

Bowel Preparation for Flexible Sigmoidoscopy

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One hundred ten consecutive patients undergoing 35-cm flexible sigmoidoscopy were enrolled in a study to compare the efficacy of one vs two enemas (Fleet's) in achieving adequate bowel preparation. Fifty-five patients received two enemas administered one and three hours before sigmoidoscopy. The other 55 subjects received one enema given one hour before the procedure. Bowel preparation was considered inadequate if sigmoidoscopy was terminated prematurely because fecal material obscured visualization through the sigmoidoscope.

Inadequate bowel preparation occurred in 12.9 percent of subjects who received one enema and in 20.0 percent of those who received two enemas ($\chi^2 = 0.97$, $P = .36$). There was no difference between the groups in depth of penetration of the sigmoidoscope or duration (in minutes) of the examination.

It is concluded that either one or two enemas are equally effective in preparing patients for sigmoidoscopy. Patient acceptance of sigmoidoscopy could be enhanced by using one enema instead of two with no decrease in adequacy of bowel preparation.

Flexible fiberoptic sigmoidoscopy is becoming an accepted and commonplace procedure in the offices of family physicians.¹⁻⁵ The procedure is safe and offers the opportunity to detect serious colorectal disease at an early, treatable stage.

The success of colon cancer screening programs that rely on flexible sigmoidoscopy will be dependent on patients' willingness to undergo the procedure. Although flexible sigmoidoscopy seems to be well tolerated by most patients, any

measures that will increase patient acceptance will improve the results of screening programs.

From a patient's point of view, one of the unpleasant aspects of sigmoidoscopy is the bowel preparation procedure. The literature provides no consensus on which bowel preparation procedure is best. While some authors recommend a single phosphate (Fleet's) enema, others recommend that patients receive two enemas prior to undergoing flexible sigmoidoscopy.^{4,6,7}

The objective of this study was to determine whether there is any difference in the efficacy of one enema vs two enemas in bowel preparation for flexible sigmoidoscopy. If one enema is as equally effective as are two, then patient discomfort could be minimized by limiting routine bowel preparation to one enema.

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Methods

Subjects

Between July 1984 and April 1985, 110 consecutive subjects who underwent flexible sigmoidoscopy were enrolled in the study. All subjects were patients of the Family Practice Office, the clinical practice for the family practice residency program at the University of Arizona Medical Center. Twenty subjects (18.1 percent) underwent sigmoidoscopy because of rectal bleeding or positive fecal occult blood tests, nine (8.2 percent) were examined because of a change in bowel habits, and the remaining 81 subjects (72.7 percent) underwent routine screening sigmoidoscopy.

Bowel Preparation

Subjects were divided into two groups based on the bowel preparation prescribed for them. The first 55 subjects were given two Fleet's enemas and instructed to administer one enema three hours before the scheduled time of the sigmoidoscopic examination, and to administer the second enema one hour before the examination. The next 55 subjects were instructed to administer only one enema, one hour before the examination.

All patients received verbal and written instructions on administration of enemas from members of the nursing staff. The written instructions included illustrations of proper technique for giving an enema.

All enemas were administered at home by the patient or the patient's family. No other restrictions were made. Patients were permitted to eat and drink as desired.

Sigmoidoscopy

All sigmoidoscopic examinations were performed by resident or faculty physicians using a 35-cm American Optical (model FPS-3P) sigmoidoscope. All patients were studied in the left lateral decubitus position.

Physicians were not routinely informed of the bowel preparation received by the patient. Although the information was available if requested, physicians were generally unaware of their patient's group assignment.

At the completion of each examination, the sigmoidoscopist-physician was asked to state whether bowel preparation had been adequate.

Bowel preparation was considered not adequate if the procedure was terminated prematurely because of fecal material obscuring visualization through the sigmoidoscope. If premature termination did not occur, the bowel preparation was considered adequate.

Additional information obtained on a routine basis was the depth of insertion (in centimeters) of the sigmoidoscope and the total duration (in minutes) of the procedure. The nurse who assisted with the procedure recorded this data.

Results

Fifty-five subjects were assigned to each group. Information about adequacy of bowel preparation was not recorded for one patient in the one-enema group; therefore, there were 54 subjects in the one-enema group and 55 subjects in the two-enema group.

Adequacy of Bowel Preparation

In seven (12.9 percent) of the 54 examinations in the one-enema group, bowel preparation was considered inadequate. In the two-enema group, 11 (20.0 percent) of the 55 examinations had inadequate bowel preparation. Although the rate of inadequate bowel preparation was lower in the one-enema group, the difference was not statistically significant ($\chi^2 = 0.97$, $df = 1$, $P = .36$). Within a sample size of 55 subjects per group, the power (1-beta) of this study to demonstrate these differences to be significant was .65 (at alpha = .20).⁸

Depth and Duration of Examination

The depth and duration of sigmoidoscopic examination were similar in the two groups. The average depth of insertion was 27.42 cm in the one-enema group and 25.78 cm in the two-enema group. The average duration of the examination was 22.38 minutes in the one-enema group and 21.50 minutes in the two-enema group.

Discussion

The results of this study demonstrate that administration of one enema is equally effective as two enemas in preparing the bowel for 35-cm flexible sigmoidoscopy. In fact, rate of inadequate bowel preparation was lower among patients re-

ceiving only one enema, although the difference was not statistically significant.

Limiting bowel preparation to one enema for 35-cm sigmoidoscopy has several advantages. First, it is less unpleasant for patients to receive only one enema, a particular advantage for patients with symptomatic hemorrhoids. As noted above, anything that can enhance patient acceptance of flexible sigmoidoscopy will increase physicians' ability to apply the procedure on a widespread basis as a screening test.

Second, although patients in this study self-administered the enemas at home, many medical practices administer preparatory enemas in the office. Administration of enemas is time consuming for nursing staff; it takes approximately ten minutes for a nurse or trained nursing assistant to administer an enema. It also requires immediate access to a bathroom. The need for a bathroom can be embarrassing for patients who are dressed in examination gowns when office bathrooms are located in hallways or in sight of other patients, particularly since some patients have difficulty retaining enemas once they stand upright to walk to a bathroom. In addition, office administration of enemas occupies an examination room. For those practices that administer enemas in the office, the routine use of one enema instead of two will improve room utilization and patient flow.

Third, there is a small cost savings accrued by eliminating one enema. In the Family Practice Office, patients are charged \$2 for each Fleet's enema. For practices that perform large numbers of sigmoidoscopies, particularly those practices in which patients are participants in prepaid health plans, the savings could amount to several hundred dollars each year.

It should be noted that with the one-enema protocol used in this study, the rate of inadequate preparation was 12.9 percent. This failure rate is comparable with the 10 percent rate reported by Johnson et al,⁷ in which "one or two Fleet's enemas" were administered 30 minutes prior to the examination. The inadequate preparation rate in this study is considerably higher, however, than the 2.2 percent rate reported by Hocutt and associates.⁹ These investigators instructed patients to administer as many enemas as were necessary until return was clear; in some cases three or four enemas were required. In addition, patients were restricted to a clear liquid diet beginning after their

evening meal on the night before the examination and continuing until the time of the procedure. While this procedure may result in more effective bowel cleaning, the improved efficacy must be weighed against the possibility of decreased patient acceptance because the procedure is significantly more extensive than the single-enema procedure evaluated in this study.

In those instances in which inadequate preparation was encountered, an additional enema can be administered in the office by the nursing staff. This invariably results in acceptable bowel preparation and allows resumption and completion of sigmoidoscopy.

Finally, it should be emphasized that the findings of this study apply only to 35-cm sigmoidoscopy. It is possible that a single enema preparation is not adequate for 60-cm sigmoidoscopy.

Conclusion

A single phosphate enema is equally effective and possibly superior to a two-enema regimen in achieving adequate bowel preparation for 35-cm flexible fiberoptic sigmoidoscopy. The routine use of one enema benefits the patient by reducing the discomfort, embarrassment, and cost associated with a second enema. In practices in which enemas are administered in the office, the physician and nursing staff benefit by saving time and improving utilization of office facilities.

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