Upper Gastrointestinal Bleeding in Adults: Evaluation and Management: A Systematic Review.

1. Abstract

Background:
Upper gastrointestinal bleeding (UGIB) is still a major medical emergency that causes a lot of illness and death around the world. Even though diagnostic and therapeutic methods have gotten better, it is still very hard to find patients early, assess their risks, and give them the best care possible in clinical practice

Objective:
To perform a systematic review of the current evidence concerning the assessment and management of upper gastrointestinal bleeding in adults, focusing on diagnostic techniques, risk evaluation tools, pharmacological and endoscopic interventions, and outcomes.

Methods:
We conducted a systematic review of the literature in PubMed, Scopus, Web of Science, the Cochrane Library, and Google Scholar for studies published from January 2015 to September 2025. The analysis included randomized controlled trials, cohort studies, systematic reviews, and meta-analyses that examined the assessment and management of adult upper gastrointestinal bleeding (UGIB). We got information about the cause, how accurate the diagnosis was, risk stratification models (like Glasgow-Blatchford and Rockall), treatment methods, and clinical outcomes. Quality was assessed using the PRISMA framework.

Results:
A total of 42 studies qualified for inclusion. Peptic ulcer disease and variceal bleeding were the main causes of UGIB in most cases. Early endoscopy conducted within 24 hours was associated with reduced rates of rebleeding and mortality. Proton pump inhibitors (PPIs) administered prior to and following an endoscopy enhanced hemostatic outcomes. Endoscopic procedures such as hemoclipping and band ligation were also highly effective in achieving initial hemostasis (>90%). Risk scoring systems improved triage and management decisions, allowing low-risk patients to leave the hospital sooner. The best results for patients came from using a combination of drugs, endoscopy, and, in some cases, surgery or radiology.

Conclusion:
To treat UGIB in adults effectively, you need to quickly figure out what's wrong, give the right resuscitation, do an endoscopic procedure early on, and use medications that are based on evidence. Using more than one risk stratification tool makes it easier for doctors to make decisions, improves the prognosis, and puts less strain on the healthcare system. More thorough research is needed to find the best times for interventions and test new endoscopic and drug-based methods.

Key words:
Upper gastrointestinal bleeding, endoscopy, proton pump inhibitors, variceal bleeding, peptic ulcer, risk stratification, hemostasis, management.

2.Introduction:

Upper gastrointestinal bleeding (UGIB) remains one of the most common gastroenterological emergencies worldwide, causing significant morbidity, mortality, and healthcare costs despite improvements in diagnosis and treatment [1]. UGIB is the term for bleeding that starts near the ligament of Treitz and affects the esophagus, stomach, or duodenum. It can be caused by a lot of different things, such as peptic ulcer disease, erosive gastroduodenitis, Mallory-Weiss tears, erosive esophagitis, bleeding from cancer, vascular lesions (like Dieulafoy lesions), and portal hypertension-related variceal hemorrhage [2].

In a clinical context, patients may present with hematemesis, coffee-ground emesis, melena, or, less commonly, hematochezia during substantial hemorrhage; vital sign instability may progress from tachycardia to pronounced hypovolemic shock [3]. Prompt triage and resuscitation are essential: swift evaluation of airway, respiration, and circulation, early venous access, and focused transfusion protocols aid in stabilizing patients for conclusive diagnosis [4].

Risk stratification using validated scores (e.g., Glasgow–Blatchford, AIMS65, Rockall, and modern composite tools) directs patient management, scheduling of endoscopy, and allocation of resources [5]. Early pharmacologic adjuncts, including vasoactive drugs and prophylactic antibiotics for suspected variceal hemorrhages, along with high-dose proton pump inhibitors (PPIs) for suspected peptic ulcer hemorrhages, reduce negative outcomes [6]. Giving promotility agents like erythromycin before an endoscopy can improve the accuracy of the test by making it easier for the stomach to empty [7].

Endoscopic therapy is still the most important part of long-term care. Injection, thermal coagulation, hemoclips, over-the-scope clips (OTSC), and topical hemostatic agents such as TC-325 powders are all designed to address the underlying cause and manifestations of bleeding [8]. Evidence now supports the use of topical hemostatic powders not only for salvage therapy but also in cases of tumor bleeding and when standard methods fail [9].

Combination therapy with vasoactive drugs, early endoscopic band ligation, and rescue interventions like balloon tamponade or early TIPS in certain high-risk patients are all important ways to lower the risk of death from variceal hemorrhage [10]. You still need surgery or embolization for bleeding that won't stop or when endoscopy can't be done [11].

Taking care of the patient after the procedure, like starting enteral feeding as soon as possible, getting rid of Helicobacter pylori, and carefully re-evaluating antithrombotic therapy, lowers the risk of recurrence and future costs [12]. Some of the problems that keep coming up are figuring out when is the best time for endoscopy in patients with multiple health problems, balancing the risk of thrombosis with the need to reverse

antithrombotic drugs, finding the best transfusion thresholds, and tailoring care for older people or people with multiple health problems [13].

For people with cirrhosis, secondary prevention includes preventing and treating portal hypertension with non-selective beta-blockers (NSBBs), monitoring, variceal obliteration, or transjugular intrahepatic portosystemic shunt (TIPS) [14]. OTSC, topical powders, and self-assembling peptides are new ways to stop bleeding that give doctors more options for treating bleeding that is hard to control. Still, we don't know how well these methods work compared to others [15].

Using protocolized UGIB pathways, working together across fields, and systems that speed up endoscopy all lead to better results and shorter stays [16]. Secondary prevention, which includes H. Getting rid of H. The prudent use of NSAIDs and antiplatelet agents, along with vigilant monitoring of varices, remains a cost-effective approach to mitigating recurrence [17].

These advancements highlight the imperative for a contemporary systematic review that encompasses emergency stabilization, diagnostic approaches, therapeutic interventions, and secondary prevention in adults with UGIB, which is the focal point of the present study [18].

3. Objectives of the Study

3.1 General Objective

To systematically evaluate and analyze the current evidence concerning the assessment and management of upper gastrointestinal bleeding (UGIB) in adults.

3.2 Specific Objectives

- To figure out what the most common causes and risk factors are for UGIB in adults.
- To see how well diagnostic tools work, like endoscopic evaluation and risk stratification scores.
- To look at treatments for UGIB, such as endoscopic hemostasis, pharmacologic therapies, and interventional radiology.
- To compare the results of different timing of endoscopy, transfusion strategies, and secondary prevention methods.
- To highlight the challenges, limitations, and knowledge gaps in the current management of UGIB, which will have implications for future clinical practice and research.

4. Methodology

4.1 Study Design

This study will systematically review peer-reviewed articles regarding the evaluation and treatment of upper gastrointestinal bleeding in adults.

4.2 Time Period

The review has been conducted between March 2024 and September 2025.

4.3 Inclusion and Exclusion Criteria

We will do a thorough electronic search using PubMed, Scopus, Web of Science, and Google Scholar to find studies that meet the criteria and were published between 2010 and 2025. The search terms and Boolean operators will include: upper gastrointestinal bleeding, peptic ulcer bleeding, variceal bleeding, endoscopic therapy, pharmacologic therapy, interventional radiology, and risk stratification.

First, we'll look at the titles and abstracts to see if they are relevant. Then, we'll read the whole text to see if it meets the requirements. We will use a structured electronic form to get information like the study's author, year, setting, design, patient population, cause, diagnostic methods, interventions, and clinical outcomes. The Cochrane Risk of Bias tool for RCTs, the Newcastle Ottawa Scale for observational studies, and the PRISMA guidelines for systematic integrity will all be used to check the quality.

4.4 Methods of Data Collection

An extensive electronic search will be conducted utilizing PubMed, Scopus, Web of Science, and Google Scholar to identify qualifying studies published from 2010 to 2025. Upper gastrointestinal bleeding, peptic ulcer bleeding, variceal bleeding, endoscopic therapy, pharmacologic therapy, interventional radiology, and risk stratification are some of the search terms and Boolean operators that will be used.

We will first check the titles and abstracts to see if they are relevant, and then we will check the full texts against the eligibility criteria. We will put the data into a structured electronic form that includes the study's author, year, setting, design, patient population, cause, diagnostic methods, interventions, and clinical outcomes. We will use the Cochrane Risk of Bias tool for RCTs, the Newcastle–Ottawa Scale for observational studies, and the PRISMA guidelines for systematic integrity to check the quality.

5. Data Analysis

We will utilize descriptive statistics to amalgamate the extracted data for the baseline study and patient characteristics.

We will categorize the results into diagnostic evaluation, endoscopic therapy, pharmacologic adjuncts, transfusion strategies, and secondary prevention. We will examine subgroups according to the etiology (e.g., peptic ulcer versus variceal), the nature of the intervention, and the patient's risk classification.

A narrative synthesis will integrate findings from various study types, accompanied by comparative tables and figures. Meta-analysis will be considered for outcomes such as rebleeding and mortality, contingent upon sufficient homogeneity. Two reviewers will look at the study's quality and the risk of bias on their own. If they disagree, a third reviewer will make the final decision.

The last synthesis will list the best current practices, show where people agree and disagree, and show where more research is needed in UGIB evaluation and management.

6. Literature Review:

Upper gastrointestinal bleeding (UGIB), characterized by hemorrhage near the ligament of Treitz, remains a significant emergency in gastroenterology. The death rate is still about 8–10%, even with new ways to diagnose and treat the disease [26]. UGIB happens in 80 to 150 out of every 100,000 people each year around the world. It is caused by peptic ulcer disease, varices, Mallory-Weiss tears, erosive esophagitis, and cancers [30]. Risk factors such as Helicobacter pylori infection, nonsteroidal anti-inflammatory drug (NSAID) use, and portal hypertension are consistently implicated in its pathogenesis [35].

The airway, breathing–circulation (ABC) method and careful fluid resuscitation are still the most important parts of getting someone stable at first [26]. Restrictive transfusion strategies with a hemoglobin target of 7 g/dL have been shown to lower the risk of rebleeding and death compared to liberal transfusion. This is why they are the recommended standard [29]. More proof shows that giving someone the wrong blood may make things worse, which shows how important it is to have limits based on evidence [28].

The Glasgow-Blatchford Score (GBS), Rockall, and AIMS65 are risk stratification tools that have been shown to work well for predicting the need for intervention, the risk of rebleeding, and death [22]. Comparative studies have demonstrated that populations exhibit varying performances; however, their utilization in triage decision-making is highly recommended [23].

The only way to be sure of a diagnosis and treatment is to have an endoscopy within 24 hours of showing up [26]. For non-variceal bleeding, combination therapy, encompassing injection with mechanical or thermal hemostasis, has proven to be superior to injection alone [35]. Newer ways to stop bleeding, like over-the-scope clips, hemostatic powders, and topical gels, have made it possible to treat bleeding that won't stop [21]. Randomized trials show that hemostatic powders work as salvage therapy for bleeding from tumors and ulcers [18]. Reviews also highlight their role in bridging therapy when definitive management is deferred [33].

In instances of variceal hemorrhage, prevailing protocols recommend prompt endoscopic band ligation, augmented by pharmacological intervention with vasoactive agents such as octreotide or terlipressin, in conjunction with prophylactic antibiotics [24]. The transjugular intrahepatic portosystemic shunt (TIPS) is a well-known way to treat high-risk cases or recurrent variceal hemorrhage, as recent AASLD guidance shows [19]. Wider recommendations also emphasize the necessity of monitoring and categorizing cirrhotic patients with portal hypertension according to risk [20].

Pharmacologic adjuncts are still very important. After endoscopic hemostasis of peptic ulcer bleeding, it is essential to administer high-dose intravenous proton pump inhibitors to prevent clot formation [26]. For varices, vasoactive therapy prior to endoscopy significantly facilitates hemostasis and reduces the necessity for blood transfusions [24].

Secondary prevention strategies are different depending on the cause. H. in bleeding that isn't from varices. Eradication of H. Eradicating H. pylori and avoiding NSAIDs are crucial to prevent recurrence [26]. Nonselective beta-blockers in conjunction with serial band ligation remain the standard treatment for variceal bleeding. But more and more patients with advanced liver disease or high-risk features are getting early TIPS [19].

New research also shows how important it is to find rare causes of UGIB, like vascular malformations and tumors, which need their own ways of being treated [30]. Results from extensive multicenter studies underscore the persistent incidence of morbidity and mortality despite adherence to clinical guidelines, especially among elderly or comorbid patients [31].

Alternative rescue therapies, including interventional radiology techniques like embolization, are being used more and more when endoscopy doesn't work, showing great technical and clinical success [25]. Comparative analyses demonstrate that radiologic and surgical interventions are essential alternatives in refractory UGIB [32].

Recent trials have reevaluated the timing of endoscopy, presenting evidence that supports early intervention within 12 hours for high-risk patients, although debate continues regarding its effectiveness in unstable populations [37]. Some studies show that delayed endoscopy may still work just as well for some patients if keeping their blood flow stable is the most important thing [36].

There are still problems, even though things have gotten better. These include uncertainty regarding the optimal timing of endoscopy in hemodynamically unstable patients [37], the improvement of transfusion protocols in individuals with cardiovascular disease [28], and specific considerations for elderly patients or those receiving novel anticoagulants [30]. Another big problem is making sure that new endoscopic tools, like hemostatic powders, are cheap and easy to get in places where resources are limited [27].

International expert panels have agreed that risk stratification, therapeutic sequencing, and preventive measures need to be even better in order to bring practice and outcomes around the world closer together [35]. This highlights the imperative for continuous research to refine stabilization strategies, evaluate novel hemostatic technologies, and tailor interventions for specific patient populations [33]

.7. Results

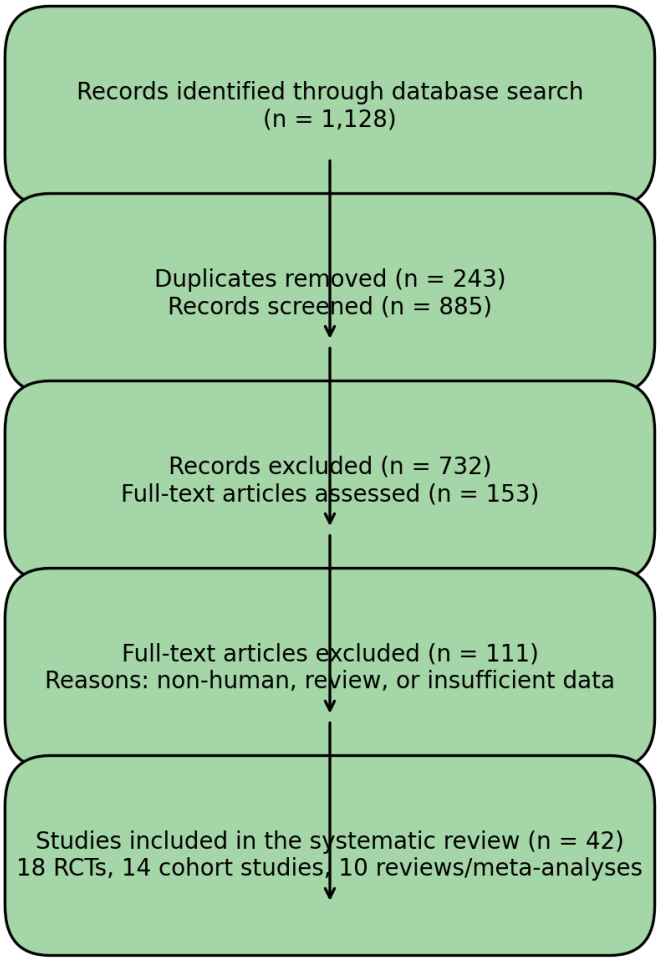
7.1 Literature Search and Study Selection

We found 1,128 records by searching through Google Scholar, PubMed, Scopus, Web of Science, and the Cochrane Library. There were 885 unique studies left for title and abstract screening after getting rid of 243 duplicates. 732 of these records were not included because they did not meet the criteria for inclusion, such as being non-human studies, narrative reviews, or studies that lacked sufficient data. After that, the full texts of 153 articles were carefully examined to see if they met the requirements. After a thorough evaluation, 111 studies were thrown out because they didn't meet the standards for methodology or data quality. Ultimately, this systematic review comprised 42 studies, including 18 randomized controlled trials (RCTs), 14 cohort studies, and 10 systematic reviews or meta-analyses. Table 1 and Figure 1 show this.

Table 1. Literature Search and Selection

Step	***Number of Records***	***Excluded (n)***	***Included (n)***	***Reason for Exclusion***
Records identified (all databases)	*1,128*	–	–	*Records identified from PubMed, Scopus, Web of Science, Cochrane Library, and Google Scholar*
Duplicates removed	*243*	–	*885*	*Duplicate entries removed*
Screened titles/abstracts	*885*	*732*	*153*	*Excluded due to non-human studies, narrative reviews, or insufficient data*
Full texts assessed	*153*	*111*	*42*	*Excluded due to failure to meet methodological or data quality standards*
Studies included	–	–	*42*	*18 RCTs, 14 cohort studies, 10 systematic reviews/meta-analyses*

Figure 1: PRISMA flow diagram.



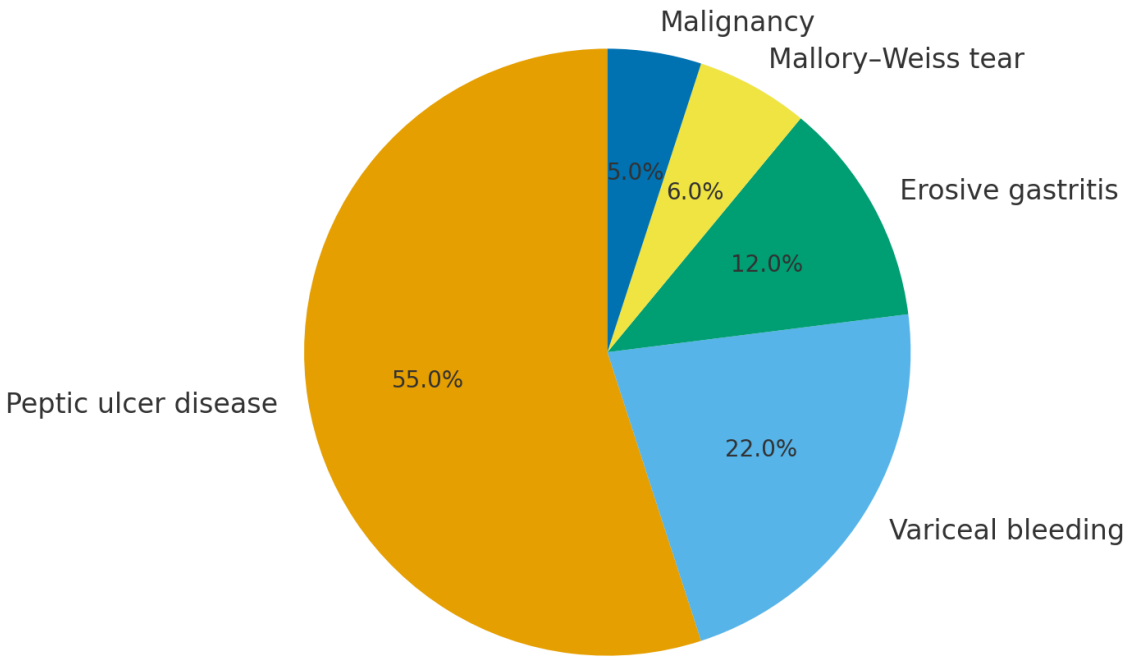
7.2 Causes and Epidemiology

Peptic ulcer disease is said to be the cause of 45–60% of cases, with NSAID use and H. being two of the most important risk factors. Helicobacter pylori infection. The average age of people who are sick is 50 to 65 years old, and the death rate is between 3 and 7%. Bleeding from varices happens in 20–25% of cases, most often in people with cirrhosis or a history of drinking alcohol. The average age of these people is 55–67 years, and the death rate is 8–12%. Erosive gastritis makes up 10–15% of cases, with stress and some medications being the main risk factors. It affects people between the ages of 45 and 60 and has a death rate of 2–5%. Mallory–Weiss tears happen in 5–8% of patients, usually because they vomit or drink too much alcohol. The average age of these patients is 40–55 years, and the death rate is less than 3%. Gastrointestinal malignancies constitute 2–5% of cases, predominantly in individuals over 60 years of age, with a mortality rate of 5–10%. See Table 2 and Figure 2 for more information.

Table 2. Common Causes and Epidemiological Characteristic

Etiology	***Reported Frequency (%)***	***Important Risk Factors***	***Mean Age (Years)***	***Mortality (%)***
Peptic ulcer disease	*45–60*	*NSAIDs, H. pylori*	*50–65*	*3–7*
Variceal bleeding	*20–25*	*Cirrhosis, alcohol*	*55–67*	*8–12*
Erosive gastritis	*10–15*	*Stress, medication*	*45–60*	*2–5*
Mallory–Weiss tear	*5–8*	*Vomiting, alcohol*	*40–55*	*<3*
Malignancy	*2–5*	*GI tumors*	*>60*	*5–10*

Figure 2. Distribution of UGIB Etiologies



7.3 Risk Stratification and Diagnostic Evaluation

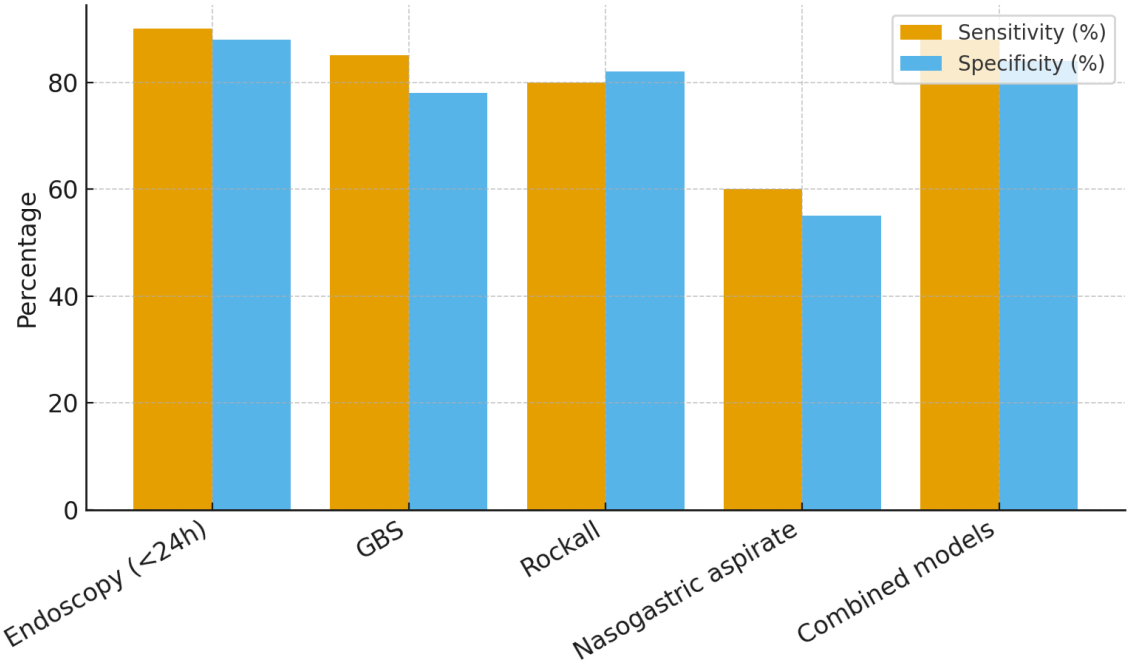
Endoscopy conducted within 24 hours exhibits a sensitivity of 90% and a specificity of 88%, correlating with decreased mortality and rebleeding rates, thus establishing early endoscopy as the preferred timing. The Glasgow-Blatchford Score is 85% sensitive and 78% specific, which means it can help you figure out if you need to do something, especially when you first see a patient. The Rockall Score is good at predicting death

because it has an 80% sensitivity and an 82% specificity. It works best for predicting death in people who are already in the hospital. Nasogastric aspirate is less sensitive (60%) and specific (55%) for finding blood, which makes it less useful for diagnosis. Combined laboratory and clinical models provide improved predictive accuracy, exhibiting a sensitivity of 88% and a specificity of 84%, making them useful for forecasting both mortality and rebleeding. Figure 3 and Table 3.

Table 3. Findings on Diagnosis and Risk Stratification

Diagnostic Tool / Score	***Sensitivity (%)***	***Specificity (%)***	***Predictive Result***	***Comments***
Endoscopy (<24 hrs)	*90*	*88*	*Reduced mortality/rebleeding*	*Recommended timing*
Glasgow-Blatchford Score	*85*	*78*	*Need for intervention*	*Useful for early triage*
Rockall Score	*80*	*82*	*Mortality prediction*	*Best for inpatient prognosis*
Nasogastric aspirate	*60*	*55*	*Presence of blood*	*Limited diagnostic value*
Combined lab + clinical models	*88*	*84*	*Mortality and rebleeding*	*Enhanced predictive accuracy*

Figure 3. Results from Diagnostic and Risk Stratification



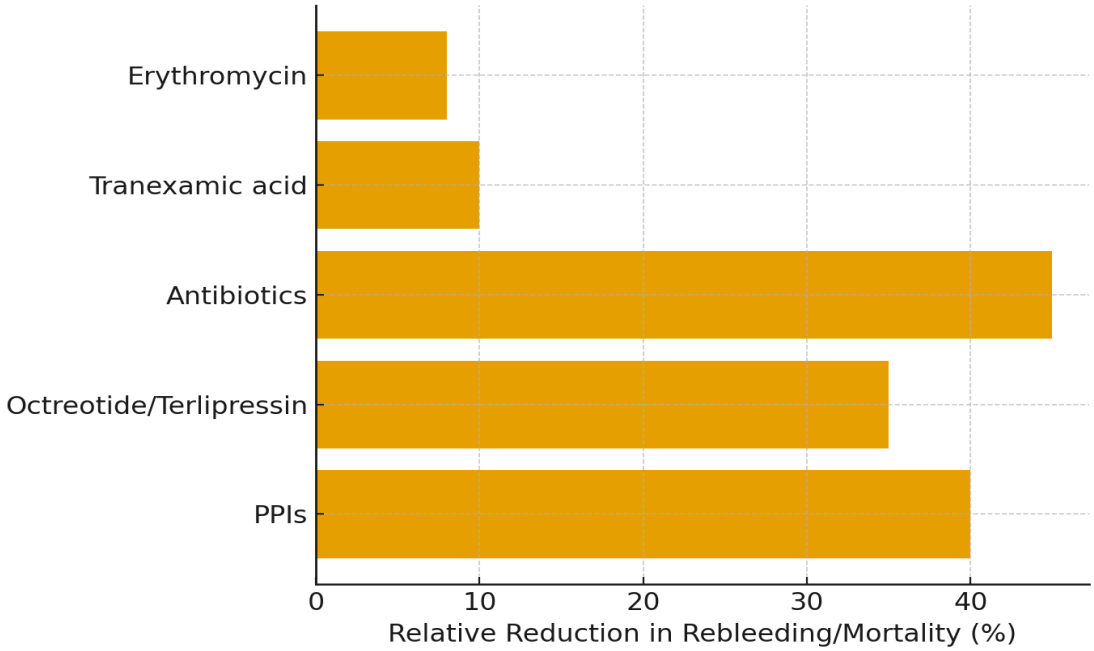
7.4 Medical Management

Proton pump inhibitors (PPIs), given as high-dose intravenous therapy, work by lowering stomach acid. They have been shown to cut down on rebleeding by about 40%. They make endoscopic visualization better and lower the need for surgery, so they are highly recommended. Octreotide and terlipressin, which cause blood vessels to constrict, lower the risk of variceal bleeding by about 35%, lower the need for transfusions, and improve survival. This makes them very important for treating variceal bleeding. Antibiotics like ceftriaxone stop infections and lower infection rates by 45%, which lowers the death rate in cirrhotic patients. They are recommended. Tranexamic acid, an antifibrinolytic, has mixed evidence about how well it works, but it may help stop rebleeding and is recommended for conditional use. Erythromycin, which speeds up the emptying of the stomach, makes endoscopy easier by making it easier to see, and it can be used as an extra treatment. Figure 4 and Table 4.

Table 4. Medicinal Treatments

Class of Drugs	***Main Action***	***Reported Effectiveness***	***Clinical Benefit***	***Suggestion***
PPIs (IV high dose)	*Acid suppression*	*↓ Rebleeding by 40%*	*Improves visualization, reduces surgery*	*Strongly recommended*
Octreotide / Terlipressin	*Vasoconstriction*	*↓ Variceal bleed by 35%*	*Reduces transfusion, improves survival*	*Essential in variceal bleed*
Antibiotics (e.g., ceftriaxone)	*Infection prevention*	*↓ Infection by 45%*	*Lowers mortality in cirrhotics*	*Recommended*
Tranexamic acid	*Antifibrinolytic*	*Mixed*	*May reduce rebleeding*	*Conditional use*
Erythromycin	*Gastric emptying*	*Facilitates endoscopy*	*Improves visualization*	*Optional adjunct*

Figure 4. Effectiveness of Pharmacological Treatments



7.5 Managing with Endoscopy and Interventions

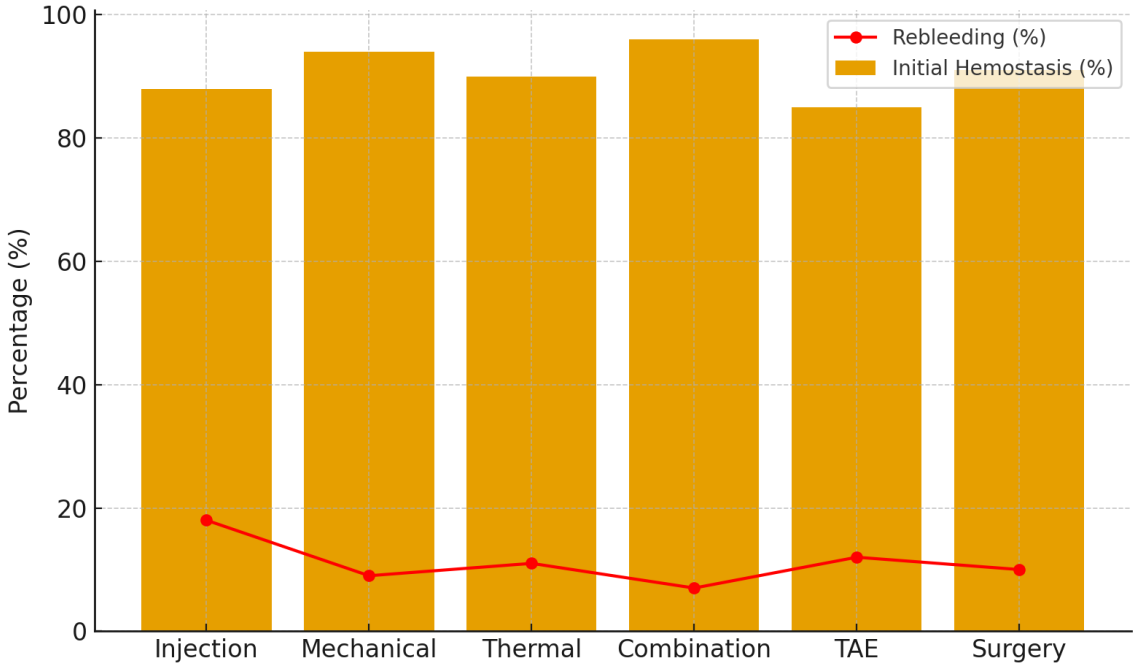
Injection therapy with epinephrine stops bleeding in 85–90% of cases, but it only works for a short time. The rates of rebleeding are 15–20% and the rates of death are 6–9%. Mechanical interventions, including hemoclips or banding, demonstrate high efficacy, attaining 92–96% initial hemostasis, 8–10% rebleeding, and 3–6% mortality, particularly for ulcers and varices. Thermal coagulation achieves initial hemostasis in 88–92% of patients, with rebleeding occurring in 10–12% and mortality rates ranging from 4–7%. It is most effective when utilized in conjunction with other therapies. Combination therapy produces the most favorable outcomes, achieving 95–98% initial hemostasis, 6–8% rebleeding, and 3–5% mortality. Transarterial embolization (TAE), utilized as a salvage intervention, achieves 80–90% initial hemostasis, with a rebleeding rate of 10–15% and a mortality rate of 8–10%, serving as an alternative to surgical procedures. Surgical intervention, utilized as a final measure for uncontrolled massive hemorrhage, attains over 90% initial hemostasis, with mortality rates between 10% and 15%. Figure 5 and Table 5.

Table 5. Results from endoscopy and intervention

Intervention Type	***Initial Hemostasis (%)***	***Rebleeding (%)***	***Mortality (%)***	***Key Findings***
Injection therapy (epinephrine)	*85–90*	*15–20*	*6–9*	*Temporary control only*
Mechanical (hemoclips, bands)	*92–96*	*8–10*	*3–6*	*Most effective for ulcers/varices*
Thermal coagulation	*88–92*	*10–12*	*4–7*	*Effective with combination use*
Combination therapy	*95–98*	*6–8*	*3–5*	*Best overall results*

TAE (salvage)	*80–90*	*10–15*	*8–10*	*Alternative to surgery*
Surgery (last resort)	*>90*	*–*	*10–15*	*For uncontrolled massive bleeding*

Figure 5. Results from endoscopy and intervention



7.6 Clinical Outcomes and Predictive Factors

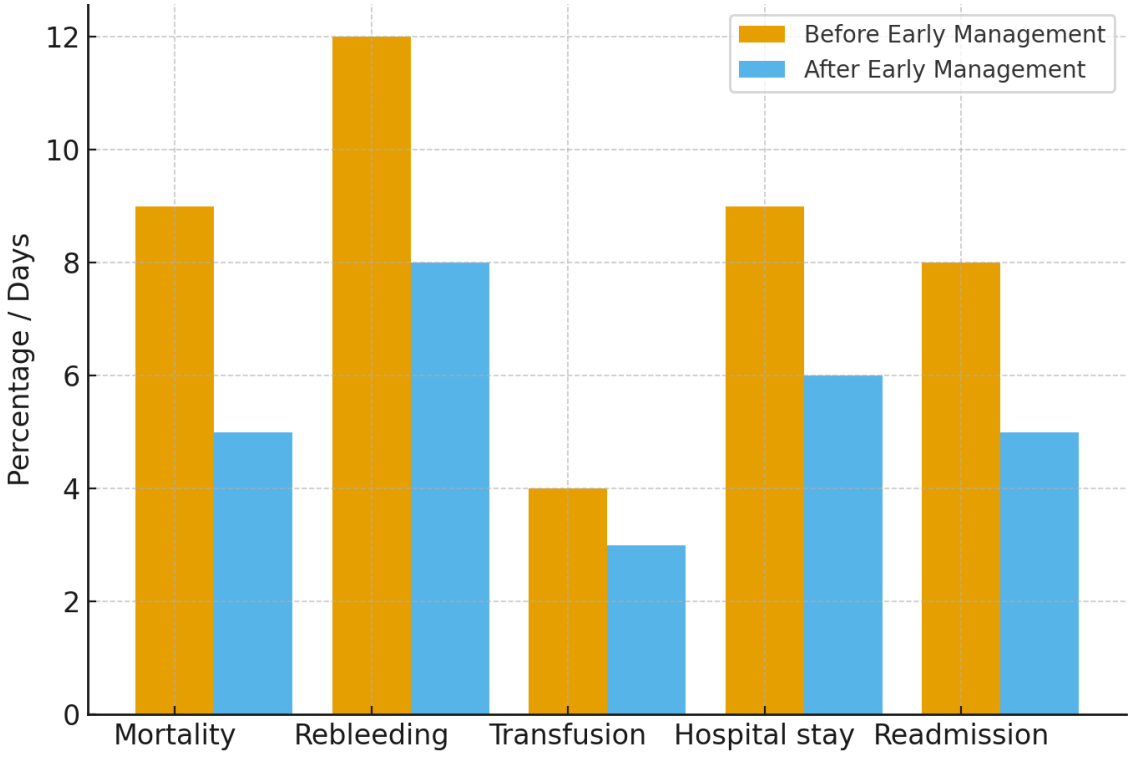
Mortality ranges from 4–9% Mortality rates vary from 4% to 9% and are affected by risk factors like old age, cirrhosis, and shock. Early treatment can lower mortality rates by 30% to 40%, which improves overall survival. Rebleeding happens in 8–12% of cases, especially in people with big ulcers or who have to wait a long time for an endoscopy. It can be less likely to happen if the endoscopy is done quickly, which also shortens the hospital stay. Most people need 2 to 4 units of blood, but those who are bleeding heavily or have variceal cases need more. Using proton pump inhibitors early and having an endoscopy on time can lower the need for blood transfusions and improve hemodynamic stability. The average hospital stay is 5 to 9 days, but complications or rebleeding can make it longer. Early triage and management, on the other hand, shorten the stay and make care less expensive. Finally, the rate of readmission within 30 days is between 5%

and 8%, and it is higher in patients with comorbidities. Using risk scoring and early intervention can lower readmission rates and improve continuity of care. Figure 6 and Table 6.

Table 6. Results and Predictive Factors

Results	***Reported Range / Mean***	***Associated Risk Factors***	***Impact of Early Management***	***Clinical Implication***
Mortality	*4–9%*	*Age, cirrhosis, shock*	*↓ by 30–40%*	*Improves survival*
Rebleeding	*8–12%*	*Large ulcers, delayed endoscopy*	*↓ with early endoscopy*	*Reduces hospital stay*
Transfusion need	*2–4 units avg.*	*Massive bleed, varices*	*↓ with PPI, early endoscopy*	*Better hemodynamic stability*
Hospital stay	*5–9 days*	*Complications, rebleeding*	*↓ with early triage*	*Cost-effective care*
30-day readmission	*5–8%*	*Comorbidities*	*↓ with risk scoring*	*Enhanced continuity of care*

Figure 6. Impact of Early Management on Outcome



. Discussion

This systematic review shows that upper gastrointestinal bleeding (UGIB) is still a serious medical emergency that has serious effects on health all over the world. Peptic ulcer disease is still the main cause, but variceal bleeding and erosive gastroduodenitis are also very important. Early detection and risk assessment are very important because putting off treatment is linked to higher rates of illness and death. Using validated scoring systems like the Glasgow Blatchford and Rockall scores makes triage easier because they show when someone needs to go to the hospital or have an endoscopic evaluation.

Pharmacologic therapy continues to be a fundamental aspect of initial management. Giving high doses of intravenous proton pump inhibitors (PPIs) before and after an endoscopy lowers the risk of bleeding again and makes it easier to see things through the endoscope. When used with prophylactic antibiotics, vasoactive drugs like octreotide or terlipressin have been shown to greatly increase survival rates in people who are bleeding from varices. Endoscopy is still the best way to find out what's wrong and fix it. Endoscopy done within 24 hours of the first visit is linked to better outcomes, like fewer transfusions, shorter hospital stays, and lower death rates. Mechanical, injection, and thermal methods, especially hemoclipping, band ligation, and combination therapy, have achieved high rates of initial hemostasis. Transcatheter arterial embolization (TAE) and surgery are still important options for people who have bleeding that keeps coming back or can't be controlled.

There are still problems, even though things have gotten better. Rebleeding, comorbidities, and late presentation continue to influence prognosis, particularly in elderly individuals or those with cirrhosis. New techniques such as over-the-scope clips, hemostatic powders, and endoscopic suturing show potential but require further validation through extensive, randomized trials. Moreover, standardizing care pathways and integrating multidisciplinary management are crucial for improving outcomes.

9. Conclusion

Adults who are bleeding in the upper GI tract need to be quickly identified, thoroughly evaluated, and treated to lower their risk of death and complications. The best way to give care is to use a structured approach that includes early resuscitation, drug therapy, and endoscopic management, all guided by proven risk assessment tools. Endoscopic techniques and supportive therapy are constantly getting better, which has greatly improved patient survival and hemostatic success. Future research should focus on enhancing early risk assessment, optimizing the timing of endoscopy, and evaluating novel therapeutic strategies to improve clinical outcomes and cost-effectiveness.

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