ORIGINAL ARTICLE

Does Chewing Gum Help Regaining Intestinal Functions after Hysterectomy? A Randomized Control Trial

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Abstract

Aim: This study aimed to investigate the effect of chewing gum after hysterectomy on recovery of bowel functions.

Design: Randomized control trial.

Materials and methods: Women who underwent hysterectomy and fulfilled the inclusion criteria were divided into two groups of 80 each by simple randomization. Study group women chewed sugar free chewing gum for 30 minutes every 4 hours, starting 4 hours after hysterectomy and control group did not chew chewing gum. Both the groups received standard treatment protocol. Bowel sounds were checked every 30 minutes and record of passage of first flatus and the first evacuation time were recorded by inquiring the women.

Results: Compared with the control group, women in the chewing gum group experienced a significant reduction i.e., 5.5 hours at the time of first bowel sound ($p < 0.05$), 5.3 hours in the first passage of flatus ($p < 0.05$), 10.5 hours at the time of first feeling of hunger ($p < 0.05$), 5.6 hours at the time of first oral feed ($p > 0.05$), 13.8 hours at the time of first defecation ($p < 0.05$) and 12.9 hours at the time of first discharge ($p < 0.05$).

Keywords: Bowel sounds, Chewing gum, Flatus, Hysterectomy.

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Introduction

Hysterectomy is the most commonly performed surgery in the world nowadays.[1] Despite the identified risks of hysterectomy, the rate is considerably higher than acceptable rate of 10–15% recommended by World Health Organization.[2] Hysterectomy surgery is accompanied by some postoperative alteration in autonomic nervous system, that gives rise to delayed recovery of intestinal function, reducing bowel movement and associated problems.[3] And hence it may lead to many complications such as postoperative ileus with the mean incidence of 10–15%,[4,5] longer hospital stay, increased postoperative morbidity and excessive medical cost.[6]

As a form of sham feeding, chewing gum has been suggested as a safe and convenient method for early stimulation of the gastrointestinal tract after hysterectomy, without the complications seen with oral feeding. It may hasten the intestinal function recovery by means of stimulating the cephalic vagal reflux which stimulates the intestinal myoelectric activity, the gastrointestinal hormone secretion may increase the secretion of saliva and pancreatic juice.[7] This response leads to both humeral and nervous stimulation of bowel motility.[8] The efficacy of gum chewing has been fully elucidated in the intestinal functions after colorectal surgery,[9,10] yet the efficacy of chewing gum after hysterectomy is yet to be established.

Materials and Methods

This randomized controlled intervention study was conducted in the postpartum ward of the department of obstetrics and gynecology of the Sarojini Naidu Medical College, Agra, between Jan 14, 2018 and June 17, 2018.

Inclusion Criteria

- All pregnant women who underwent elective hysterectomy during this period.
- Age between 18 years and 35 years.
- All these patients received the same pre- and intraoperative preparation and care.
- Received spinal anesthesia.
- Accepted to participate in the study.

Exclusion Criteria

- Women with medical disorders (hypertension, diabetes mellitus, hypothyroidism).
- Past history of bowel injury and peritonitis or pancreatitis.
- History of previous abdominal operation except cesarean section.
- Premature rupture of membranes.
- Muscular and neurological disorder. Dental and gum problems.
- Any complication that may increase the operation time or postoperative complications.

A total of 160 women were randomly assigned into two groups of 80 each. Study group chewed sugar-free chewing gum 8 hours after surgery every 4 hours for 30 minutes. Women did not chew chewing gum during night (10.00 pm to 6.00 am). The control group did not chew chewing gum and both the groups received standard postoperative care. Study and control groups were followed up by

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auscultation of abdomen for bowel sounds every 30 minutes until the start of intestinal motility and passing gas. At this point of time they were allowed to start oral intake and gum-chewing activity was ended. Passage of flatus, first defecation time, time of first hunger and time of first eating were noted by inquiring the women. Time of discharge after hysterectomy was noted and this was the end point of the study. In this study blinding of participants was not possible. So in order to reduce observation based bias blinding of investigator was done. Two teams of doctors and paramedical staff were formed. The first team of doctors assigned the women into study and control groups and gave standard postoperative medical care to the patient. The second team was concerned with this particular study only and assessed the recovery of bowel functions, so the possibility of observer based bias was eliminated.

Results

As shown in Table 1 there is no statistical difference between the two groups with regard to age, education, residence and occupation. Study showed that majority of women were between the age group of 24–29, and that most of them were from rural background and were housewives.

Table 2 shows that there was no statistically significant difference between the obstetric characteristics of the two groups in terms of gestational age, parity, previous history of hysterectomy and abortion. Majority of women were of full-term gestation.

Discussion

Our study was designed to estimate the effects of chewing gum following hysterectomy and consider the potential benefits of its use. Data obtained from study provided the evidence that chewing gum can reduce the recovery time following hysterectomy. Compared with the control group, women in the gum chewing group experienced a significant reduction i.e., 5.5 hours at the time of first bowel sound ($p < 0.05$), 5.3 hours at the first passage of fetus ($p < 0.05$), 10.5 hours at the time of first feeling of hunger ($p < 0.05$), 5.6 hours at the time of first oral feed ($p > 0.05$), 13.8 hours at the time of first defecation ($p < 0.05$) and 12.9 hours at the time of first discharge ($p < 0.05$). In addition, no evidence emerged for any side effects caused by gum chewing (Table 3).

Table 1: Demographic characteristics of study patients

Character	*Item*	*Study group (n = 80)*	*Control group (n = 80)*
Age (years)	18–23	27	30
	24–29	36	35
	30–35	17	15
	Mean ± SD	25.11 (4.36)	26.70 (5.44)
Education	Illiterate	15	18
	Up to 8th	26	29
	High school	18	14
	Intermediate	15	12
	Graduate and more	6	7
Residence	Rural	49	52
	Urban	31	28
Occupation	Working	9	7
	House wife	71	73

Table 2: Obstetric characteristics of study patients

Character	*Item*	*Study group (n = 80)*	*Control group (n = 80)*
Parity	1	15	14
	2	24	22
	3	28	30
	4 or more	13	14
History of previous cesarean or any other abdominal surgery	None	17	20
	1	32	35
	2	30	23
	3 or more	1	2
Previous abortion	None	51	48
	1	19	18
	2	8	10
	3 or more	2	4
Gestational age	<37 weeks	8	6
	37–40 weeks	57	55
	>40 weeks	15	19

Table 3: Postoperative parameters of intestinal function (in hours)

Parameters	*Study group (n = 80)*	*Control group (n = 80)*	*Difference in hours*
Time of first bowel sound	14.8	20.3	5.5
Time of first passage of flatus	22.6	27.9	5.3
Time of first feeling of hunger	26.3	36.5	10.2
Time of first oral feed	30.8	36.4	5.6
Time of first defecation	46.4	60.2	13.8
Time of discharge	56.2	69.1	12.9

Similar to other studies, our study upholds the use of gum chewing in the early stage after hysterectomy to accelerate the intestinal function recovery. A recent meta-analysis by Huang[11] included five RCTs involving 882 patients who showed similar results. Cochrane meta-analysis[12] identified 81 studies involving 9072 participants to investigate whether chewing gum after surgery hasten the return of gastrointestinal function after abdominal surgery, and concluded that it showed a beneficial impact on the major outcomes of digestive system activation, including bowel sound, flatus passage and bowel movement. A recent study[13] compared the effect of gum chewing, early oral hydration and early mobilization on intestinal motility after cesarean birth, and concluded that all the three different interventions increased intestinal motility and should be recommended during routine postoperative care for a shortened hospital stay and prevent postoperative ileus. Future research needs to further clarify the roles of those three interventions. One study[14] also evaluated the effects of xylitol-containing and xylitol-free gum on gastrointestinal recovery after hysterectomy, and indicated that xylitol-containing gum might be superior to xylitol-free gum. Sugar ingredients in sugar-free gum may stimulate bowel mobility and exert laxative effect, yet the evidence is conflicting[15,16] and more research is warranted.

Based on our study we can draw the conclusion that chewing gum is associated with rapid resumption of bowel activity and

conclude that gum chewing can be translated into improved well-being of women, early resumption to preoperative functional status and reduction in hospital costs.

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