

Effect of sugarless gum chewing on intestinal movement after cesarean section

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Abstract: A randomized controlled clinical trial research design was adopted to investigate the effect of sugarless gum chewing on the intestinal movement after cesarean section. This study was conducted at postpartum unit of King Khalid General Hospital, Kingdom of Saudi Arabia. A convenience sample of 60 post cesarean section parturients. Tools: Data was collected using two tools. Tool I: Socio-demographic and reproductive history interview schedule. Tool II: Postoperative Assessment Sheet. Method: participants were assigned randomly into two groups of 30 study and control. Participants in the study group were instructed to chew gum for 30 minutes three times/day as soon as they are awake; while participants in the control group followed the hospital routine; Each woman in both groups was examined abdominally using a stethoscope to detect intestinal movement and asked to report immediately the time of either passing flatus or stool. Results: it was found that study group had lower means than the control one regarding the time of feeling the first intestinal movement (2.93 ± 1.14 & 8.13 ± 4.27) respectively; the time of hearing the first intestinal sounds (3.47 ± 1.38 & 9.03 ± 4.29) respectively; the time of the first flatus (3.90 ± 1.37 & 9.97 ± 3.87) respectively and the time to the first bowel movement (5.33 ± 1.71 & 13.30 ± 2.11) respectively. However, the relationship between both groups for the previously mentioned items was highly statistically significant (<0.0001). In conclusion, gum chewing is physiologic, safe and effective method for decreasing the time for regain of the intestinal movement after cesarean section. Chewing gum after cesarean section could be recommended to be included in the hospital protocol for management of postpartum care of cases with cesarean deliveries.

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1- Introduction

Having an operative delivery is often anxiety producing for the mother and her family. It adds numerous factors that must be understood and accepted. Also, making post delivery recovery more difficult, placing additional strains on the developing mother-newborn relationship, and creating a need for processing and integrating the altered birth experiences. ⁽¹⁾

The woman who has had a cesarean delivery has undergone both abdominal surgery and birth. Postoperative nursing care includes the same procedures as for any abdominal surgery with added dimension of postpartum care. ⁽²⁾

Cesarean section is associated with postoperative changes in autonomic nervous system, leading to decreased bowel movements and driven problems. Ileus is referred to the delay, lasting for three to five days, in resumption of regular bowel movement following abdominal surgery, and is one of the major problems of post-abdominal surgery along with increased hospital stay, postoperative pain, and abdominal distension, inability to start feeding, breastfeeding, and eventually delay in recovery ⁽³⁻⁵⁾

Such a delay in the initiation of feeding eventuates in increased cell breakdown, delayed

wound healing, elevated risk of infection and the need for more intravenous feeding, delay in mother-newborn relationship, and eventually additional costs on healthcare system as well as the family ⁽⁶⁾.

There is no specific intervention for postoperative ileus; however, sham feeding, which is the process of chewing food but spitting it out before swallowing, could lessen the time needed for women's bodies to restore digestive function more quickly after cesarean sections. ⁽⁷⁾

Chewing gum may speed up digestive restoration is that it's essentially tricking the body into preparing for food intake when actually eat normal food, the intestines might not be able to handle it right away. However, when chew gum, they make essentially waking up the system and giving it times to get ready for its first real meal. ⁽³⁾

The postpartum period is a time of major physical and psychological transition for the new mother and the entire family. Nursing care during the postpartum period takes the physical and psychological needs of the mother and family into consideration. The nurse must accurately observe the mother's physiological functioning and provide timely and focused nursing intervention. ⁽⁸⁾

Aim of the study

This study aims to identify the effect of sugarless gum chewing on intestinal movement after cesarean section

Operational definition

Intestinal movement in this study will be measured by any of the following three parameters: hearing peristaltic movements, passing flatus and defecation.

Hypothesis

Post cesarean section (CS) women who chew gum immediately postoperative regain intestinal movement faster than those who do not.

2- Materials and Method

Design:

A randomized controlled clinical trial research design was adopted

Setting:

The study was conducted at postpartum ward affiliated to King Khalid General Hospital, Kingdom of Saudi Arabia.

Subjects:

A convenience sample of 60 post cesarean section parturients, who accepted to participate in the study, was selected from the previously mentioned setting. They were then randomly assigned into two equal groups of 30; study and control.

Tools:

Two tools were developed and used by the researcher to collect the necessary data:

Tool one: Socio-demographic and reproductive history interview schedule. It entailed 2 sections:

Section I included socio-demographic characteristics such as age, level of education, occupation and body mass index.

Section II involved reproductive history such as gravidity, parity, number of abortions and gestational age.

Tool two: Postoperative Assessment Sheet:

It comprised type of anesthesia as well as type and duration of operation. It also included the presence of illness symptoms and the indicators of peristaltic movement.

Method:

Women of the study group were instructed to chew one stick of sugarless gum for 30 minutes, three times/day as soon as they are awake and return from the operating theater to the ward. The researcher provided each woman with required amount of gum sticks. Meanwhile, women of the control group followed the postoperative hospital routine.

Each woman in both groups was examined abdominally using a stethoscope to detect the intestinal movement every 4 hours, and asked to report immediately the time of either passing flatus or stool.

Ethical consideration

For each study subject the following issues were considered: securing the subject's informed consent, keeping privacy and the right to withdraw at any time as well as assuring confidentiality of her data.

Statistical analysis: The collected data was categorized, coded, computerized, tabulated and analyzed using Statistical Package for Social Sciences (SPSS) version 13 program. Simple frequency and percentage were used for describing and summarizing categorical variables. Statistical formulas were also used such as Chi Square test (X²), Fisher Exact Test (FET) and t-test, at 5% level to find out the significance difference of the results.

3- Results

Table (I) manifests that the relationship between the study and the control groups was not statistically significant regarding their socio-demographic characteristics; age, level of education, occupation and body mass index.

Table (II) also reveals no statistical significant differences between the study and the control groups concerning reproductive history; gravidity, parity, number of abortions and duration of current pregnancy.

Table (III) illustrates that the relationship between the study and the control groups was statistically significant for duration of operation (P=0.020). However, no statistically significant differences were found between them in relation to type of anesthesia and operation.

Table (IV) displays that the study group had lower means than the control one regarding the time of feeling the first intestinal movement (2.93 ± 1.14 & 8.13 ± 4.27) respectively; the time of hearing the first intestinal sounds (3.47 ± 1.38 & 9.03 ± 4.29) respectively; the time of the first flatus (3.90 ± 1.37 & 9.97 ± 3.87) respectively and the time to the first bowel movement (5.33 ± 1.71 & 13.30 ± 2.11) respectively. However, the relationship between both groups for the previously mentioned items was highly statistically significant (<0.0001).

4- Discussion

The study findings demonstrated no significant difference in terms of the age, education, occupation and BMI, gravidity, parity and duration of pregnancy between the control and sugarless gum chewing group; the latter were well tolerating the gum and showed no feeling of dissatisfaction, none were therefore excluded from the study; likewise, in **Ledari et al**⁽⁹⁾ and **Yaghmaei et al**,⁽¹⁰⁾ studies, the two groups of gum-chewing and control had no significant differences on demographic variables and other mentioned characteristics.

The findings of the current study has shown reduced time of feeling the first intestinal movement

among the study group following the gum chewing after cesarean section, as the mean time of the feeling the first intestinal movement among the study group was earlier than among the control group by almost 6 hours and difference between both groups was statistically significant. This result is in accordance with that of Dehcheshmeh et al ⁽¹¹⁾ study on the effects of chewing gum after elective cesarean section on primiparous women undergone cesarean section and reported same findings.

The finding is also in consistence with that of Ledari et al ⁽¹²⁾ She investigated the effect of postoperative gum chewing on the recovery of bowel function after cesarean section in the midwifery department in Babol University of Medical science. She reported the same finding. This similarity could be due to similarity of the type and duration of the operation.

The findings of the current study revealed a significant difference between the study and control groups in relation to the mean time interval to pass the first flatus after cesarean section. The chewing gum group, study group, was reported time interval to pass first flatus lower than the control group by almost 6 hours. This result is in agreement with that of Ledari et al ⁽⁹⁾ Who conducted the same study on nulliparous women and reported that gum chewing following cesarean section is accompanied by reduction in the time of the passage of flatus, bowel movements, and feeling of hunger with no complications in this regard.

In the current study, the mean time interval to the first bowel movement revealed a significant difference between both groups. As the mean time interval to the first bowel movement reported by the chewing gum group was less than the time reported by the control one with almost 8 hours. This result is in consistence with the result of Ledari et al ⁽⁹⁾ and Yaghmaei et al ⁽¹⁰⁾

who reported the same findings. Also, the mean time of hearing the first intestinal movement suggested statistical significant differences between both groups and it happen about 8 hours earlier in gum chewing group than the control one. Similar to the result obtained by Ledari et al ⁽⁹⁾. This similarity may be due to the similarity of the both groups in the current study likewise in the later study.

The results of the current study suggest reduced time to feeling of first intestinal movement & sounds, first flatus and first bowel movement following chewing gum after cesarean section. The difference was statistical significant between the study and the control group. These results are consistence with that of Shang et al **(13)**. The similarity between the current study and that of Shang et al may be due to the similarity in the time of starting and frequency of gum chewing after cesarean section. In conclusion: gum chewing as soon as the women are awake from the anesthesia after cesarean section is physiologic, safe and effective method for decreasing the time for regain of the intestinal movement after the operation. Chewing gum after cesarean section could be recommended to be included in the hospital protocol for management of postpartum care of cases with cesarean deliveries. It should be added in maternal-infant nursing curricula of nursing schools. Health education about the advantages of gum chewing after cesarean section to woman so that she will be more cooperative and knowledgeable about its benefits; Also, pregnant women should receive information by health care personnel during antenatal care and at the time of admission for labor about the benefits gum chewing after the cesarean section. Further investigation on a large sample sized is recommended. Also, to investigate whether it facilities early lactation and/or length of hospital stay.

Table (I): Distribution of post cesarean section parturients according to their socio-demographic characteristics

Socio-demographic characteristics	Study group (n=30)		Control group (n=30)		F/ 2 (P)
	No	%	No	%	
Age (years):					
20-	12	40.00	6	20.00	4.067 (0.254)
25-	5	16.70	7	23.30	
30-	8	26.60	7	23.30	
35+	5	16.70	10	33.40	
Level of education:					
– Illiterate, read& write	14	46.70	19	63.30	2.65 (0.449)
– Basic	8	26.60	5	16.70	
– Secondary	6	20.00	3	10.00	
– University or more	2	06.70	3	10.00	
Occupation:					
– Housewife	23	76.70	21	70.00	0.341 (0.559)
– Working	7	23.30	9	30.00	
Body Mass Index:					
– Normal (18.5- <25)	9	30.00	7	23.30	1.217 (0.544)
– Overweight (25-30)	13	43.30	11	36.70	

- Obese (>30)	8	26.70	12	40.00
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* Significant at $P \leq 0.05$ ² (P): Chi-Square Test & P for ² Test

F (P): Fisher Exact Test & P for FET-Test

Table (II): Distribution of post cesarean section parturients according to their reproductive history

Reproductive history	Study group (n=30)		Control group (n=30)		F/ ² (P)
	No	%	No	%	
Gravidity:					
- One	7	23.30	3	10.00	2.743 (0.433)
- Two	4	13.30	4	13.30	
- Three	5	16.70	9	30.00	
- Four +	14	46.70	14	46.70	
Parity:					
- One	7	23.30	5	16.60	0.733 (0.865)
- Two	6	20.00	6	20.00	
- Three	4	13.30	6	20.00	
- Four +	13	43.40	13	43.40	
No. of Abortion:					
- None	22	73.30	24	80.00	2.087 (0.555)
- One	5	16.70	5	16.70	
- Two	1	03.30	1	03.30	
- Three +	2	06.70	0	00.00	
Duration of current pregnancy (weeks):					
- 38	8	26.60	13	43.30	3.463 (0.326)
- 39	2	06.70	2	06.70	
- 40	18	60.00	15	50.00	
- 41	2	06.70	0	00.00	

* Significant at $P \leq 0.05$ ² (P): Chi-Square Test & P for ² Test

F (P): Fisher Exact Test & P for FET-Test

Table (III): Distribution of post cesarean section parturients according to their anesthesia and operation

Anesthesia and operation	Study group (n=30)		Control group (n=30)		F/ ² (P)
	No	%	No	%	
Type of anesthesia:					
- General	20	66.70	22	73.30	0.317 (0.573)
- Spinal	10	33.30	8	26.70	
Type of operation:					
- Elective	11	36.70	10	33.30	0.073 (0.787)
- Emergency	19	63.30	20	66.70	
Duration of operation (minutes):					
30-	18	60.00	26	86.70	5.455 (0.020)*
45-	12	40.00	4	13.30	

* Significant at $P \leq 0.05$ ² (P): Chi-Square Test & P for ² Test

F (P): Fisher Exact Test & P for FET-Test

Table (IV): Distribution of post cesarean section parturients according to their mean indicators of peristaltic movement.

Indicators of peristaltic movement	Study group (n=30)	Control group (n=30)	t-test (P)
	Mean & SD	Mean & SD	
Time of feeling the first intestinal movement (hours)	2.93 ± 1.14	8.13 ± 4.27	6.444 (<0.0001)**
Time of hearing the first intestinal sounds (hours)	3.47 ± 1.38	9.03 ± 4.29	6.758 (<0.0001)**
Time of the first flatus (hours)	3.90 ± 1.37	9.97 ± 3.87	8.098 (<0.0001)**
Time to the first bowel movement (hours)	5.33 ± 1.71	13.30 ± 2.11	16.073 (<0.0001)**

** Highly Significant at $P \leq 0.05$

t for t-test & P for t- test

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