Disparities in Evaluation of Patients With Rectal Bleeding 40 Years and Older

Helen M. Shields,[*,‡] Elena M. Stoffel,[§,‖] Daniel C. Chung,[¶] Thomas D. Sequist,[§,#,**,‡‡] Justin W. Li,[§§] Stephen R. Pelletier,[‖‖] Justin Spencer,[§§] Jean M. Silk,[‖] Bonita L. Austin,[*] Susan Diguette,[‡‡] Jean E. Furbish,[*] Ruth Lederman,[¶¶] and Saul N. Weingart[*,§§]

*Department of Medicine, ‡Division of Gastroenterology, Beth Israel Deaconess Medical Center and Harvard Medical School; §Department of Medicine, ‖Division of Gastroenterology, #Division of General Internal Medicine, and **Department of Health Care Policy, Brigham and Women's Hospital and Harvard Medical School; ¶Department of Medicine, Division of Gastroenterology, Massachusetts General Hospital and Harvard Medical School; ‡‡Harvard Vanguard Medical Associates; §§Center for Patient Safety, ¶¶Dana-Farber Cancer Institute; and ‖‖Center for Evaluation, Harvard Medical School, Boston, Massachusetts

This article has an accompanying continuing medical education activity on page e33. Learning Objectives—At the end of this activity, the successful learner will be able to recognize the positive predictive value of rectal bleeding for the detection of colon cancer in patients who are worked up for this symptom and the factors that are known to negatively affect colon cancer screening in different racial, ethnic, and socioeconomic groups.

BACKGROUND & AIMS: **Rectal bleeding is associated with colorectal cancer. We characterized the evaluation of patients aged 40 years and older with rectal bleeding and identified characteristics associated with inadequate evaluation.**

METHODS: **We conducted a retrospective review of records of outpatient visits that contained reports of rectal bleeding for patients aged 40 years and older (N = 480). We studied whether patient characteristics affected whether or not they received a colonoscopy examination within 90 days of presentation with rectal bleeding. Patient characteristics included demographics; family history of colon cancer and polyps; and histories of screening colonoscopies, physical examinations, referrals to specialists at the index visit, and communication of laboratory results. Data were collected from medical records, and patient income levels were estimated based on Zip codes.**

RESULTS: **Nearly half of the patients presenting with rectal bleeding received colonoscopies (48.1%); 81.7% received the procedure within 90 days. A history of a colonoscopy examination was more likely to be reported in white patients compared with Hispanic or Asian patients ($P = .012$ and $P = .006$, respectively), and in high-income compared with low-income patients ($P = .022$). A family history was more likely to be documented among patients with private insurance than those with Medicaid or Medicare ($P = .004$). A rectal examination was performed more often for patients who were white or Asian, male, and with high or middle incomes, compared with those who were black, Hispanic, female, or with low incomes ($P = .027$). White patients were more likely to have their laboratory results communicated to them than black patients ($P = .001$).**

CONCLUSIONS: **Sex, race, ethnicity, patient income, and insurance status were associated with disparities in evaluation of rectal bleeding. There is a need to standardize the evaluation of patients with rectal bleeding.**

Keywords: Early Detection; Colorectal Cancer; Age; Patient Management.

We performed a systematic study of the disparities related to the work-up of rectal bleeding.[1,2] The complete evaluation of this important alarm symptom is associated with an increased likelihood of a diagnosis of colon cancer.[3–17] The objective of this study was to examine whether patient characteristics affected the rate of compliance with guidelines for the work-up of patients with rectal bleeding during a 2-year period.[8,18]

Methods

The Colorectal Advisory Committee of the Risk Management Foundation's revised guidelines for primary

1542-3565/$36.00
http://dx.doi.org/10.1016/j.cgh.2013.07.008

care physicians were distributed to primary care physicians in 2006 and are reprinted verbatim here.[8]

For patients age 40 to 50 years with rectal bleeding, the following guidelines were distributed.

- If family history is negative for colorectal cancer or adenomas, consider colonoscopy for visualization of the colon;
- At a minimum, perform a flexible sigmoidoscopy;
- If family history is positive for colorectal cancer or adenomas, order and schedule colonoscopy.

For patients age 50 years and older with rectal bleeding, the following guidelines were distributed.

- Review family history and check the date (and success) of the patient's most recent screening;
- If the patient has not had a colonoscopy within the past 3 years, order and schedule a colonoscopy;
- If the patient has had a negative colonoscopy within the past 2 years, order a flexible sigmoidoscopy.

In these guidelines, "success" refers to visualizing the base of the cecum and a good quality preparation.

Patients who presented to their primary care physician from July 1, 2006, to June 30, 2008, with a new complaint of rectal bleeding at this initial visit (index visit) and who were 40 years and older were eligible for inclusion in this study. Patients with rectal bleeding who were seen in the emergency room for this complaint first, had a known diagnosis of ulcerative colitis or Crohn's disease, or who had a history of colon cancer were excluded from the study.

With approval from the Institutional Review Board of the Dana-Farber/Harvard Cancer Center, a retrospective chart review was performed at 10 sites: 3 academic hospitals and 7 affiliated community-based practice sites. Trained nurse reviewers from each of the hospitals and affiliated clinics entered data from patient charts into a specially modified online data entry form that collected and stored the data (Datstat; Illume, Seattle, WA). Data entered into Datstat was imported into a standard SPSS (IBM SPSS Data Collection, version 20, Armonk, NY) software program for statistical analyses using bivariate and multivariate analyses.

Rectal bleeding patients were identified using the following International Classification of Diseases, 9th revision, Clinical Modification codes 569.3 (rectal bleeding), 578.1 (blood in the stool), and 455.0, 455.1, 455.2, or 455.3 (hemorrhoids). A delay was classified as longer than 90 days to completion of a procedure to visualize the colon with either a sigmoidoscopy (if the patient was between ages 40 and 49 years with no family history of colon cancer or adenomas) or a colonoscopy if the patient was age 50 or older or between ages 40 and 49 and with a family history of colon cancer or polyps. Patients who had undergone a colonoscopy with an adequate preparation performed within the prior 2 years were excluded from being considered as delayed. Patients who had undergone a colonoscopy more than 2 years previously were expected to be considered for a repeat procedure given the symptom of rectal bleeding and recent studies showing the incidence of interval cancers.[19–21]

Zip code data were used as a proxy for patient income. Census data were used for each of the Zip codes to ascertain annual income. Patient income was divided by Zip code into low (0–49th percentile), medium (50–74th percentile), and high (>75th percentile) levels.[22,23] Multivariate statistical analyses were performed using SPSS.

Multivariable logistic regression analysis was used to ascertain the probability that race or ethnicity, income, sex, health insurance status, age, and need for an interpreter predicted lack of colonoscopy completion timeliness, lack of proper physical examinations at the index visit, nonreferral to a gastroenterologist for colonoscopy or consultation, and failure to have laboratory results reported. We used a .05 *P* value criterion for significance and forward stepwise selection.

When all multivariable logistic regression analysis tests were completed, all independent variables tested had odds ratios that were not significantly different from zero. Thus, we found no statistically significant predictors of outcome.

The results reported later are based on bivariate analyses, including the chi-square test and the Z test of proportions.

Results

Demographics

The demographic characteristics of the 480 subjects are shown in Table 1. The majority of our patients were white, of non-Hispanic ethnicity, younger than age 60, privately insured, English speaking, did not require an interpreter, and were in middle- and high-income areas by Zip code.

Colonoscopy Completion Rate for Symptom of Rectal Bleeding

Nearly half (48.1%) of the patients presenting with the complaint of rectal bleeding underwent a colonoscopy or flexible sigmoidoscopy (9 patients; 1.875%). In the 169 patients ages 40 to 49, flexible sigmoidoscopy was performed in 4 (2.37%). Of those who underwent colonoscopy, 81.7% had the procedure within 90 days of their index visit. Table 2 lists the variety of tests performed in patients with rectal bleeding. A significant minority, 156 patients, (32.5%) were categorized as not having had a colonoscopy performed within the 90-day expected time period. Table 3 lists the reasons. The 2 most common reasons were a prior colonoscopy in 59 patients and refusal or cancellation of the procedure in 25 patients.

History of Colonoscopy Before Index Visit

Analysis indicated that 47.5% of our rectal bleeding study group had undergone a colonoscopy as part of a colon cancer screening program before the index visit.