

## Review Article

# Triage and Subsequent Management of Patients with Acute Upper Gastrointestinal Bleeding (UGIB)

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## Abstract

*Gastrointestinal haemorrhage is potentially life-threatening. This short review is based on major guidelines issued by leading gastrointestinal societies and aims to offer a comprehensive understanding of current best practices in UGIB management and to adapt these recommendations for effective implementation in local healthcare settings. Initial assessment, resuscitation, and appropriate triage depending on clinical diagnosis and treatment of the underlying cause are the cornerstones of management. Non-operative intervention is the most valuable approach, as most cases of upper gastrointestinal bleeding (UGIB) cease spontaneously. Definitive management of UGIB is guided by the overall risk of re-bleeding and morbidity, assessed via risk scores. Early endoscopy is appropriate for most patients with UGIB whereas emergent endoscopy is required for acute variceal haemorrhage for both risk stratification and appropriate management. Failure to respond to medical and endoscopic therapies necessitates radiological intervention or urgent surgery. Radio-embolization is an increasingly valuable adjunct in the non-operative management arsenal. Advancements in endoscopic techniques and radiological embolization have significantly reduced the role of surgery in managing acute UGIB. However, close collaboration between endoscopists and surgeons remains essential. Adequate training of healthcare professionals in the initial assessment and resuscitation, risk assessment and triage of patients presenting with acute UGIB is essential for improved outcomes.*

**Key words:** Upper gastrointestinal bleeding; Acute; Resuscitation; Triage; Endoscopy

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## Introduction

Acute upper gastrointestinal bleeding (UGIB) is a medical emergency and is associated with significant morbidity and mortality. Although the majority of UGIB cases resolve spontaneously, the mortality rate remains substantial despite advancements in medical care. The situation is even more critical in resource-limited countries like Bangladesh, highlighting the need for effective management strategies, including early assessment and an appropriate triage system, to reduce UGIB-related morbidity and mortality.

UGIB refers to gastrointestinal bleeding originating from the oesophagus, stomach, or duodenum—up to the ligament of Treitz. It may present as haematemesis, coffee-ground emesis, melaena, or, in cases of severe bleeding with rapid intestinal transit, hematochezia. UGIB is conventionally classified as either variceal (VB) or non-variceal (NV-UGIB). The majority (80–90%) of UGIB cases are non-variceal, with an incidence rate ranging from 47.5 to 150 per 100,000 adults per year.<sup>1-3</sup> These cases are associated with significant morbidity, mortality (exceeding 10%), and high healthcare costs.<sup>1</sup>

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Common causes of non-variceal UGIB include peptic ulcers (20–50%), gastroduodenal erosions (8–15%), Mallory-Weiss tears (8–15%), erosive oesophagitis (5–15%), and arteriovenous malformations or gastric antral vascular ectasia (GAVE) (approximately 5%). Other causes include Dieulafoy's lesions and upper GI malignancies.<sup>3–5</sup> Despite availability of effective preventive therapies, acute variceal bleeding (AVB) still occurs in approximately 50% of patients with cirrhosis prior to liver transplantation. Each bleeding episode carries a 10–20% mortality rate.<sup>6,7</sup> The development and progression of oesophageal varices (EV) are strongly linked to the severity of hepatic dysfunction; once present, varices typically enlarge over time.<sup>8,9</sup>

Initial management and triage of patients with UGIB are critical to improving outcomes. Timely recognition and differentiation between variceal and non-variceal bleeding are essential, particularly in primary care and emergency settings. Rapid and accurate bedside assessment of mortality risk is vital for guiding clinical decisions and improving outcomes.<sup>1</sup> The goals in managing acute UGIB are to control bleeding, reduce the risk of re-bleeding, and prevent complications.<sup>9</sup> Management typically involves three stages: pre-endoscopic care, endoscopic assessment and treatment, and post-endoscopic management. Following initial assessment, resuscitation, triage, and medical optimization, endoscopy should be performed to identify the bleeding source, assess the risk of re-bleeding, and treat high-risk lesions for re-bleeding.<sup>10,11</sup>

In Bangladesh, the absence of national or gastroenterological society guidelines poses an added challenge. This article aims to provide an overview of triage and offer a comprehensive management strategy tailored to the local context for patients presenting with UGIB.

## Materials and Methods

This short review is based on major guidelines issued by leading gastrointestinal societies (European, American, and Asia-Pacific). It aims to offer a comprehensive understanding of current best practices in UGIB management and to adopt these recommendations for effective implementation in local healthcare settings.

## Resuscitation and triage

A proper history, physical examination, and a few widely available urgent investigations are mandatory for appropriate triage. ABC (Airway, Breathing, and Circulation) assessment and resuscitation must be initiated in the emergency department or primary care setting.

**Airway and breathing:** The airway should be cleared of blood, blood clots, and food particles. Supplemental oxygen should be administered to achieve target oxygen saturation levels and to maintain end-organ oxygenation, under close observation. Care must be taken to prevent aspiration in patients using face masks. Prophylactic endotracheal intubation (ETT) should be considered only in patients with severe haematemesis, active vomiting of blood, agitation, altered consciousness, or in those who are unable to protect their airway.<sup>10–12</sup>

**Circulation:** Fluid resuscitation aims to maintain adequate tissue perfusion by targeting a systolic blood pressure (SBP) of 90–100 mm Hg. Intravenous access should be secured, preferably with two wide-bore ( $\leq 18$ G) cannula placed in each antecubital fossa, rather than through central venous access.<sup>13–15</sup>

The British Society of Gastroenterology UGIB Care Bundle recommends administering 500 mL of crystalloid solution within 15 minutes to haemodynamically unstable patients, followed by regular review to assess ongoing fluid requirements.<sup>15</sup> Persistent hypotension despite fluid resuscitation necessitates management in a high dependency unit (HDU) or intensive care unit (ICU).<sup>15</sup>

Mortality and rebleeding rates are lower with a restrictive transfusion strategy compared to a liberal one (target haemoglobin 9–11 g/dL).<sup>16</sup> Therefore, all major guidelines recommend restrictive transfusion as standard care, aiming to maintain haemoglobin levels at 7–8 g/dL using packed red cells in non-life-threatening bleeding.<sup>11,12,15</sup> In patients with cirrhosis and variceal bleeding (VB), transfusion is indicated when haemoglobin falls below 7 g/dL, with a target of 7–9 g/dL.<sup>12</sup> Restrictive transfusion is preferred in variceal haemorrhage, as it is associated with improved survival and a reduced

portal pressure gradient.<sup>16</sup> Aggressive resuscitation may worsen portal hypertension.

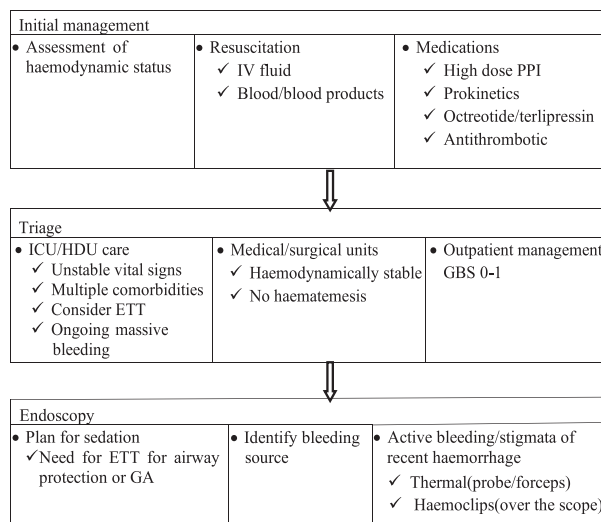
**Platelet and clotting factor:** The National Institute for Health and Care Excellence (NICE) and British Society of Gastroenterology variceal guidelines recommend platelet transfusion when the platelet count is  $\leq 50 \times 10^9/L$ .<sup>11,14,15</sup> Aspirin should be stopped if used for **primary** cardiovascular prevention, but continued if prescribed for **secondary** prevention. In cases of severe bleeding, aspirin may be withheld temporarily and resumed 5 days after achieving haemostasis. Warfarin should be discontinued, and anticoagulation reversed with vitamin K and prothrombin complex concentrate (PCC) or fresh frozen plasma (FFP) for life-threatening bleeding irrespective of the international normalised ratio (INR). These decisions require multidisciplinary consultation with intensivists, cardiologists, neurologists, and haematologists, as appropriate.<sup>10</sup>

## Medications

*Antisecretory therapy* with intravenous proton pump inhibitors (PPIs) should be initiated in patients with suspected or confirmed bleeding peptic ulcer disease (PUD) while awaiting endoscopic evaluation. In addition, patients with UGIB should receive *prokinetic agents*, such as erythromycin (250 mg IV), 30 minutes prior to endoscopy if there is a high likelihood of fresh blood or clots in the stomach.<sup>11,13,15</sup> Intravenous erythromycin has been shown to improve mucosal visualization, reduce the need for repeat endoscopy, decrease transfusion requirements, and shorten hospital stays.<sup>17</sup>

Current guidelines recommend *antibiotic prophylaxis*—such as ceftriaxone 1 g IV every 12 hours for 7 days—in all patients with variceal bleeding, irrespective of suspected infection or hepatic dysfunction, to prevent bacterial infections.<sup>5,14</sup> Vasoactive agents (e.g. octreotide, somatostatin, or terlipressin) should also be administered, as they have been shown to reduce 7-day all-cause mortality, lower transfusion needs, and improve rates of bleeding control.<sup>18</sup> Given the increasing prevalence of multidrug-resistant organisms (MDROs) in decompensated cirrhotic patients, antibiotic regimens should be adapted based on local resistance patterns.<sup>8</sup>

As approximately 20% of UGIB cases in cirrhotic patients are due to PUD, a short course of intravenous PPIs in cirrhotic patients presenting with haematemesis and/or melaena has been reported to have questionable benefits.<sup>14</sup>



ETT, endotracheal tube; GBS, Glasgow-Blatchford bleeding score; IV, intravenous; PPI, proton pump inhibitor, GA, general anaesthesia

Fig 1. Approach to the initial management, clinical triage, and endoscopic decision making in treating patients with acute NVU-GIB<sup>11</sup>

## Risk stratification and endoscopic intervention

For non-variceal upper gastrointestinal bleeding (NV-UGIB), the Glasgow-Blatchford scoring system (Table I) guides physicians in risk stratification at the time of admission.<sup>10,11,15,19,20</sup> This validated and practical tool is useful for both primary care physicians and emergency department clinicians to predict the need for endoscopic intervention in patients with acute upper GI hemorrhage based on specific clinical variables (Table I). A higher score (ranging from 0 to 23) indicates a greater likelihood of requiring endoscopic intervention. Another risk assessment tool, the complete Rockall score (ranging from 0 to 11), incorporates both clinical and endoscopic criteria to evaluate the risk of rebleeding and mortality. Higher Rockall scores indicate a greater risk of poor outcomes (Table I).<sup>21</sup> Therefore, for effective triage, basic laboratory tests—complete blood count (CBC), blood urea, and prothrombin

time—are essential for risk stratification. These should be readily available or urgently ensured in primary care and emergency settings across all hospitals.

Although these risk assessment scores may not precisely identify every high-risk patient at risk

of death without intervention, they are valuable in identifying patients at very low risk of mortality who may be managed with outpatient care and elective endoscopy.<sup>11</sup> Thus, risk stratification is particularly important in resource-limited settings like Bangladesh to optimize the use of available healthcare resources.

Table I: Three valid and commonly used risk assessment tools that stratify patients in different risk groups for predicting outcome in UGIB<sup>10,11,19-21</sup>

| Scoring system                  | Components                                                                     | Scores       | Key concept                                                                                                                 |
|---------------------------------|--------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------|
| Glasgow-Blatchford Score (0-23) | SBP(mmHg)<br>(100-109), (90-99), <90                                           | 1,2,3        | • Superior in predicting a combined end point of intervention and death                                                     |
|                                 | BUN (mmol/L)<br>(>6.5-7.9), (8-9.9), (10-24.9), >25                            | 2,3,4,6      |                                                                                                                             |
|                                 | Haemoglobin (g/dL)<br>• Men (>12-13), (10-11.9), (<10)<br>• Women (10-12), <10 | 1,3,6<br>1,6 |                                                                                                                             |
|                                 | Tachycardia (>100 BPM)                                                         | 1            | • Score 0-1: can be managed as OPD cases<br><br>• Score >5 requires HDU/ICU admission                                       |
|                                 | Melaena                                                                        | 1            |                                                                                                                             |
|                                 | Syncope                                                                        | 2            |                                                                                                                             |
|                                 | Hepatic disease                                                                | 2            |                                                                                                                             |
|                                 | Cardiac failure                                                                | 2            |                                                                                                                             |
| Rockall score (0-11)            | Age (years)<br><60, 60-79, >80                                                 | 0,1,2        | Predicts<br>• Risk of additional bleeding and<br>• Inpatient mortality<br>Score <3 - good prognosis, >8 high mortality risk |
|                                 | Haemodynamic shock<br>(no shock, pulse>100, SBP<100)                           | 0,1,2        |                                                                                                                             |
|                                 | Major comorbidities<br>• No major co-morbidity                                 | 0            |                                                                                                                             |
|                                 | • CAD or heart failure or major comorbidity,                                   | 1            |                                                                                                                             |
|                                 | • Renal failure, liver failure, or                                             | 2            |                                                                                                                             |
|                                 | • disseminated malignancy                                                      | 3            |                                                                                                                             |
|                                 | Endoscopic diagnosis<br>• Normal or Mallory Weiss's tear                       | 0            |                                                                                                                             |
|                                 | • All other diagnoses                                                          | 1            |                                                                                                                             |
|                                 | • GI Malignancy                                                                | 2            |                                                                                                                             |
|                                 | Stigmata of recent haemorrhage<br>• None                                       | 0            |                                                                                                                             |
|                                 | • Presence of blood in stomach or adherent clot                                | 1            |                                                                                                                             |
|                                 | • Visible or active spurting vessels                                           | 2            |                                                                                                                             |
| AIMS-65 (0-5)                   | Albumin (<3 mg/dL)                                                             | 1            | • Predicted inpatient mortality (%): Score, 0 (0.3%), 1 (3.2%), 2 (5.3%), 3 (10.3%), 4 (16.5%), 5 (24.5%)                   |
|                                 | INR (>1.5)                                                                     | 1            |                                                                                                                             |
|                                 | Altered mental status                                                          | 1            |                                                                                                                             |
|                                 | Systolic BP (<100 mm Hg)                                                       | 1            |                                                                                                                             |
|                                 | Age (>65 years)                                                                | 1            |                                                                                                                             |

BP, blood pressure; BUN, blood urea nitrogen; CAD, Coronary artery disease; GI, gastrointestinal; INR, international normalized ratio

GBS: Low sensitivity, Rockall score: Endoscopic evaluation is essential for computing the full score

AIMS-65: Easy calculation, pre-endoscopy calculation is possible, less sensitive than GBS & Rockall score

NV-UGIB: Patients with minor non-variceal upper gastrointestinal (NV-UGI) bleeding and a Blatchford score  $<1$  usually do not require hospital admission and can be managed in an outpatient setting or at home. Endoscopy (OGD) is feasible on an outpatient basis in these patients.<sup>10,11,15,20,22</sup> Patients with a score  $>1$  require admission for OGD. A score  $>5$  identifies high-risk patients and mandates management in a high-dependency unit (HDU) or intensive care unit (ICU) setting. After initial management, all patients with UGIB presenting from primary care settings should be referred to higher centers for specialist evaluation, and those at high risk should be promptly referred to hospitals with ICU/HDU facilities.

Endoscopy in UGIB is categorized as urgent (within 12 hours), emergent (within 24 hours), or elective (after 24 hours). Patients with persistent haemodynamic instability after initial resuscitation and those with moderate to large-volume haematemesis should undergo urgent endoscopy.<sup>10,11,15,20</sup> According to existing literature, early endoscopy (within 24 hours of presentation) is appropriate for most patients with UGIB.<sup>23</sup> Early endoscopy has been associated with a reduced length of hospital stay, a lower rate of recurrent bleeding, and a decreased need for emergent surgical intervention.<sup>24</sup>

Urgent endoscopy is recommended for patients with a history of malignancy or cirrhosis who present with haematemesis or signs of hypovolemia (e.g., hypotension, tachycardia, or shock), and have a haemoglobin level  $< 8$  g/dL.<sup>25</sup> Guidelines recommend endoscopic therapy for peptic ulcers with high-risk stigmata, such as active spurting/oozing or a visible vessel (Forrest Ia, Ib & IIa).<sup>10,11,15</sup> The management of peptic ulcer disease (PUD) with an adherent clot (Forrest IIb) remains controversial.<sup>24</sup> Recommended endoscopic

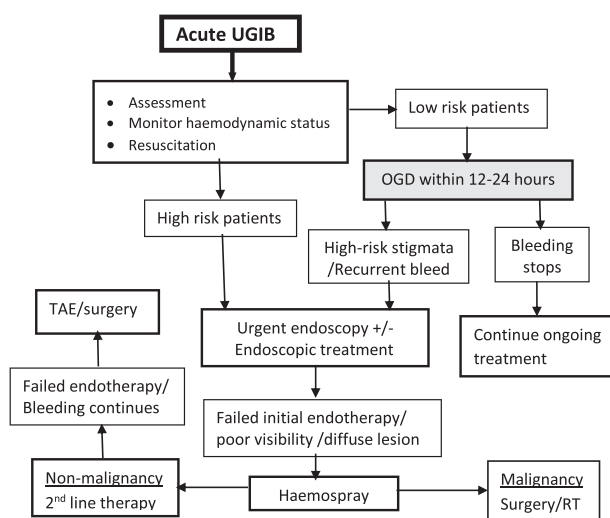


Fig 2. Management algorithm for acute non-variceal UGIB

treatment modalities include a combination of techniques such as adrenaline injection, bipolar diathermy, heater probe therapy, and injection sclerotherapy using various agents (e.g., alcohol, 1% polidocanol, 3% sodium tetradecyl sulfate, or 5% ethanolamine). Additional modalities include haemoclips/endoclips and laser photocoagulation.<sup>1,24</sup>

Despite adequate initial endoscopic treatment, the rebleeding rate in acute UGIB remains high (23.4%).<sup>21</sup> However, endoscopic therapy combined with high-dose PPI therapy reduces the rebleeding rate to approximately 10%.<sup>21</sup> Severe bleeding that persists despite medical and endoscopic interventions occurs in 5–10% of patients<sup>25</sup> and may require surgical intervention or transcatheter arterial embolization (TAE). Emergency surgery is associated with a high mortality rate of 20–40%.<sup>25</sup>

Despite recent advances in medical, endoscopic, and interventional radiologic therapies, about 10% of patients still require surgery to control bleeding.<sup>25</sup> Over-suturing bleeding vessels in combination with aggressive medical management is often effective. Historically, vagotomy and pyloroplasty with ulcer suturing were the procedures of choice. However, with the identification of *H. pylori* as a major etiological factor, the widespread use of proton pump inhibitors, and the role of NSAIDs, these procedures are now rarely required.<sup>25</sup>

## Variceal haemorrhage

Once hemodynamic stability is achieved, urgent endoscopy should be performed, according to recent guidelines, although the benefits remain debated.<sup>6,8,9</sup> Therapeutic endoscopic measures—including intravariceal sclerotherapy, variceal band ligation, or glue injection (for gastric varices)—are effective in controlling acute bleeding and preventing recurrence.<sup>14</sup>

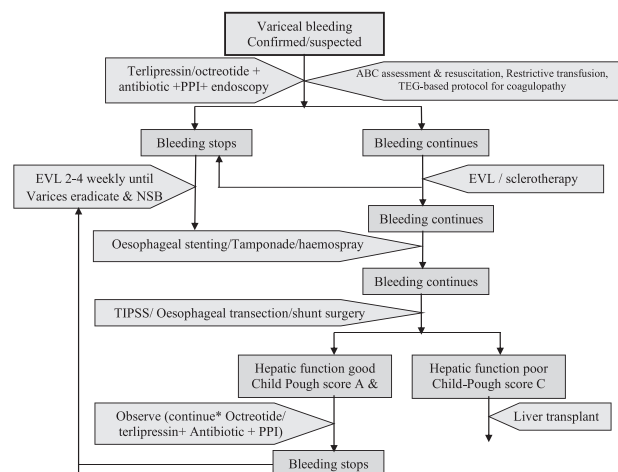
Approximately 20% of variceal haemorrhage episodes are refractory to initial standard therapy. Therefore, therapies that act as a *bridge* to definitive management are of great importance. The role of rescue transjugular intrahepatic portosystemic shunt (TIPSS) in VB is controversial and currently not feasible in our setting. Balloon tamponade is effective in controlling active bleeding but is limited to a maximum duration of 24 hours. Rebleeding occurs in nearly 50% of cases after balloon deflation. Moreover, balloon tamponade is associated with a high rate of complications such as aspiration, esophageal ulceration, and a mortality rate of 20–40%.<sup>8</sup> Recently, oesophageal self-expanding metal stents have been proposed as a bridge therapy in cases where acute variceal bleeding cannot be controlled by standard measures.<sup>8</sup> These stents have been shown to be effective in most cases.

In cases where standard pharmacologic and endoscopic therapies fail, therapeutic options include TIPSS, surgery, or liver transplantation. Early TIPSS is particularly useful in gastric varices and should be considered when first-line treatments fail.<sup>25</sup>

A relatively simple and effective surgical option is the transection of oesophageal varices at the gastroesophageal junction, followed by re-anastomosis using a stapler via a small gastrotomy. However, oesophageal transection is technically challenging in patients who have undergone chronic sclerotherapy and is contraindicated in those with bleeding from oesophageal ulceration secondary to sclerotherapy.<sup>25</sup>

Emergency shunt surgery remains a high-risk procedure, with a mortality rate of 50–80% in cases of acute variceal bleeding. Surgical interventions

such as oesophageal transection or shunt surgery (e.g., distal splenorenal or mesocaval shunt) are reserved for patients in whom pharmacologic and endoscopic treatments fail. While shunt surgery has similar efficacy to sclerotherapy in preventing recurrent bleeding<sup>26</sup>, it is not cost-effective and carries a high risk of mortality. Urgent liver transplantation for acute variceal bleeding is currently impractical and not feasible in our setting. According to existing literature, patients with Child–Pugh Class C cirrhosis who achieve bleeding control with initial treatments and subsequently undergo elective liver transplantation derive the greatest survival benefit.<sup>26</sup>



N. B.\*Ceftriaxone IV 1 gram/24 hour for 7 days, Octreotide for 3-5 days, PPI 5-10 days

NSB: Non-selective beta blocker, TIPSS-Transjugular intrahepatic Porto-systemic shunt

Fig 3. Management algorithm for acute variceal bleeding <sup>11</sup>

## Other causes of acute UGIB

### Acute haemorrhagic gastritis

Haemorrhagic gastritis is often caused by stress-related factors such as head injury (Cushing's ulcer), burns (Curling's ulcer), shock, hepatic failure, corticosteroid use, non-steroidal anti-inflammatory drugs (NSAIDs), and alcohol. Most cases are effectively managed with proton pump inhibitors (PPIs) and platelet transfusion. Total gastrectomy is rarely required.<sup>25</sup>

*Mallory–Weiss tear*

A Mallory–Weiss (M-W) tear typically occurs at the gastro-oesophageal junction, most commonly along the lesser curvature, in approximately 80% of cases. It results from forceful vomiting or retching, often following excessive alcohol intake. Bleeding usually stops spontaneously in 90% of cases. In rare instances, an M-W tear may progress to a full-thickness oesophageal rupture—Boerhaave’s syndrome—which presents with the sudden onset of severe upper abdominal or chest pain and requires urgent surgical intervention.<sup>25</sup>

*Aortoenteric fistula*

Aortoenteric fistulas, most commonly secondary in nature, arise from the failure of a Dacron graft used in aortic surgery. The fistula is typically located in the third part of the duodenum. Diagnosis may be made via endoscopy or CT angiography. Surgical management is the treatment of choice and involves graft removal, followed by either extra-anatomical bypass or in situ replacement with a rifampicin-bonded graft.<sup>25</sup>

**Follow-up post discharge**

**PUD:** An intravenous bolus of proton pump inhibitor (PPI) 80 mg followed by a continuous infusion at 8 mg/hour for 72 hours is associated with a reduced risk of rebleeding (relative risk: 0.40, 95% CI: 0.28–0.59) and mortality (RR: 0.41, 95% CI: 0.20–0.84) in high-risk patients undergoing successful endoscopic therapy. According to existing literature, intermittent high doses of oral or intravenous PPIs (e.g., 80–160 mg daily in divided doses after an initial 80 mg bolus) are also effective in preventing rebleeding.<sup>10,27</sup>

Prevention of recurrent bleeding depends on the underlying cause of the ulcer. *Helicobacter pylori*-associated PUD is managed with triple therapy comprising a PPI and two antimicrobial agents (chosen based on local resistance patterns). *H. pylori* eradication is confirmed and anti-ulcer therapy is generally not continued<sup>10</sup> unless long-term NSAID treatment is required after eradication of *H. pylori*. Cure should be confirmed 4 weeks after treatment, using a C<sup>13</sup> urea breath test for duodenal ulcers, or repeat endoscopy for gastric ulcers—especially if malignancy is suspected.<sup>10,20,27</sup>

Patients with peptic ulcer bleeding typically receive once-daily oral PPI therapy for 4–8 weeks. Those with low-risk endoscopic lesions (e.g., clean-based ulcers or flat spots) should begin daily PPI therapy from the time of diagnosis. In contrast, patients with high-risk endoscopic lesions and concerning clinical features should receive high-dose intravenous PPIs on days 1–3, followed by twice-daily oral PPIs from days 4–14.<sup>27</sup> Patients with idiopathic ulcers usually require long-term anti-ulcer therapy.<sup>25,27</sup> Selective serotonin reuptake inhibitors (SSRIs), known to impair platelet function, should be used cautiously—or preferably replaced with non-SSRI antidepressants—in patients at increased risk of gastrointestinal bleeding (e.g., those on NSAIDs or aspirin).<sup>25</sup>

Patients with established cardiovascular disease who require aspirin for secondary prevention should start a PPI and resume aspirin soon after bleeding is controlled—ideally within 1–3 days and no later than 7 days. Recent guidelines recommend restarting warfarin as soon as haemostasis is achieved, or within 7–15 days of the bleeding event.<sup>10,22,27</sup> The Asia-Pacific guidelines advise reintroducing direct-acting oral anticoagulants (DOACs) in high thromboembolic risk patients once haemostasis is secured. Some experts suggest restarting anticoagulants on day 7, with bridging therapy using low molecular weight heparin from days 2 to 7 in patients with a low risk of bleeding.<sup>20,22</sup>

**Variceal bleeding:** Patients with cirrhosis and acute variceal bleeding should receive prophylactic antibiotics for 7 days and vasoactive drugs for 5 days following endoscopic therapy. Combined therapy with endoscopic ligation and vasoactive agents is superior to either treatment alone in reducing rebleeding during hospitalization and within the first 7 days post-treatment.<sup>27</sup> Non-selective beta-blockers (NSBBs), either alone or in combination with oesophageal variceal band ligation (EVL), are the mainstay of secondary prophylaxis. Typically, 2–3 sessions of EVL or sclerotherapy are needed to achieve variceal obliteration. Varices may recur over time, necessitating regular follow-up.<sup>8,9</sup>

Recurrent bleeding despite conservative measures necessitates further interventions such

as transjugular intrahepatic portosystemic shunt (TIPSS), shunt surgery, or liver transplantation. Patients undergoing early or salvage TIPSS during the acute bleeding episode should be assessed and counselled regarding liver transplantation. TIPSS patency should be monitored with surveillance ultrasound and Doppler studies every six months.<sup>9</sup>

### Discussion and recommendation

Acute upper gastrointestinal bleeding (UGIB) is associated with considerable morbidity and mortality.<sup>1-5,18</sup> However, no nationwide data exist regarding the incidence or disease burden of UGIB in our country. Physicians frequently encounter UGIB, and in the absence of national or society-endorsed guidelines, there is considerable variation in management strategies and patient outcomes.

For effective management, it is crucial to distinguish between variceal and non-variceal UGIB as variceal hemorrhage is generally more severe and life-threatening.<sup>2,6,11</sup> A careful history and physical examination are invaluable in making initial decisions in emergency departments or primary care settings. Adherence to the ABC approach (Airway, Breathing and Circulation) is critical for favourable patient outcomes, and healthcare professionals must possess adequate knowledge and training in these life-saving measures.

Risk stratification and appropriate triage at the bedside can significantly guide management decisions and ultimately improve clinical outcomes.<sup>1,10,11,20</sup> All physicians should be trained in risk assessment using tools such as the Glasgow-Blatchford Score (GBS) and/or the Rockall score.<sup>10,11</sup> Importantly, risk stratification requires only minimal laboratory support and does not depend on expensive or advanced technologies.<sup>11</sup>

The development of a national guideline by the government or gastroenterology societies is essential to promote uniform practice, improve outcomes, reduce controversy, and address medicolegal concerns. In the absence of a national guideline, the Asia-Pacific guideline<sup>20</sup> may be followed for the triage and management of UGIB. However, several limitations must be acknowledged: medical facilities are neither optimal nor uniformly distributed across the

country, some life-saving drugs are unavailable in remote areas, and laboratory services are often inadequate and non-standardized. Additionally, antibiotic resistance patterns in our population differ from those in developed countries.

Eradication of *Helicobacter pylori* is crucial to prevent recurrent bleeding in non-variceal UGIB.<sup>10,27</sup> Unfortunately, resistance rates to clarithromycin and metronidazole are high in our population, rendering clarithromycin-based regimens less effective.<sup>28</sup> Therefore, bismuth-based quadruple therapy (BQT) or non-bismuth-based quadruple therapy is recommended.<sup>29</sup> BQT has shown high efficacy as a first-line regimen but is associated with a high rate of adverse events (47.7%).<sup>29</sup> Conventionally, BQT is administered four times daily for 14 days, which may reduce patient compliance. To improve adherence, a South Korean study demonstrated that twice-daily BQT for seven days provides similar eradication rates (93.9% vs. 92.9%).<sup>29</sup>

Testing for *H. pylori* eradication is recommended<sup>10,11,20,28</sup>, but testing facilities are limited in our country. These diagnostic services should be made available at least at the district level, and a nationwide network for sample transfer and preservation should be developed to address this gap.

### Conclusion

Acute upper gastrointestinal bleeding is a medical emergency associated with significant morbidity and mortality. Early assessment and appropriate triage are crucial for optimal management, as they help reduce mortality, prevent rebleeding, shorten hospital stays, and lower healthcare-related costs. Recent developments in risk stratification-through validated scoring systems-have improved clinicians' ability to predict mortality and identify patients at high risk of treatment failure. This has enabled the delivery of more precise, individualized care. Innovations such as thrombo-elastography (TEG)-guided transfusion protocols, targeted administration of vasoactive agents, and tailored antibiotic prophylaxis in high-risk patients have significantly advanced the management of acute variceal bleeding.

To improve outcomes, healthcare professionals must be adequately trained in the risk assessment and triage of patients presenting with acute UGIB. Furthermore, ensuring access to basic laboratory investigations, even at the primary care level, is essential for proper triage and timely intervention—with the ultimate goal of saving lives.

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