Original Article

Chewing Aid in Routine Postoperative Orders - Does it reduce Postoperative Ileus after Cesarean Section? A Randomized Control Trial

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ABSTRACT

OBJECTIVE: To assess effectiveness of chewing gum in women undergoing cesarean section (C-Section) on return of bowel movements.

METHODOLOGY: Randomized clinical trial was conducted at a tertiary care hospital, Karachi from January 2013 to January 2016. Total 218 participants, who were planned for Cesarean section, were randomly allocated into two groups, 109 participants in each group. In Group-I, patient's received chewing gum as routine and group II was control group. Data of all subjects were analyzed using SPSS version 20.

RESULTS: The mean age of participants was 22.68±6.31 years. There was no significant difference between both groups in terms of age, Body Mass index, duration of surgery, parity, number of miscarriages and type of cesarean section whether elective or emergency. Significant reduction was found in terms of onset of defecation (P<0.001), onset of first flatus passed (P<0.001) and feeling of hunger (P<0.003) between two groups.

CONCLUSION: The current study identified that routine use of chewing gum as postoperative order impacts positively on time of passing flatus, defecation, and feeling of hunger. Eventually, it will reduce suffering resulting from ileus fostering early feeding. Since it is non-expensive and easy to use method therefore, it can be included as a routine post-operative management for women undergoing cesarean section. However, it is recommended to investigate impact of using chewing gum in other abdominal surgeries.

KEYWORDS: Chewing Aid, Postoperative Ileus and Cesarean Section.

This article may be cited as: Ali A, Saeed S, Memon AS, Abbasi M, Samo K, Mustafa R. Chewing Aid in Routine Postoperative Orders - Does it reduce Postoperative Ileus after Cesarean Section? A Randomized Control Trial. J Liaquat Uni Med Health Sci. 2019;18 (02):109-12. doi: 10.22442/jlumhs.191820611

INTRODUCTION

Delay in resumption of bowel movement following an abdominal surgery is termed as Ileus[1]. Among all abdominal surgeries, the most common is Cesarean section that leads to ileus secondary to post-operative changes in autonomic nervous system[2]. Post-operative ileus impacts on patient's clinical condition and also increases hospital stay. Post Cesarean, oral intake is withhold by many physicians as they believe in initiating intake after confirming the sign that depicts normal bowel function such as passage of flatus or stool[3]. Delayed oral intake may impacts on wound healing, increases the need for parental nutrition, and make individual prone to infection[4]. Since there is no well-established treatment modality for ileus, symptomatic treatment is done including naso-gastric tube insertion, use of local analgesia, use of non-steroidal anti-inflammatory drugs, injecting intravenous fluids, and use drinks with high carbohydrate content[5,6].

Chewing gum has been used as an adjunct in recovery from ileus. It stimulates stomach that causes increased production of gastric secretions and digestive juices, which increase peristalsis[7-9]. Some studies supports that use of chewing gum is effective in reducing ileus[10,11], whereas others reported contradictory findings[12]. Use of chewing gum is considered as feeding that stimulated bowel function by stimulating parasympathetic nervous system. Use of chewing gum post-operatively is cost effective and easy method to reduce ileus. This study aimed to assess effectiveness of chewing gum as routine postoperative order in women undergoing cesarean section (C-Section) on return of bowel movements.

METHODOLOGY

This randomized controlled clinical trial was conducted over the period of 6 months after approval from ethical committee from January 2013 till January 2016 in a tertiary care hospital of Karachi, Pakistan. Patient with cesarean section either having transverse or P fannenstiel incision by same gynecologist were recruited in this study. Women with both elective and emergency cesarean section were included in this study. All women who underwent cesarean section and who gave consent to participate in this study were recruited, whereas, women with history of drug addiction, electrolyte imbalance, previous abdominal surgeries, pancreatitis, peritonitis, diabetes, pre-eclampsia, hypo or hyperthyroid, intra or post-operative complications, neurological disorders, muscular disorders and inability to chew gum were excluded.

Patients were randomly divided equally into intervention and control groups. Women in intervention group were given sugar free gums, after 6 hours of surgery (after recovery from anesthesia). They were asked to chew gum for three times in a day and each time to chew gum for an half an hour. During their stay they were examined for the effect of sham feeding.

All participants in intervention and control group were asked to record time of feeling hungry, passage of flatus, and defecation. A research assistant who was unaware about the intervention and even the randomization was asked to collect all these data from participants regularly.

All the data were entered into SPSS software for analysis. Both descriptive and inferential statistics were used including mean and t-test to compare results. The test were considered to be statistically significant with 95% confidence interval and p-value <0.05.

RESULTS

A total of 218 women who met the criteria were included in the study, out of the 245 women who presented to us during the specified time period. The mean ages of participants were 22.68±6.31 years. There was no significant difference between both groups in terms of age, Body Mass index, duration of surgery, Parity, number of miscarriages, and type of cesarean section whether elective or emergency as shown in Table I. The mean time of passage of first flatus was 24.49±5.5 hours in chewing group as compared to control group which was 31.40±6.6 hours (P<0.001). The mean time for passage of first defecation was 32.03±5.4 hours where as in control group it was 40.38±6.57 hours (P<0.001) as shown in Table II. There was also significant difference between both groups in terms of onset of hunger (P=0.003) as shown in Table III.

TABLE I. BASELINE CHARACTERISTICS OF PARTICIPANTS

Characteristics	Chewing Gum, Mean ± SD	Control, Mean ± SD	P- Value
Age (Years)	21.68 ± 7.3	23.25 ± 6.9	0.07
Body Mass Index	28.31 ± 3.6	29.01 ± 4.2	0.15
Parity Nulliparous Multiparous (two or more than two children)	n=109 27 82	n=109 30 79	0.2
Duration of Surgery (minutes)	32.61 ± 9.5	33.01 ± 8.7	0.15
Type of C-section Elective Emergency	n=109 89 20	n=109 81 28	0.10

TABLE II. RESUMPTION OF BOWEL FUNCTION ACCORDING TO TYPE OF C-SECTION

	Emergency Cases	Elective Cases	P Value
Onset of Defecation (hours)	37.20 ± 7.5	38.01 ± 8.2	0.75
Onset of Gas passage (hours)	28.73 ± 6.4	29.30 ± 6.3	0.9

TABLE III: RESUMPTION OF BOWEL FUNCTION ACCORDING TO INTERVENTION

	Chewing Gum, Mean ± SD	Control, Mean ± SD	P Value
Onset of Defecation (hours)	32.03 ± 5.4	40.38 ± 6.57	0.001
Onset of Gas passage (hours)	24.49 ± 5.5	31.40 ± 6.6	0.001
Feeling Hunger (hours)	9.33 ± 6.7	15.40 ± 7.2	0.003

DISCUSSION

The results showed that intervention group that used chewing gums took lesser time for feeling of hunger, passage of flatus, and defecation. In lined with the existing literature, the study depicts a significant difference in time of passing flatus[3]. Similar to the study by Dehcheshmeh F Safdari 2011[2] that evaluated effect of chewing gum among women undergoing elective cesarean section, the time of first bowel movement in intervention and control group

were remarkably different. The finding is also consistent with the study by Schuster R 2006[9] that identified significant difference in time of first bowel movement among the control group and the ones using chewing gum after undergoing open sigmoid colectomy.

The findings of current study suggested that women in intervention group reported to feel hungry approximately 6 hours before in comparison to control group. This finding is in line with the study by Satij B 2006[11] that suggests difference in feeling of hunger among post cesarean women. In contrast, the study by Schuster et al revealed no significant difference among patient underwent open sigmoid colectomy, in feeling of hunger among control and intervention group[9]. This difference can be attributed to difference in type of surgery and smaller sample size in Schuster's study.

There was a significant difference in time first defecation between control and intervention group. Women who used chewing gum reported to defecate 8 hours early than the ones who didn't used chewing gum. This finding is supported by the existing facts in literature. In study by Abd-El-Maeboud KH 2009[12] the average time difference of 9 hours was reported among the ones who used chewing gum than ones who didn't use. Similarly, the study by Hirayama I 2006[4] on patients underwent colorectal surgery also reported difference of around 15 hours in first defecation among ones who used chewing gum in comparison to those who didn't used. However, the study by Quah HM 2006[13] revealed no statistical difference in first defecation among ones who used chewing gum and those who didn't used following open colectomy of left side colon. This difference could relate to difference in surgery.

Passage of flatus among intervention group was reported to be 7 hours earlier among intervention group in the current study. The finding is consistent with the study by Kouba EJ 2007[14] on patients who underwent radical cystectomy. However, the difference was only of 0.5 days earlier for those who used chewing gum than the control group, whereas, study by Quah HM 2006[13] reported no significant difference in time of flatus passage among ones who used chewing gum than those who didn't, following open colectomy of left side colon.

The mechanism which gum chewing impacts on ileus is not known. However, literature suggests that use of gum creates sham feeding that stimulated gastrointestinal tract leading to increased gastric juices and secretions that promoted recovery from ileus[15].

CONCLUSION

The current study identified that routine use of chewing gum as postoperative order impacts positively on time of passing flatus, defecation, and feeling of hunger. Eventually, it will reduce suffering resulting from ileus fostering early feeding. Since it is non-expensive and easy to use method therefore, it can be included as a routine post-operative management for women undergoing cesarean section. However, it is recommended to investigate impact of using chewing gum in other abdominal surgeries.

Ethical Permission: IRB approval letter of United Medical and Dental College Reference No/IRB-003/ UNEC/-14 dated: 22-12-14.

Conflict of interest: There was no any conflict of interest.

Funding: There was no any funding agency.

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