

B. Gastrointestinal Hemorrhage

D. Roy Ferguson and M. Michael Wolfe

ACUTE GASTROINTESTINAL HEMORRHAGE

Acute gastrointestinal (GI) bleeding remains a common major medical problem despite recent advances in diagnosis and treatment. Bleeding occurs as a complication of many diverse disease processes, and adequate treatment depends on careful assessment and management that focuses on ensuring hemodynamic stability, determining blood loss, and identifying sources of bleeding. Although advances in medical and surgical intensive care, pharmacologic therapy, and the prompt deployment of endoscopic therapies have significantly decreased the rate of rebleeding, the overall mortality rate from acute bleeding episodes has remained essentially unchanged during the past half-century, at about 5% to 10%, owing to an aging population and an increased prevalence of serious concomitant illnesses.

Clinical Presentation

Significant GI bleeding typically manifests with some combination of weakness, dizziness, lightheadedness, shortness of breath, postural changes in blood pressure or pulse, cramping abdominal pain, and diarrhea. The characteristics of the bleeding may help to localize its source to the upper or lower GI tract. Patients with acute bleeding commonly have one of the following symptoms at presentation.

1. *Hematemesis*: The patient vomits bright red blood or material that resembles coffee grounds, representing partially digested blood. After exclusion of swallowed blood from the nasopharynx or the respiratory tract (hemoptysis), the source of bleeding is likely to be proximal to the ligament of Treitz.
2. *Melena*: Black, tarry, usually foul-smelling stools are most often a manifestation of upper GI bleeding; however, a small bowel or proximal colonic source of bleeding may on occasion lead to melanic stools. Volumes as little as 50 to 100 mL of blood in the stomach can result in melena.
3. *Hematochezia*: The passage of bright-red blood or maroon stools per rectum frequently indicates a lower GI source of bleeding. However, 10% to 15% of patients with acute severe hematochezia have an upper GI source of brisk bleeding. This group of patients commonly displays signs of hemodynamic instability.

Etiology

A major early goal is to distinguish between upper and lower GI sources because the management strategies are different. In addition to the symptoms already described, certain aspects of the history and physical examination, the age of the patient, and results of laboratory studies may be suggestive. However, in many patients, the site of bleeding frequently remains uncertain after the initial evaluation. Common sources of acute GI hemorrhage are listed in [Table 33-2](#).

Approach to the Patient with Acute Gastrointestinal Bleeding

Assessment of Vital Signs and Resuscitation

A simple mnemonic for the approach to gastrointestinal bleeding is *SET*: Stabilization, Evaluation (endoscopy), and Treatment. The first goal in management is to *stabilize the patient* and determine the severity of blood loss ([Fig. 33-2](#)). Vital signs with postural changes should be recorded immediately. If the systolic blood pressure drops more than 10 mm Hg or the pulse increases more than 10 beats per minute as the patient changes position from supine to standing, it is likely the patient has lost at least 800 mL (15%) of circulating blood volume. Hypotension, tachycardia, tachypnea, and mental status changes in the setting of acute GI hemorrhage suggest the loss of at least 1500 mL (30%) of circulating blood volume.

The goals of resuscitation are to restore the normal circulatory volume and to prevent complications from red blood cell loss, such as cardiac, pulmonary, renal, or neurologic consequences. Initially, at least two large-bore intravenous catheters are used to administer isotonic solutions (e.g., lactated Ringer's solution, 0.9% NaCl), and blood products if indicated. If the patient is in shock, central venous access should be established. Although the amount of blood to be infused must be individually determined in each case, recent randomized trials and a retrospective review suggest that use of a lower hemoglobin threshold of 7 g/dL, rather than a more liberal level of 9 g/dL, results in improved mortality rates, lower total transfusion requirements, and lower rates of rebleeding in both peptic ulcer bleeding and variceal bleeding in patients in whom early endoscopy (<5 hours) is available. In view of the costs and potential risks of blood transfusion, it is not appropriate to simply transfuse until an arbitrary target hematocrit is achieved. If coagulation studies are abnormal, as is commonly observed in cirrhotic patients, fresh-frozen plasma, platelets, or both may be required to control ongoing hemorrhage.

Initial Evaluation

While resuscitation is underway, the following information should be obtained by history and physical examination to determine the source of bleeding:

1. The nature of the bleeding: melena, hematemesis, hematochezia, or occult blood. A digital rectal examination is essential for determination of stool color and identification of anal fissures or rectal neoplasms.
2. The duration of GI bleeding, which helps dictate the appropriate pace of the evaluation to determine the bleeding source
3. The presence or absence of abdominal pain; for example, hematochezia caused by diverticula or angiodysplasia typically is painless, but hematochezia due to intestinal ischemia it is often accompanied by abdominal pain.

