility, this suggestion has been investigated for various surgical procedures. Effect of coffee consumption on postoperative c-section patients has also been studied but the number is restricted. Present study revealed that time to first flatus is significantly reduced by postoperative coffee consumption in c-section patients. Since first time to defecation was not available for majority of the study group, we could not make a conclusion on defecation time. Beside the ratio of patients who had completed stool passage during hospitalization was similar for both group. Postoperative convenience after abdominal surgeries is particularly relevant to recovery of gastrointestinal motility. Post-caesarean section period is a peculiar period when we consider the baby-mother attachment and breastfeeding issues. So basic measures in order to avoid ileus and hasten the gastrointestinal motility is mandatory. Jakkaew et al. has examined the effect of periodic gum chewing on first time to flatus of post-caesarean patients and found shortened time for intervention group [13]. A recent randomized controlled trial showed reduced time to first flatus, defecation, first bowel movement and sound, moreover in gum-chewing group; hospital stay, vomiting and ileus were all lower compared to control group [14]. Cochrane review on gum chewing in post-caesarean period also noted enhanced recovery of bowel function but also remarked that the grade of evidence in literature is still low to very low [15]. Postoperative coffee consuming is a popular practice that has been investigating. The first study on this subject has been published by Müller et al. They have studied on hemicolectomy patients and remarked that; postoperative coffee consumption significantly reduced the time to first bowel movement [16].

Although there are some studies designed for gynecological cancer surgery, benign gynecological and laparoscopic surgeries there is still scarce data on post caesarean patients.

Rabiepour et al. designed a prospective study for effect of coffee on gastrointestinal motility of caesarean patients and found time to first flatus 5 hour shorter in intervention group, nonetheless time to first defecation were not different significantly [12]. In the recent past Koseoğlu et al.; conducted a similar study and detected significantly reduced time to first flatus and defecation and earlier tolerance to solid food in the study group [17]. Koseoğlu et al. included only patients with spinal anesthesia, in our study we have also included patients operated under general anesthesia but distribution was similar between groups. Type of anesthesia may have effect on postoperative bowel motility so uniformity of type of anesthesia may preclude the confusion. ERAS protocol suggest the utilization of multimodal analgesia and minimum usage of opioid in order to minimize postoperative nausea, vomiting and ileus. In this study postoperative narcotic type analgesic use was very similar between groups.

Moreover mean onset of bowel movement and defecation were found to be approximately 3 and 4 hour earlier respectively in a smaller sample size randomized controlled trial [18]. In accordance with similar studies; time to first flatus is approximately 4 hour shorter in the coffee group than control patients in the present study. But actual defecation time could not be revealed since most of patients have been discharged after tolerance to solid food.

There is also one study comparing the effect of, gum chewing, coffee consumption, acupressure and control groups in postcaesarean period. Interestingly this study revealed faster gastrointestinal recovery and earlier flatus time only in acupressure group; remaining groups had similar results regarding bowel motility [10].

Main limitation of this study is its' relatively small sample size, and unblindness of participants as expected. Defecation time of most of the patients could not be identified. Although ratio of patients who had assured stool passage was not different significantly. We can not make a certain comment on stool passage time. Leading strengths of the study can be listed as; randomized prospective design, homogeneity of the control and study patients.

Conclusion

One of the most important postoperative care element of ERAS protocol is avoidance of ileus. With this point of view, simple measures to restore gastrointestinal motility is worthwhile.

The result of the present study is supporting the data of current literature regarding postcaesarean coffee consumption. Coffee is a popular, inexpensive and attainable implementation to adapt into routine postoperative care in order to avoid ileus and recover bowel motility. Intervention protocols, coffee brands, caffeine content, number of cups of coffee consumed were different in above cited studies. Thus beside necessity of prospective randomized studies with larger number of patients; most appropriate protocol should also be assessed also.

Conflict of interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical approval

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Baskent University Medical School. (Date: 06/06/2017 / Number: KA16/382).

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