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AN OVERVIEW OF UPPER GASTROINTESTINAL BLEEDING, SENSITIVE TESTING, AND MANAGEMENT APPROACHES

Salma Saad Alkhalifah, Fatimah Mofeed Almosabh , Samaa Ahmed Alkhawajah, Intesar Saleh Almahdi, Fatimah Ali Alhulw, Norah Fahad AlEid, Sakinah hassan alhadab

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Abstract:

This review demonstrates the most important sensitive diagnostic methods, and appropriate management of UGIB. A literature search and Narrative review was carried out on Databases including MEDLINE (PubMed), EMBASE, to discuss the upper gastrointestinal bleeding. Studies were selected depending in with study can provide comprehensive review of conserving topic. UGIB is a medical urgent condition with high mortality which can be resolved by correct evaluation and management. A validated scoring system can assist the doctors to decide about the level of care, timing of endoscopy, and when to discharge the patient. The threat of apoplexy should be weighed against the danger of bleeding prior to holding the anticoagulation and antiplatelet therapy in UGIB. Endoscopy needs to be carried out after hemodynamically stabilizing the patient. Prompt assessment and resuscitation are essential, as are threat stratification of the severity of bleeding, early participation of the multidisciplinary group and prompt access to endoscopy, ideally within 24 h. The majority of GI bleeding is due to peptic ulcers for which Helicobacter pylori and non-steroidal anti-inflammatory agents are the main causative aspects.

Corresponding author:
Salma Saad Alkhalifah,

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INTRODUCTION:

Upper gastrointestinal (GI) bleeding (UGIB) is Causes of upper GI bleeding or UGIB, consist of gastric ulcers, duodenal ulcers, and gastric cancer (1). The main sources of bleeding are peptic ulcers, esophagitis, drug-inducd mucosal damage, sequelae of portal hypertension (esophageal varices, varices of the gastric fundus, portal hypertensive gastropathy), vascular anomalies, distressing and postoperative lesions, and tumors. Perilous upper gastrointestinal bleeding can present with non-specific indications such as fatigue, prostration, shortness of breath, or angina pectoris (3).

Despite advances in treatment, health center death resulting from UGIB stays high, which can be reduced by proper assessment and management. The reported frequencies of specific causes have changed gradually. Peptic ulcer illness makes up approximately 20%-25% of cases as compared to older studies when it used to constitute half of UGIB (4).

The source of bleeding cannot be recognized in 10%-15% of patients with UGIB; either the lesion is hard to determine, obscured by a kept embolism at endoscopy, or the sore has currently healed by the time endoscopy was performed (5,6). The first-line treatment for oesophageal varices is endoscopic band ligation, and for gastric varices is intravariceal injection of cyanoacrylate glue. Continued bleeding or early rebleeding regardless of initial endoscopic treatment takes place in 10-- 20% of clients and balloon tamponade, as a temporising step, or a transjugular intrahepatic portosystemic shunt may be required (7). This review demonstrates the most important sensitive diagnostic methods, and appropriate management of UGIB.

METHODOLOGY:

A literature search and Narrative review was carried out on Databases including MEDLINE (PubMed), EMBASE, to discuss the upper gastrointestinal bleeding. Studies were selected depending in with study can provide comprehensive review of conserving topic and published between 1999 to 2019, using terms ‘Upper gastrointestinal bleeding, ‘peptic ulcer’, ‘management, ‘diagnosis,. All studies were included published in English language and including human subjects only.

DISCUSSION:

Rapid assessment and resuscitation should precede the diagnostic evaluation in unstable patients with severe bleeding. Some patients may require intubation to decrease the risk of aspiration. Patients with active bleeding resulting in hemodynamic instability should be admitted to an intensive care unit for resuscitation and close observation. The physician should consider transferring a patient with significant upper gastrointestinal bleeding to a tertiary medical center based on local expertise and the availability of facilities

Sensitive testing:

Blood urea nitrogen (BUN) increases after ingestion of a large quantity of protein or blood (8). Hence, it is reasonable to anticipate that BUN increases following massive upper GI bleeding. The ratio of BUN to creatinine has been utilized to predict upper GI bleeding. A BUN/creatinine ratio > 30 and hemoglobin level < 8.0 g/dL indicate extreme upper GI bleeding (9). A BUN/creatinine ratio > 36 identifies upper from lower GI bleeding (10). Al-Naamani et al (11) reported that BUN alone forecasts the intensity of upper GI bleeding. All the above-mentioned reports focus on upper GI bleeding. There are no reports on utilizing BUN alone to differentiate in between upper and lower GI bleeding. The exact same study found that hemoglobin, total protein (TP), and lactate dehydrogenase (LDH) were lower in patients with upper GI bleeding. Upper GI bleeding is more extreme than lower GI bleeding. Hemoglobin plainly decreases in clients with upper GI bleeding. These facts show that lower hemoglobin suggests hemodynamic instability. It is reasonable to anticipate for that reason that hemoglobin would be lower in such clients. The reasons for TP and LDH being lower in clients with upper GI bleeding are not clear.

In another consisted of nonvariceal bleeding, although it consisted of two patients with variceal bleeding. Upper GI bleeding is primarily seen in patients with nonvariceal bleeding (13). It is recommended that variceal or nonvariceal bleeding be considered concerning management of upper GI bleeding due to the fact that management of variceal or nonvariceal bleeding is different.

Management approaches:

Potential sources of esophageal bleeding include hemorrhagic reflux esophagitis, reflux-induced ulcers, caustic intake, primary esophageal malignancies, malignancies extending from the mediastinum, NSAID-induced or other tablet esophagitis, nasogastric tube trauma, and esophagitis from infections, such as Candida, herpes simplex, cytomegalovirus, or HIV (8,13). In a big series of intense UGIB, 2% bled from esophageal ulcers; 60%

of these were associated with a hiatal hernia and 50% were related to NSAIDs. Endoscopic treatment for point sources of intense esophageal bleeding includes epinephrine injection or ablative therapy. With pill esophagitis, the offending drug should be discontinued. Specific antimicrobial therapy is recommended for infectious esophagitis.

Pre-endoscopy management

Patients are triaged based upon hemodynamic status, age, comorbidities, and initial laboratory outcomes. The primarily step in the management of UGIB is examining the hemodynamic status and starting a resuscitative procedure. In severe UGIB, hemoglobin is not an excellent indicator for estimating GI blood loss. The patient should get intravenous (IV) isotonic fluids, and transfusion must be provided maintaining the hemoglobin at a level ≥ 7 g/dl (70 g/l) or above if the patient is symptomatic (14). All patients presenting with UGIB need prompt assessment using a verified assessment tool. Early evaluation determines clients at high danger of death, of additional bleeding and those needing intervention, including surgery. Lots of predictive tools have been described for danger stratification of people with UGIB, however there is substantial variation in the results examined and in methodological quality. The National Institute for Health and Care Excellence advocates use of the Glasgow–Blatchford Score (GBS) at initial assessment (**Table 1**) (14).

Table 1. Risk stratification score: Glasgow–Blatchford Score. [15]

Admission risk factor	Score
Blood urea	
6.5–7.9	2
8.0–9.9	3
10.0–25.0	4
>25.0	6
Haemoglobin for men (g/L)	
120–129	1
100–119	3
<100	6
Haemoglobin for women (g/L)	
100–119	1
<100	6
Systolic blood pressure (mmHg)	
100–109	1
90–99	2
<90	3
Other markers	
Pulse ³100 bpm	1
Presentation with melaena	1
Presentation with syncope	2
Hepatic disease	2
Cardiac failure	

Anticoagulation and antiplatelet therapy should be performed for patients with UGIB. However, the risk of thrombosis should be weighed against the risk of bleeding. Anticoagulation should be reversed in case of acute hemorrhage. If a patient taking warfarin and INR is supratherapeutic, fresh frozen plasma (FFP) or prothrombin complex concentrate should be given. There is no antidote for most of the newer anticoagulation agents, but they have a short half-life in the presence of normal kidney function. These medications should be held and bleeding will likely stop in the next 12-24 hours (16). A small study (conducted in 1994) that included 52 patients showed successful hemostasis after endoscopic therapy in 91% of patients after correcting the INR to 1.5-2.5 compared to the control population who were not anticoagulated (17).

Proton pump inhibitors (PPIs) should be started in patients admitted with UGIB until the source of bleeding is identified. It is beneficial in both ulcer and nonulcer diseases. A high-dose intravenous infusion of PPI reduces the risk of re-bleeding ulcers (18). It promotes hemostasis by neutralizing gastric acid, which leads to clot stabilization (18). Gastroenterology service should be involved in all the patients with significant UGIB. There is data supporting the use of IV erythromycin before endoscopy. It improves visualization of the stomach by moving the blood and food particles from the stomach (19), thereby increasing the chances of visualizing the bleeding vessel. It reduces the need for a second-look endoscopy.

Upper endoscopy

Endoscopy should be performed in a nonemergent setting. Patients should be hemodynamically supported and should undergo an endoscopy within 24 hours of admission (20). If the patient is hemodynamically stable on admission and does not have serious comorbidities, an endoscopy must be performed as soon as possible. Patients with endoscopic findings of high-risk stigmata (Figure 1) (21) (active bleeding, noticeable vessel, embolisms) need to be hospitalized for 3 days presuming no additional episode of bleeding takes place. They can be fed with clear liquids soon after endoscopy (20). Clear liquids offer the advantage that if the client begins to bleed again, sedation and anesthesia can be offered within two hours after the last ingestion. Patients with clean-based ulcers can be discharged house if they have a house and somebody can observe them (20).

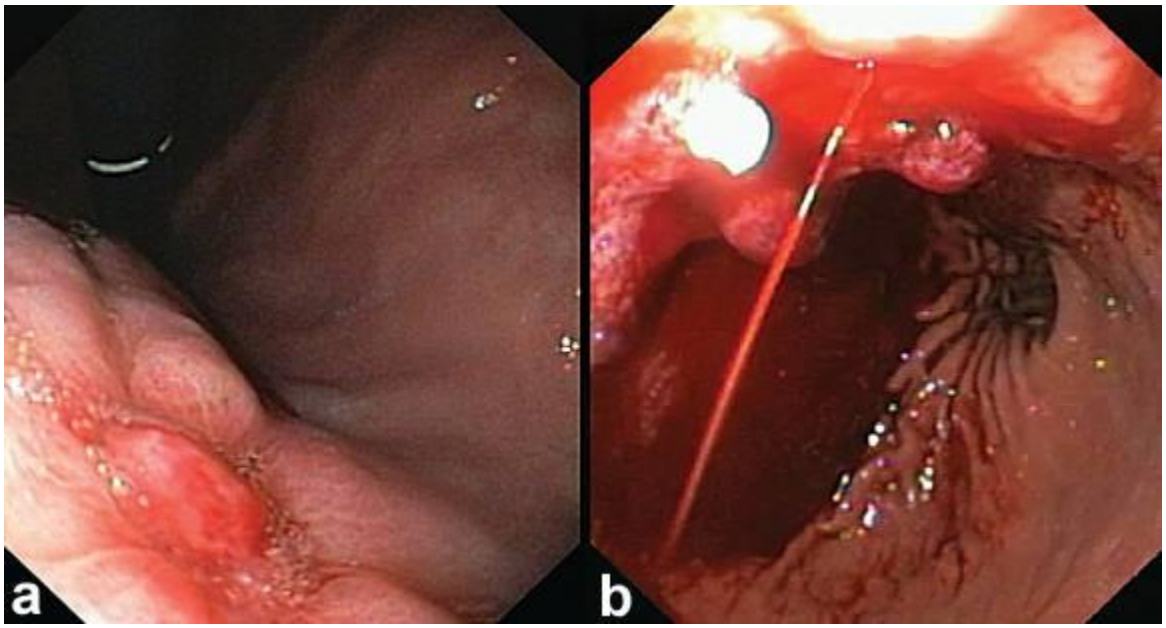

Figure 1: a) The lesion was seen in an inverted state in the initial endoscopy. b) A spurting hemorrhage

Pharmacotherapy post endoscopy:
Following haemostasis, all patients with high-risk ulcers ought to be commenced on intravenous PPI treatment for 72 hours. Following this, two times daily PPI for an additional 11 days may be beneficial (22). For low-risk ulcers (tidy base, flat pigmented spots just), once daily, oral PPI is appropriate. H pylori obliteration given alongside acid suppression in those positive for the organism on mucosal biopsy lowers the threat of subsequent rebleeding (22).

Patients on antiplatelet therapy, anticoagulants and non-steroidal anti-inflammatory drugs (NSAIDs) prior to UGIB require special attention. Currently, worldwide guidance advises withholding aspirin until haemostasis is achieved and rebooting within 7 days (preferably 1-3 days) if it is needed for secondary avoidance of vascular occasions (23).

When an NSAID might have caused ulcer bleeding, the NSAID ought to be withheld throughout the acute stage and their sign evaluated. If NSAIDs need to be continued then a cyclooxygenase-2-selective NSAID at the lowest effective dosage plus daily PPI is recommended (23). There is a scarceness of information on the management of anticoagulants (warfarin, rivaroxaban and dabigatran) following UGIB. The drug would normally be withheld with reintroduction dependent upon thrombotic risk and affected by rebleeding threat (22,23).

Management in case of variceal Hemorrhage:

Patients with cirrhosis must be screened with upper endoscopy to eliminate varices. If patients have no varices on preliminary endoscopy, the treatment should be duplicated in three years. Physicians should consider starting nonselective beta blockers, (e.g., propranolol, nadolol [Corgard] in patients with varices to lower portal pressure and decrease the threat of future hemorrhage. In patients with a history of varices who present with acute upper intestinal bleeding, upper endoscopy must be performed within 12 hours to validate the diagnosis and to treat variceal hemorrhage (24). Endoscopic variceal ligation is the preferred endoscopic treatment for esophageal variceal hemorrhage and transcends to sclerotherapy (24).

Balloon tamponade: In around 10%–20% of patients, variceal bleeding continues in spite of combined medicinal and preliminary endoscopic therapy. Although repeat endoscopy can be considered if the client is scientifically steady, if there is cardiovascular compromise then balloon tamponade with a Sengstaken-- Blakemore tube can be life-saving. Balloon tamponade can likewise work in torrential variceal bleeding where endoscopy stops working to recognize or sufficiently deal with bleeding varices, but in this setting it is typically utilized as a bridge to either a further attempt to treat the varices endoscopically or radiological positioning of an intrahepatic portosystemic shunt. Control of bleeding is accomplished in around 80% of clients; nevertheless, complications take place in as many as 20% including goal, tube migration and oesophageal necrosis or perforation (25). RCTs have not shown any advantage of balloon tamponade over basic vasoactive treatments or endoscopic sclerotherapy (24,25). As a result, balloon tamponade is generally used as a rescue procedure.

***Transjugular intrahepatic portosystemic shunt (TIPSS)*:** Portal hypertension is present when the HVPG-- the distinction in between the wedged and complimentary hepatic venous pressures-- is > 5 mm Hg. It is considered scientifically considerable when it goes beyond 10 mm Hg as this usually results in the development of varices (26). In patients with variceal bleeding, an HVPG of > 20 mm Hg is connected with failure to control bleeding, a greater rate of rebleeding and greater 1-year mortality. A TIPSS is the percutaneous placement of a stent in between the hepatic vein and intrahepatic segment of the portal vein in order to reduce portal pressure. A very useful strategy to control reoccurring variceal bleeding, it can also be placed to lower other complications of liver failure such as refractory ascites or hepatic hydrothorax (27).

CONCLUSION:

UGIB is a medical urgent condition with high mortality which can be resolved by correct evaluation and management. A validated scoring system can assist the doctors to decide about the level of care, timing of endoscopy, and discharge preparation. The threat of apoplexy should be weighed against the danger of bleeding prior to holding the anticoagulation and antiplatelet therapy in UGIB. Endoscopy needs to be carried out after hemodynamically stabilizing the patient. Prompt assessment and resuscitation are essential, as are threat stratification of the severity of bleeding, early participation of the multidisciplinary group and prompt access to endoscopy, ideally within 24 h. The majority of GI bleeding is due to peptic ulcers for which Helicobacter pylori and non-steroidal anti-inflammatory agents are the main causative aspects. Proton pump inhibitors are extensively used prior to endoscopy, this is controversial. Pre-endoscopic danger Variceal oesophageal haemorrhage is connected with a higher recurrent bleeding rate and

risk of death. Antibiotics and vasopressin analogues are encouraged in presumed variceal bleeding; however, endoscopic variceal band ligation stays the haemostatic treatment of option. Balloon tamponade remains helpful in the presence of torrential variceal haemorrhage or when endoscopy stops working to secure haemostasis, and can be a bridge to further endoscopic attempts or placement of a transjugular intrahepatic portosystemic shunt.

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