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Effect of gum chewing on reducing postoperative ileus and recovery after colorectal surgery: A randomised controlled trial

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ABSTRACT

Aim: This study aimed to determine the effect of gum chewing on the reduction of postoperative ileus and recovery after surgery.
Methods: This study was conducted a randomized controlled trial in 60 patients who underwent colorectal surgery between November 2011 and December 2012. Patients in the experimental group chewed gum three times a day. The time of flatus and defecation, the time to start feeding, pain levels and time of discharge were monitored.
Results: Post-surgery results for gum-chewing were first flatus and defecation times and the time to start feeding was shorter; pain levels were lower on the 3rd – 5th days; patients were discharged in a shorter time post-surgery.
Conclusions: Chewing gum is a simple intervention for reducing postoperative ileus after colorectal surgery. Further studies that examine the effectiveness of gum chewing on other surgical interventions in which the development risk of postoperative ileus should be performed.

1. Introduction

Postoperative ileus (POI) commonly occurs after colorectal surgery and causes abdominal distension, nausea, vomiting and pain with the delay of gastrointestinal motility. Prevention of POI in patients post-colorectal surgery is quite important because of the clinical outcomes it causes and affects patients recovery and discharge period negatively [1–8]. Many treatments and care approaches, such as early mobilization and nutrition, fluid restriction, prokinetic agents, minimal invasive surgery, epidural anesthesia, and analgesia are used for the management of POI [9–12].

In recent years, gum-chewing has become a commonly applied method in order to prevent and reduce the POI and provided significant benefits for the improvement of postoperative gastrointestinal function [1,3,5,8,9,11,13–18]. It is stated that gum-chewing, which stimulates the intestinal motility with an early nutrition-like mechanism but without causing complications in early nutrition, improves the gastrointestinal functions and decreases the duration of ileus occurring after colorectal surgery up to 20–30 h [1,4,8,14,15,19–21]. It is also reported in many meta-analyses and systematic and literature reviews that gum-chewing decreases patients' postoperative hospital stay as well as shortening the first time for defecation [5,11,14,15,22]. Especially in the perioperative guidelines used in colorectal and pelvic surgical interventions, gum-chewing is advised for an evidence-based approach in the prevention from POI. It is inexpensive, safe and is easily-tolerated by patients [12,23–27].

The purpose of the present study was to determine the effects of gum-chewing for the reduction of POI and recovery after colorectal surgery.

1.1. Research hypothesis

H0. There is no difference between the gum-chewing and control groups in terms of first flatus and defecation times and length of hospital after colorectal surgery.

H1. There is difference between the gum-chewing and control groups in terms of first flatus and defecation times and length of hospital after colorectal surgery.

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2. Methods

2.1. Design and sample

This study involved a randomized controlled trial that included 60 patients who underwent post-colorectal surgery in Trakya University Health Application and Research Centre, Department of General Surgery, between the dates of November 2011 and December 2012. The aim was to detect the efficiency of gum-chewing on the reduction of POI and recovery in the patients who underwent colorectal surgery. Randomized sampling method was used with patients who met the sampling criteria among the given population and who agreed to participate in the research were distributed between the gum-chewing group (n = 30) and control group (n = 30) (see Fig. 1).

Patients included in the scope of the study underwent a planned open colorectal surgery with general anesthesia, volunteered for the study, were 18 years old and older, had no communication problems, could tolerate and volunteered to chew gum, and were helped with mobilization 8 h post-surgery. Patients who received abdominal radiation in the past 6 months, underwent an earlier colorectal surgery, had colostomy or ileostomy, and were on medication which could affect the bowel functions postoperatively were excluded.

2.2. Ethical considerations

This study was reviewed and approved by the ethics commission of Trakya University School of Medicine (IRB file no: TÜADK 2011/186). Before the launch of the research, patients were informed about the subject and the objectives of the research. Personal information would remain confidential and would only be used for the research data. Verbal and written permission were obtained from the patients who volunteered to participate in the research.

2.3. Procedure and data collection

The researcher selected patients who were to undergo a planned colorectal surgery and met the sampling criteria by daily visits to the hospital. Patients in the sample were informed about the monitoring of their first flatus, defecation and the other data during the postoperative period. All patients in the sample received routine postoperative care. Bladder catheters and nasogastric tubes were removed in the morning following the operation day. Patients in the gum-chewing group were requested to chew gum three times a day after meals for a period of 15 min from the first morning after the operation until the time of their discharge. Patients in the control group received routine care after the operation. The time of flatus and defecation were the data related to POI, the time to start feeding, pain levels and time of discharge were the data related to recovery. “Data Collection Form” was used by the researcher according to literature information for the data collection process.

2.4. Data analysis

Evaluation of the findings were done using SPSS (Statistical Package for Social Sciences for Windows) 17.0. Mean, number, percentage, independent sample t test, and Chi–Square test were used. Results were evaluated at a 95% confidence interval and the significance was evaluated under $p < 0.05$.

3. Results

The age of the patients was 63.97 ± 10.65 of which 55% (n = 30) were male. Average operation time was 182.00 ± 48.66 min; 61%

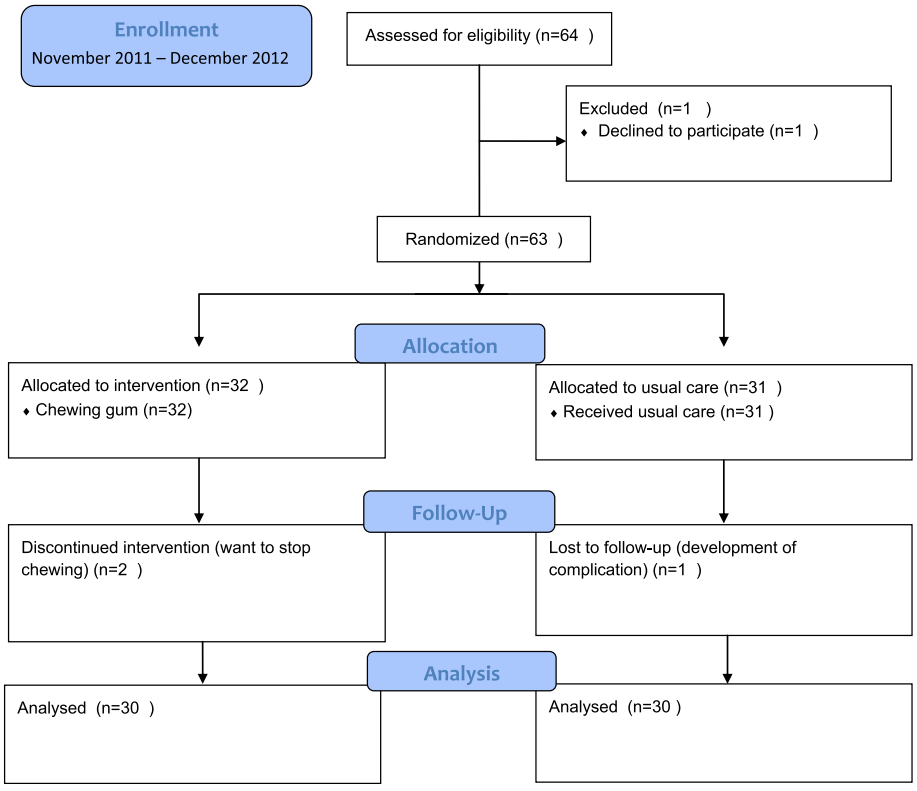

Fig. 1. Flow diagram.