Safety and Clinical Efficacy of Flexible Sigmoidoscopy and Colonoscopy for Gastrointestinal Bleeding After Myocardial Infarction
A Six-Year Study of 18 Consecutive Lower Endoscopies at Two University Teaching Hospitals
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The risks versus benefits of flexible sigmoidoscopy and colonoscopy performed within three weeks of myocardial infarction were studied in nine consecutive patients who underwent sigmoidoscopy and in nine consecutive patients who underwent colonoscopy at two university hospitals. Indications for sigmoidoscopy were red blood per rectum in seven and occult blood in the stools in two. Sigmoidoscopy provided the diagnosis in three, including colon cancer in two and bleeding internal hemorrhoids in one, and provided helpful information in three. Sigmoidoscopy led to colon cancer surgery in two patients, and polypectomy of a 1-cm adenoma in one. Of two highly unstable patients before sigmoidoscopy, one developed second-degree heart block and frequent premature ventricular contractions 3 hr after sigmoidoscopy. No sigmoidoscopic complications occurred in the seven relatively clinically stable patients. Indications for colonoscopy included red blood per rectum in five, occult blood in the stools in three, and melena in one. Colonoscopy provided the diagnosis in five, including one each with colon cancer, internal hemorrhoids, large adenoma, ischemic colitis, and angiodysplasia. Colonoscopy resulted in colon cancer surgery in one patient and endoscopic polypectomies in three patients. Of two moderately unstable patients before colonoscopy, one developed asymptomatic bradycardia during colonoscopy. No colonoscopic complications occurred in the seven clinically stable patients. This study suggests that recent myocardial infarction is not an absolute contraindication to sigmoidoscopy or colonoscopy, that sigmoidoscopy is beneficial in medically stable patients with significant gastrointestinal bleeding, and that colonoscopy may be beneficial in selected, highly stable patients with significant gastrointestinal bleeding. Endoscopy should be performed with monitoring by electrocardiography and pulse oximetry after stabilization of vital signs, which may require transfusion of blood products and supplemental oxygen administration. Sigmoidoscopy in highly unstable patients and colonoscopy in moderately unstable patients may have a high complication rate.

KEY WORDS: myocardial infarction; angina; atherosclerotic heart disease; congestive heart failure; lower gastrointestinal bleeding; flexible sigmoidoscopy; colonoscopy; gastrointestinal endoscopy; endoscopic complications; therapeutic endoscopy.
There are currently no data on the safety of flexible sigmoidoscopy and colonoscopy in patients with recent myocardial infarction. The only safety data are extrapolated from studies on the safety of surgery after myocardial infarction; these studies have shown that surgery within six weeks of myocardial infarction has a high mortality and should be performed only if absolutely necessary (1–7). However, it is important to analyze directly the risks of gastrointestinal endoscopy after myocardial infarction because the risks of endoscopy are different than that of surgery. As part of our research program to study gastroenterologic procedures in special clinical circumstances (8–12), this study analyzes the risks versus benefits of flexible sigmoidoscopy and colonoscopy performed within three weeks of myocardial infarction.

MATERIALS AND METHODS

Patients with myocardial infarction and gastrointestinal bleeding admitted to Robert Wood Johnson University Hospital from January 1986 through December 1991 and to Princeton Medical Center from January 1989 through December 1991 were identified by computer analysis of medical chart diagnostic codes. Endoscopic complications were meticulously searched for throughout the medical chart, particularly in the physician's and nurse's endoscopy notes, and physician's and nurse's daily notes. Vital signs before and after endoscopy were obtained from the endoscopy nurse’s report for endoscopies performed in the endoscopy suite at Robert Wood Johnson University Hospital, from the intensive care unit nurse’s notes for endoscopies performed in intensive care units at Robert Wood Johnson University Hospital, and from the physician's endoscopy form at Princeton Medical Center. Pulse oximetry during endoscopy was available only for the last hospitalized patient during this study period. Overt upper gastrointestinal bleeding was defined by a health care worker observing hematemesis or a bloody nasogastric aspirate. Melena was determined by a health care worker’s observation. Occult blood in the stool was determined using a guaiac-impregnated slide after digital rectal examination (Hemoccult, Smith Kline Diagnostics, Sunnyvale, California). Myocardial infarction was defined as a creatinine phosphokinase >225 units/liter (lab normal 25–225 units/liter) with a muscle–brain (MB) fraction greater than 5% (lab normal 0–5%). Statistical calculations were performed with a personal computer and the Basica Epistat software.

RESULTS

Incidence of Bleeding After Myocardial Infarction

During the six years of study at Robert Wood Johnson University Hospital and two years at Princeton Medical Center, 26 patients (0.4% of all myocardial infarctions) developed overt gastrointestinal bleeding without hematemesis or a bloody nasogastric aspirate, and 14 patients (0.2% of all myocardial infarctions) developed occult gastrointestinal bleeding within three weeks after myocardial infarction (mean annual incidence per hospital = 5). In particular, 15 had red blood per rectum, 11 had melena without hematemesis, 10 had occult blood in the stool and anemia, and 4 had occult blood in the stool without anemia. Nine of the patients (22.5%) underwent flexible sigmoidoscopy, and nine (22.5%) underwent colonoscopy, including three who first had sigmoidoscopy. In addition, 56 patients had overt gastrointestinal bleeding with hematemesis or a bloody nasogastric aspirate, and 34 patients underwent panendoscopy (9).

Contraindications

The stated reason for patients with gross or occult rectal bleeding not undergoing lower endoscopy included severe medical instability in 16, panendoscopy revealed the cause of melena in two, hemorrhoidal bleeding in one, occult bleeding attributed to severe coagulopathy in one, patient refusal in one, and the recent myocardial infarction in four.

Flexible Sigmoidoscopy

Indications. Indications for sigmoidoscopy were bright red blood per rectum in five, dark red blood per rectum (after panendoscopy did not reveal a bleeding source) in two, and anemia and occult blood in the stools in two. Sigmoidoscopy was performed despite the recent myocardial infarction because: severe bleeding required transfusion of four or more units of packed erythrocytes in four, myocardial infarction was not realized at the time of sigmoidoscopy in one (in a patient presenting with simultaneous myocardial infarction and gastrointestinal bleeding who underwent sigmoidoscopy before the serum creatinine phosphokinase level was known), hypotension with active bleeding in one, and the patient was clinically very stable aside from overt or occult gastrointestinal bleeding with severe anemia which occurred more than two weeks after myocardial infarction in three.

Patient Characteristics. Eight patients were male. The mean age was 72.8 ± 9.6 [standard deviation, (SD)] years (range 55–87, median = 74). The myocardial infarctions were anterior wall in three, subendocardial in two, lateral wall in two, anterolateral walls in one, and anteroinferior walls in one.