Patient compliance and suboptimal bowel preparation with split-dose bowel regimen in average-risk screening colonoscopy CME

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Background: Although split-dose bowel regimen is recommended in colon cancer screening and surveillance guidelines, implementation in clinical practice has seemingly lagged because of concerns of patient compliance.

Objectives: To assess patient compliance with the split-dose bowel regimen and assess patient- and preparation process–related factors associated with compliance and bowel preparation adequacy.

Design: Prospective survey cohort.

Setting: Tertiary care setting.

Patients: Average-risk patients undergoing colonoscopy for colorectal cancer screening between August 2011 and January 2013.

Main Outcome Measurements: Split-dose bowel regimen patient-reported compliance and bowel preparation adequacy with the Boston Bowel Preparation Scale score.

Results: Surveys and Boston Bowel Preparation Scale score data were completed in 462 participants; 15.4% were noncompliant with the split-dose bowel regimen, and suboptimal bowel preparation (score <5) was reported in 16% of all procedures. White ($P = .009$) and married ($P = .01$) subjects were least likely to be noncompliant, whereas Hispanic subjects and those who reported incomes of US$75,000 or less were most likely to be noncompliant ($P = .004$). Participants who were noncompliant with split-dosing were less likely to follow the other laxative instructions and more likely to have their colonoscopy appointment before 10:30 AM. Compliance differed by bowel preparation type ($P = .003$, χ^2 test), with those who used MiraLAX showing the highest compliance, followed by polyethylene glycol electrolyte solution and other bowel preparations. Noncompliance with split-dose bowel preparation (odds ratio 6.7; 95% confidence interval, 3.2-14.2) was the strongest predictor of suboptimal bowel preparation.

Limitations: Patient self-report, performed at tertiary care center.

Conclusions: Overall, 1 in 7 patients do not comply with a split-dose bowel regimen. Ensuring compliance with the split-dose bowel regimen will reduce the risk of a suboptimal bowel preparation. (Gastrointest Endosc 2014;79:811-20.)

Abbreviations: ASC, ambulatory surgical center; BBPS, Boston Bowel Preparation Scale; CRC, colorectal cancer; OR, odds ratio; PEG-EL, polyethylene glycol electrolyte.

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Colonoscopy is the test of choice above all other modalities for both colorectal cancer screening and prevention as recommended by national multisociety guidelines.[1] Current guidelines recommend colonoscopy for colon cancer screening every 10 years in average-risk patients 50 years of age and older.[1] Ensuring that stool is adequately cleansed from the colon is crucial for colonoscopy effectiveness in identifying precancerous polyps and colon cancer. Suboptimal bowel preparation (qualified as fair, poor, inadequate, and unsatisfactory on endoscopy reports) is not only associated with increased costs because of rescheduling and wasted resources, but, more importantly, with missed colorectal cancers (CRCs) and decreased adenoma detection.[2-5]

Previous studies demonstrated as many as 30% of patients undergoing colonoscopy to have inadequate bowel preparations.[6-11] Risk factors for suboptimal colonoscopy preparation include diabetes, hypertension, cirrhosis, constipation, age, male sex, and the use of tricyclic antidepressants.[6,7,9] However, these data were acquired before the use of split-dose bowel preparation. The split-dosing regimen, in which patients take a portion of the laxative the evening before colonoscopy and the other half on the day of colonoscopy, improves the bowel preparation quality. Studies have consistently shown that the split-dose regimen is superior to administration of preparation on the day or night before the colonoscopy.[12-16] However, prospective studies have not assessed patient compliance with split-dose bowel regimen in the practical "real-world" setting. Unger et al[17] surveyed 300 patients undergoing EGD and the drivers of colonoscopy patients about the acceptance of split-dose bowel preparation. Of these patients, 85% would be willing to get up in the middle of the night for their second preparation dose. The aim of our study was to prospectively assess patient compliance with the split-dose bowel regimen and assess patient- and preparation process–related factors associated with compliance and bowel preparation adequacy. We hypothesized that patient failure to take the spilt-dose regimen largely accounts for suboptimal colonoscopy preparation in the average-risk colorectal cancer (CRC) screening population.

Take-home Message

- Prospectively, 1 in 7 average-risk patients do not comply with the split-dose bowel regimen. Predictors of noncompliance included Hispanic ethnicity, income of $75,000 or less, and poor adherence to bowel preparation instructions.
- Noncompliance with the split-dose bowel regimen was the strongest predictor of suboptimal bowel preparation.

METHODS

The study was conducted at the University of Michigan Health Systems in Ann Arbor at 2 outpatient endoscopic procedure units. With investigational review board approval, we approached a prospective cohort of average-risk patients in the procedure waiting room before their colonoscopy appointments. We defined average risk as persons age 50 years of age and older without risk factors for CRC other than age. Participants 50 to 74 years of age were eligible for participation. Exclusion criteria included the following: patients unable to read, comprehend, or consent to their involvement in the study; patients with a family history of CRC in a first-degree relative or a history of polyps or colon cancer; or patients undergoing colonoscopy for hematochezia, abdominal pain, chronic change in bowel habits, or other GI symptoms. The ability to read and comprehend was assessed during the informed consent process. Our planned sample size was 450 patients; however, a total of 496 patients were recruited, including an additional 46 patients recruited to fulfill a separate aim of our funded grant. Sample size was calculated to have 90% power to detect a difference in the proportion of suboptimal preparation of 15% in those who are compliant with the split-dose bowel regimen versus 30% in those who are noncompliant, assuming that 30% of patients are noncompliant with preparation instructions and further assuming that about 10% may have incomplete data. If only 20% of subjects are noncompliant with the split-dose regimen, we would have 85% power to detect this difference.

Patients were asked to complete a 43-question survey instrument before their scheduled colonoscopy (Appendix 1, available online at www.giejournal.org). The survey was designed after an extensive literature review and with expert consultation (P.W. and B.Z.-F.). We assessed face and construct validity of the survey instrument and performed a pilot test with 20 patients. The survey instrument was then modified based on patient feedback. The survey assessed patient demographic factors and medical history while focusing on possible risk factors for suboptimal bowel preparation. Three areas related to preparation process were evaluated: (1) preparation information relayed to patients, (2) preparation activities on the day before colonoscopy, and (3) preparation activities on the day of the colonoscopy for all bowel preparation types. All colonoscopists were blinded to the results of the survey.

Colonoscopy bowel preparation

All patients are given the same bowel preparation instructions for the split-dose bowel regimen and fluid and dietary intake. On the day before their colonoscopy, the patient is instructed to take half of the bowel preparation. On the day of the colonoscopy, he or she is to take the second half of the bowel preparation starting 4 hours before the patient needs to leave for the appointment. Bowel preparation timing instructions will vary slightly by the prescribed bowel preparation. The following bowel