Endoscopic hemostasis is rarely used for hematochezia: a population-based study from the Clinical Outcomes Research Initiative National Endoscopic Database

Osnat Ron-Tal Fisher, MD,[1] Ian M. Gralnek, MD, MSHS,[1,2] Glenn M. Eisen, MD, MPH,[3,4] J. Luke Williams, MPH,[3] Jennifer L. Holub, MA, MPH[3]

Haifa, Israel; Portland, Oregon, USA

Background: Data on the use of endoscopic hemostasis performed during colonoscopy for hematochezia are primarily derived from expert opinion and case series from tertiary care settings.

Objectives: To characterize patients with hematochezia who underwent in-patient colonoscopy and compare those who did and did not receive endoscopic hemostasis.

Design: Retrospective analysis.

Setting: Clinical Outcomes Research Initiative National Endoscopic Database, 2002 to 2008.

Patients: Adults with hematochezia.

Interventions: None.

Main Outcome Measurements: Demographics, comorbidities, practice setting, adverse events, and colonoscopy procedural characteristics and findings.

Results: We identified 3151 persons who underwent in-patient colonoscopy for hematochezia. Endoscopic hemostasis was performed in 144 patients (4.6%). Of those who received endoscopic hemostasis, the majority were male (60.3%), white (83.3%), and older (mean age 70.9 ± 12.3 years); had a low-risk American Society of Anesthesiologists classification (53.9%); and underwent colonoscopy in a community setting (67.4%). The hemostasis-receiving cohort was significantly more likely to be white (83.3% vs 71.0%, $P = .02$), have more comorbidities (classes 3 and 4, 46.2% vs 36.0%, $P = .04$), and have the cecum reached (95.8% vs 87.7%, $P = .003$). Those receiving hemostasis were significantly more likely to have an endoscopic diagnosis of arteriovenous malformations (32.6% vs 2.6%, $P = .0001$) or a solitary ulcer (8.3% vs 2.1%, $P < .0001$).

Limitations: Retrospective database analysis.

Conclusions: Less than 5% of persons presenting with hematochezia and undergoing inpatient colonoscopy received endoscopic hemostasis. These findings differ from published tertiary care setting data. These data provide new insights into in-patient colonoscopy performed primarily in a community practice setting for patients with hematochezia. (Gastrointest Endosc 2014;79:317-25.)

Abbreviations: AE, adverse event; ASA, American Society of Anesthesiologists; AVM, arteriovenous malformation; CORI, Clinical Outcomes Research Initiative; LGIB, lower GI bleeding; NED, National Endoscopic Database.

DISCLOSURE: *This project was supported in part by funding from Oregon Health Sciences University, NIDDK UO1 DK57132. In addition, the practice network (Clinical Outcomes Research Initiative) has received support from the following entities to support the infrastructure of this practice-based network: AstraZeneca, Bard International, Pentax USA, ProVation, Endosoft, GIVEN Imaging, and Ethicon (G.M.E., J.L.W., J.H.). These commercial entities had no involvement in this present research. The authors have disclosed no financial relationships relevant to this publication.*

0016-5107/$36.00
http://dx.doi.org/10.1016/j.gie.2013.09.004

Received June 14, 2013. Accepted September 7, 2013.

Current affiliations: Bruce and Ruth Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Haifa, Israel (1), GI Outcomes

(footnotes continued on last page of article)

Acute, overt lower GI bleeding (LGIB), manifested as hematochezia, often leads to hospital admission.[1-5] Common causes of acute LGIB include colonic diverticulosis, vascular ectasias, ischemic colitis, colorectal polyps and neoplasms, inflammatory bowel disease, anorectal conditions, and postpolypectomy bleeding.[2,4,5]

Similar to EGD for acute upper GI bleeding, colonoscopy is the preferred initial examination in the diagnosis and possible therapeutic intervention of acute hematochezia.[1-7] However, in contrast to acute upper GI bleeding, there are only limited population-based data on LGIB colonoscopy findings and endoscopic therapies. By using Clinical Outcomes Research Initiative (CORI) data, we recently characterized individuals with hematochezia undergoing colonoscopy in a primarily community practice.[8] Published data on endoscopic hemostasis during colonoscopy for LGIB are derived almost exclusively from expert clinical experience at tertiary care hospitals.[1] There is limited information characterizing LGIB patients evaluated by colonoscopy and endotherapies used in community practice settings, which comprise the majority of endoscopic practices in the United States. The aim of this study was to describe and compare patients with hematochezia who underwent colonoscopy and compare those who did and did not receive endoscopic hemostasis by using population-based data, primarily from community practices. In addition, we performed age-stratified analyses comparing older patients (≥60 years) presenting with acute LGIB with younger LGIB patients (18-59 years).

Take-home Message

- Less than 5% of patients presenting with severe hematochezia and undergoing inpatient colonoscopy appear to receive endoscopic hemostasis.
- The cohort receiving hemostasis was significantly more likely to be white, have more comorbidities, and have the cecum reached. Those receiving hemostasis had an endoscopic diagnosis significantly more likely to be a arteriovenous malformation or a solitary ulcer.

METHODS

Data Source: CORI National Endoscopic Database

We used the CORI for this population-based study. CORI was established in 1995 to study the use and outcomes of endoscopy in diverse gastroenterology practice settings in the United States. All participating CORI endoscopy sites use a standardized computerized report generator to create all endoscopic reports and comply with CORI quality control requirements. The sites' data files are transmitted electronically on a weekly basis to a central data repository, the National Endoscopic Database (NED), located in Portland, Oregon, USA. The data that are transmitted from the local site to the NED does not contain most patient or provider identifiers and qualifies as a limited dataset under 45 C.F.R. Section 164.514 (e) (2). After completion of quality control checks, data from all sites are merged in the data repository for analysis. The data repository is checked for anomalies on a daily basis, and endoscopy procedure counts are monitored on a weekly basis for atypical activity. Any noted unusual activity prompts follow-up contact by CORI staff. Multiple studies on a variety of endoscopy-related topics that have used CORI data have resulted in peer-reviewed publications.[8-15]

The CORI NEB was given approval by the institutional review board of the Oregon Health & Science University (eIRB #733) in October 2011. This study used a limited dataset of CORI and was therefore exempted from further institutional review board review.

Subjects

To optimize selection of patients with nontrivial hematochezia, we identified all patients 18 years of age and older, from January 1, 2002, to December 31, 2008, who underwent in-patient colonoscopy for the lone indication hematochezia and who had a colonoscopic diagnosis of a bleeding source other than or in addition to hemorrhoids. Moreover, we performed age-stratified analyses whereby we compared older subjects (≥60 years) presenting with nontrivial hematochezia who underwent in-patient colonoscopy for the indication hematochezia and who had a colonoscopic diagnosis of a bleeding source other than or in addition to hemorrhoids with a younger LGIB population (18-59 years).

Definitions

We characterized this cohort by demographics, disease comorbidity per the American Society of Anesthesiologists (ASA) classification, gastroenterology practice setting (a priori defined as tertiary care, which included academic and Veterans Affairs/military practice sites, vs community practice, which included community/health maintenance organization practices), endoscopic diagnosis, extent of colonoscopy examination, endoscopic hemostasis type, repeat colonoscopy performed, and adverse events (AEs).

Statistical analyses

Comparisons of categorical data were performed by using Pearson's χ^2 test of independence. In patients with low cell counts (<5), the Fisher exact test was used. An a priori determined P value ≤.05 was considered statistically significant. All analyses were performed by using SAS software version 9.2 (SAS Institute, Inc, Cary, NC).

Univariate logistic regression was performed for each covariate, modeling likelihood of receiving hemostasis at the time of colonoscopy. All covariates with a univariate P value <.2 were included in the full multivariate model. The parsimonious multivariate model contains only those