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## Questions and Answers

1. A 68-year-old man with a past medical history of cirrhosis from hepatitis C presents with three episodes of bloody vomiting over the past 12 h. Physical examination reveals that his blood pressure is 75/40 mmHg, temperature is 36.0°C, pulse 152/min, and respiration rate is 18/min. In addition, the patient is found to have spider angiomas, gynecomastia, ascites, splenomegaly, and caput medusa. Digital rectal examination is positive for occult blood. His hemoglobin is 8 g/dL on labs. The patient has another episode of hematemesis during the examination. Which of the following is the next best step in this patient's management?
- (A) Esophagogastroduodenoscopy (EGD)
  - (B) Transjugular intrahepatic portosystemic shunt (TIPS)
  - (C) Stabilization and vital signs
  - (D) Placement of nasogastric tube with lavage

Answer: C

The patient's history of cirrhosis and signs of portal hypertension point to esophageal varices as the most likely source of bleeding. Variceal bleeding related to portal hypertension is the second most common cause of severe UGIB (after peptic ulcer disease) with a mortality rate of approximately 30%. Irrespective of the source of bleeding, the first steps in management is to ensure airway protection, check vital signs and orthostasis, insert two large-bore peripheral catheters and start resuscitation with crystalloid solution. Detection of varices is most commonly done with the use of upper gastrointestinal endoscopy. Endoscopic therapy, which includes variceal sclerotherapy and band ligation, is the only treatment modality that is widely accepted for the prevention and control of variceal bleeding. Placement of a TIPS is an interventional radiologic procedure in which an expandable metal stent is placed via percutaneous insertion between the hepatic and portal veins, thereby creating an

intrahepatic portosystemic shunt. TIPS is effective for the short-term control of bleeding gastroesophageal varices. In the management of acute variceal bleeding, TIPS is reserved for patients who fail endoscopic treatment. While a nasogastric tube is appropriate to differentiate upper and lower gastrointestinal bleeding (LGIB), it is unnecessary in this case because the patient is having active hematemesis which is a clear indication of UGIB.

2. A 74-year-old man presents to the emergency department with acute onset of bloody vomiting associated with abdominal pain. He has a history of peptic ulcer disease with occasional heartburn. His only medication is over the counter omeprazole. On physical examination, the temperature is 36.6°C, the blood pressure is 110/70 mmHg, the pulse rate is 88/min, and the respiration rate is 14/min. He has moderate tenderness to deep palpation in the left upper quadrant. An actively bleeding ulcer is seen on EGD. Endoscopic therapy by epinephrine injections with a sclerotherapy needle, and coagulation therapy using a thermal probe stops the bleeding. Biopsy for *H. pylori* is negative. The patient is monitored for 72 h in the hospital with PPI administration.

It is appropriate to recommend:

- (A) Repeat *H. pylori* testing
- (B) Repeat EGD prior to discharge
- (C) Add Histamine-2 receptor blockers in addition to PPI
- (D) Nothing

Answer: A

Negative *H. pylori* diagnostic tests (serology, rapid urease test, histology, urea breath test, stool antigen, and culture) obtained in the acute setting should be repeated due to a high level of false-negative results. Patients with UGIB should be tested for *H. pylori* and receive antibiotic therapy if infection is detected. Eradication of *H. pylori* is more effective than PPI therapy alone in preventing re-bleeding from peptic ulcer disease. Routine second-look endoscopy,

generally done 1 day after the initial endoscopy, is currently not recommended. Histamine-2 receptor antagonists are not recommended for patients with acute ulcer bleeding.

3. A 70-year-old female presents with dizziness of 3 days duration. The patient complains of black, tarry stools occurring for the past week. She has a history of coronary artery disease resulting in the placement of three bare metal stents 1 year ago. Her current medications include metoprolol, lisinopril, pravastatin, and aspirin (ASA). On physical examination, the temperature is 36.0°C, the blood pressure is 92/50 mmHg, the pulse rate is 92/min, and the respiration rate is 20/min. The patient undergoes endoscopic therapy and a single peptic ulcer with minor oozing of blood from the edge without an adherent clot or non-bleeding visible vessel is seen. The patient is stable post endoscopy and is continuing PPI therapy.

The appropriate next step is?

- (A) Hold ASA indefinitely
- (B) Hold ASA until a repeat second look endoscopy
- (C) Continue daily ASA use
- (D) Continue ASA at half of the original dose

*Answer: C*

Prolonged discontinuation of ASA therapy increases thrombotic risk in patients who require cardioprotective ASA therapy. Patients who require ASA for cardiovascular protection should restart ASA therapy as soon as the risks for cardiovascular complication are thought to outweigh the risk of re-bleeding.

4. A 61-year-old female with a past medical history of hypertension and chronic kidney disease presents to her outpatient gastroenterologist for a routine colonoscopy. Her previous colonoscopy done 10 years ago was normal. Her medications include hydrochlorothiazide, lisinopril, and amlodipine.

Which kind of colonoscopy preparation is the most appropriate for this patient?

- (A) Sodium phosphate
- (B) Magnesium citrate
- (C) Polyethylene glycol and electrolyte lavage solution
- (D) Bisacodyl enema

*Answer: C*

Thorough bowel cleansing before colonoscopy is necessary to help ensure reliable and safe procedures and is accomplished by using osmotically acting cathartics that fall into the following three categories: polyethylene glycol and electrolyte lavage solutions; magnesium-citrate based products; and sodium-phosphate based cathartics.

Although effective, the latter two may cause irreversible kidney injury and various metabolic disturbances. Magnesium citrate and sodium phosphate are both hypertonic solutions and should, therefore, be used with caution in the elderly. Subclinical changes in renal and intestinal functions are common in older individuals. Electrolyte imbalance and dehydration are observed more frequent in this population as well, which can pose problems if hypertonic solutions are used. Because of their iso-osmolarity and non-absorbability, the use of polyethylene glycol and electrolyte lavage solutions rarely lead to any clinically important disturbance of fluid, mineral, and electrolyte balance, making them a safe alternative to their hyperosmolar counterparts.

5. An 84-year-old man is evaluated in the emergency department for intermittent amounts of painless red and maroon colored blood per rectum for the past 24 h. The patient has a past medical history of rheumatoid arthritis for which he takes ibuprofen and methotrexate. He had a routine colonoscopy 2 months ago that showed diverticula and one 5 mm polyp which was removed. On physical examination, the temperature is 36.2°C, the blood pressure is 104/62 mmHg, the pulse rate is 100/min, and the respiration rate is 16/min. He has pale conjunctiva, dry mucus membranes, a benign abdomen and gross red blood on rectal examination. In the ED the patient is fluid resuscitated. The nasogastric tube lavage reveals bile colored gastric content and his colonoscopy does not reveal an active source of bleeding.

Which of the following is the most likely source of bleeding in this patient?

- (A) Inflammatory bowel disease (IBD)
- (B) Diverticular disease
- (C) Hemorrhoids
- (D) Post-polypectomy bleeding

*Answer: B*

Diverticulosis is the most common cause of LGIB. Patients presenting with diverticular bleeding usually have painless hematochezia, take ASA or other NSAIDs and tend to be of older age. Bleeding ceases spontaneously in approximately 80% of patients. When hemorrhoids are the cause of the bleed, they generally present with mild, intermittent, and self-limited bleeding and bright red blood per rectum can be seen coating the stool, in the toilet bowl and/or on tissue after wiping. Bleeding from vascular ectasias is usually subacute, recurrent and manifested as iron deficiency anemia and occult blood positivity. Coagulopathy, platelet dysfunction, and NSAID or ASA use may trigger bleeding. Post-polypectomy bleeding can

occur anytime from 1–21 days after the procedure, although 6–10 days is the most common timeframe. Incidence is approximately 3%. While bleeding is generally mild and self-limited, blood transfusions may be required. Polyp size >2 cm, location in the right colon,

thick stalk, sessile type, and use of NSAIDs, warfarin or heparin increases the risk of post-polypectomy bleeding. IBD presents with grossly bloody diarrhea (more commonly associated with ulcerative colitis), abdominal pain, urgency, tenesmus, nausea, vomiting, and fevers.

