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The Effect of Eating Lunch Before an Afternoon Colonoscopy

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ABSTRACT

Background/Aims: Traditionally, patients fast from midnight the night before to just prior to the colonoscopy. Many patients find it extremely inconvenient to have to fast for a full day. We sought to compare: a group in which diet was restricted and a group in which diet was not restricted.

Methodology: Patients who attended inpatient clinics of Hanyang University Hospital who were scheduled to undergo colonoscopy were considered eligible to participate in this study. The subjects were randomly assigned to either eat lunch before colonoscopy or to fast before the colonoscopy.

Results: There were no significant differences between the study groups with respect to age,

gender distribution, previous abdominal surgery, or bowel movements. The two groups showed no significant differences in bowel cleanliness scores or fluid volume scores. Patients' unwillingness to undergo the same procedure in the future was 10.0% in group A compared to 33.3% in group B. With regard to the patients' opinion about lunch before colonoscopy, most of the subjects in group A answered that they would eat lunch before colonoscopy again if given the choice.

Conclusions: Eating lunch before afternoon colonoscopy had no negative impact on the quality of the bowel preparation.

KEY WORDS: afternoon colonoscopy, lunch, bowel preparation.

INTRODUCTION

Colonoscopy is accepted as the gold standard for colorectal cancer screening (1-3). Optimizing colon cleansing prior to colonoscopy minimizes the risk of missed lesions and decreases the likelihood of a difficult, prolonged procedure. Large-volume polyethylene glycol (PEG) solutions are frequently poorly tolerated by patients, mainly due to the large volume that needs to be consumed (4-6). A small volume of oral sodium phosphate is much better tolerated by patients; however, there have been some reports that sodium phosphate has adverse effects (7).

Endoscopists usually perform colonoscopies in the evening to minimize time off work and loss of sleep for the patient. However, a common complaint of patients who have undergone a colonoscopy is the long period of fasting required to ensure adequate cleansing (8). However, few studies have investigated the effect of consuming lunch before an afternoon colonoscopy on the examination. We hypothesized that having food just before a colonoscopic procedure would not have a significant effect on bowel cleansing because of the long bowel transit time. We compared bowel cleanliness and patients' compliance in the two groups of subjects: those who consumed lunch and those who fasted.

METHODOLOGY

The study was a prospective, randomized, endoscopist-blinded, case control trial. Colonoscopies were performed by one gastroenterologist, with more than 5 years of colonoscopy experience. Between May 2007 and June 2007, colonoscopic examinations were performed using a video colonoscope (CF-H260L or CF-H260I, Olympus Optical Co. Ltd., Tokyo, Japan) at Hanyang University Hospital. For bowel cleansing, patients were asked to drink 4L of a polyethyleneglycol-electrolyte (PEG-E) solution (Colonlyte; Taejun, Seoul, Korea). All procedures were performed using conscious sedation/analgesia with iv midazolam and pethidine titrated as required. Each procedure was performed with the assistance of changes in the patient's posture from an initial left lateral position to a supine position. After providing informed consent, the subjects were randomly assigned to either eat lunch before colonoscopy (group A) or to maintain fasting before the colonoscopy (group B). For randomization, group A patients were included on odd days while group B patients were included on even days and colonoscopist was blinded to the patients' group assignments. Group A patients ate lunch from 12:00 PM to 12:30 PM. Endoscopists assessed the quality of individual bowel preparations using the Ottawa scale (9) immediately after the

colonoscopy (Table 1). All colonoscopic procedures were performed between 2:00 PM and 4:00 PM (Table 2). Subjects completed a questionnaire about demographic characteristics, adverse events during preparation, willingness to repeat the colonoscopy, and their opinion about eating lunch before the colonoscopy. Patients who had diabetes mellitus, hyperthyroidism or hypothyroidism, or who were taking prokinetic or antispasmodic medication, or those who had a previous history of bowel resection, were excluded from the study. The study was approved by the institutional review board of our medical center, and all patients provided written informed consent. All collected data were entered into a database and analyzed using SPSS version 11.0 for windows (Microsoft Corp, Redmond, Wash). The proportions in 2x2 contingency tables were compared by the chi-square test using the Yates correction for continuity. A *p* value of less than 0.05 was considered statistically significant.

TABLE 1 Ottawa bowel preparation quality scale. The total score (0–14) is obtained by adding the scores for individual evaluations of right, mid and left colon to the score of overall fluid in the entire colon.

| Quality of bowel preparation | Score |
|--|-------|
| Individual evaluation of right, mid and left colon | |
| No liquid | 0 |
| Minimal liquid, no suctioning required | 1 |
| Suction required to see mucosa | 2 |
| Wash and suction | 3 |
| Solid stool, not washable | 4 |
| Evaluation of the entire colon: | |
| Overall quantity of fluid | 0-2* |

*0=minimal, 1=moderate, 2=large

TABLE 2 Colonoscopy preparation timetable

| Time | |
|-----------|---------------------------------|
| 6 AM-8 AM | Drink 4L of PEG solution |
| 12:30 PM | Regular lunch meal |
| 2 PM-4 PM | Colonoscopy procedure performed |

TABLE 3 Baseline characteristics of case and control groups

| | Case (n=40) | Control (n=40) | <i>p</i> value |
|----------------------------|-------------|----------------|----------------|
| Gender (M:F) | 26:14 | 27:13 | NS |
| Age (mean±SD, years) | 51.4±15.7 | 54.3±11.9 | NS |
| Previous abdominal surgery | 7 (36.8%) | 4 (33.3%) | NS |
| Combined chronic disease | 8 (20%) | 10 (25%) | NS |
| Bowel movements | | | NS |
| > 2/day | 5 (26.3%) | 2 (16.7%) | NS |
| 1/day | 9 (47.4%) | 7 (58.3%) | NS |
| < 2-3/week | 1 (5.3%) | 2 (16.7%) | NS |

RESULTS

During the study period, 40 subjects were assigned to group A and 40 subjects were assigned to group B. Primary indications for colonoscopy in the study group were screening for colorectal cancer or adenoma (n=38), altered bowel habit (n=22), bowel symptoms (n=14), or anemia work-up (n=6). There were no significant differences between the study groups with respect to age, gender distribution, combined chronic disease, previous abdominal surgery, or bowel movements (Table 3). The two groups showed no differences in their average bowel cleanliness score (5.61±2.64 vs. 5.08±2.31, *p*=0.58) or fluid volume score (0.72±0.58 vs. 0.58±0.67, *p*=0.55) as assessed by the Ottawa bowel preparation quality scale (Figures 1,2). Patients' unwillingness to undergo the same procedure in the future was 10.5% in group A compared to 33.3% in group B (Figure 3). Most of the patients complained about how difficult it was to drink 4L of liquid as part of the bowel-cleansing regimen. Most of the subjects in group A stated that if given the choice, they would eat lunch again before the colonoscopy, while half of the subjects in group B replied that given the choice, they would not eat lunch before the procedure (Figure 4). Most of the patients were concerned that eating lunch before the colonoscopy could have an undesirable effect on the examination.

DISCUSSION

This study examined whether eating food before a colonoscopy affects the cleanliness of the bowel compared to fasting. Our data suggests that eating lunch before an afternoon colonoscopy has no negative impact on the quality of the bowel preparation.

Colonoscopy is the current standard method used to evaluate the colon. The diagnostic accuracy and therapeutic safety of colonoscopy depends on the quality of the colonic cleansing or preparation (10). Despite optimizing preparatory methods for colon cleansing, inadequate cleansing occurs in 10%-75% of cases (4,5,11). PEG-E solution is the most commonly used solution for colonic cleansing. The main advantage of PEG-E solution is its minimal effect on serum electrolytes and intravascular volume. Clinical trials have established the safety and efficacy of PEG-E solution for colon cleansing preparation for colonoscopy. However, a large volume of PEG-E solution needs to be consumed, and is therefore poorly tolerated by patients. A small volume of oral sodium phosphate solution has been shown to result in effective colon cleansing and improved tolerability. However, this solution is contraindicated in patients with cirrhosis, renal impairment, or heart failure because it can cause electrolyte imbalance and severe dehydration (12).

This is the first prospective clinical study to evaluate the effects of eating or fasting before a colonoscopy. There are no standard guidelines regarding when a patient should fast prior to a colonoscopy. Traditionally, patients fast from

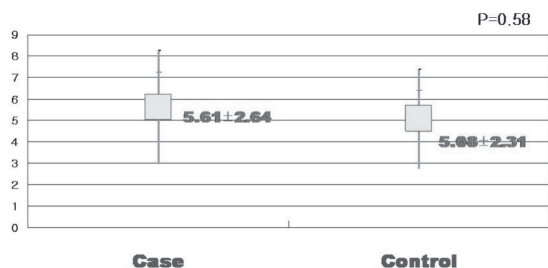


FIGURE 1
Bowel cleanliness in patients and controls based on the Ottawa bowel preparation quality scale.

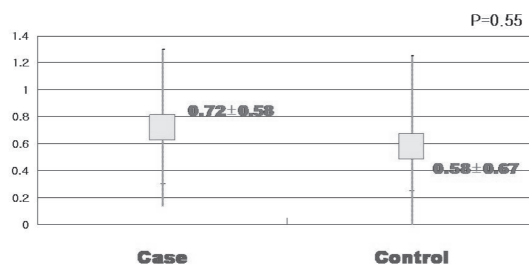


FIGURE 2
Overall quantity of fluid in patients and controls based on the Ottawa bowel preparation quality scale.

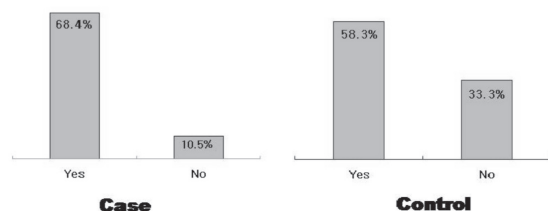


FIGURE 3
Estimation of patient's compliance by asking "Would you receive a colonoscopy again using the same preparation methods?"

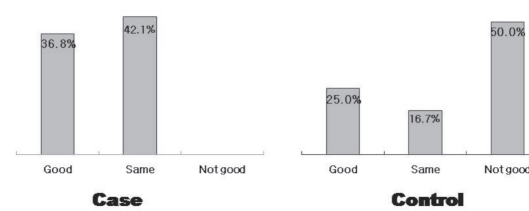


FIGURE 4
Estimation of patient's satisfaction with eating lunch based on the question: "What do you think about eating lunch before colonoscopy?"

midnight the night before to just prior to the colonoscopy. Many patients find it extremely inconvenient to have to fast for a full day before the colonoscopy. In our study, although the average bowel cleanliness score and overall fluid quantity score were higher in group A than group B, these values were not significantly different between the two groups.

Traditionally, a long period of fasting is required for colonoscopic preparation. This is another burden associated with receiving a colonoscopy, especially in patients with congestive heart failure, renal impairment or diabetes mellitus. Furthermore, even among healthy subjects, we sometimes encounter persons who have difficulty fasting for more than one day.

According to recent data using wireless motility capsules and radio-opaque markers, the mean gastric emptying time is 3.0 (2.5-3.9) hours and the mean small bowel transit time is 3.8 (3.2-4.7)

hours in healthy control groups (13). Therefore, theoretically, it takes about 6.8 hours for food to reach the large bowel after food consumption.

This study has some limitations. First, the study population was very small, so a future larger-scale study is needed. Second, bowel transit times can vary between individuals, so it is unclear how general the results of this study are. Furthermore, bowel preparation solution such as PEG-E could have an effect on bowel motility; however, we did not evaluate this effect in the study.

In conclusion, eating just before a colonoscopic procedure does not adversely affect bowel preparations for colonoscopy; we therefore suggest allowing consumption of a meal prior to colonoscopy in selected cases.

ACKNOWLEDGEMENTS:

This work was supported by the research fund of Hanyang University (HY-2009-N).

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