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Comprehensive Review of Clinical Implications and Management Strategies for Outcome in Acute Upper Gastrointestinal Bleeding

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Abstract: Aim of the study: To evaluate outcomes from acute upper gastrointestinal bleeding & identify factors affecting the outcome in the form of mortality, surgical & endoscopic treatment, and spontaneous stop of bleeding. **Patient &method:** A cross sectional study of 150 patient (83) male & (67) female presented with acute upper GIT bleeding at Al-Yahrmook Teaching Hospital between March 2024 and March 2025, their age ranged between (16 to 85 year) with mean age 49 year, for all patients a detailed history, thorough physical examination, generous lab investigations were done & were arranged for upper GIT endoscopy after initial resuscitation and their endoscopic results&/or endoscopic interventions were recorded. Emergency surgical consultation is considered for all critically ill patients. **Results:** In this study of 150 patients with acute UGIT bleeding, the male to female ratio was { 83 male (55.3 %): 67 female (44.7 %)}, the mean age was 49 years, ranging between 16 to 85 years. Main causes of UGIT bleeding as diagnosed by upper GIT endoscopy were peptic ulcer (34.4%)of cases, Gastritis (16.6%), deodinitis (12.6%), Esophageal varicies (12.0%). Main risk factors in UGIT bleeding that contribute to the mortality rate during admission were: Hemodynamic instability on initial presentation, age above 60 years, chronic liver disease, recurrent bleeding or recurrent hematemesis, blood transfusion of more than 5 units, active bleeding, co morbid illness. The in-hospital outcome in hemodynamically unstable patient as comppaired to hemodynamically stable patient showed worse outcome in form of less incidence of spontaneous stope of Bleeding (88.4% vs. 42.6%),&higher incidence of endoscopic treatment (5.8%vs. 17.0%), surgical treatment (4.0%vs.o.o%) & higher Overall mortality (27.6%vs.5.8%) **Conclusion**: Although the maijority of acute upper GIT bleeding events stop spontenousely, it is still considered a true medical emergency, facing the highly respectable mortality rate, with initial hemodynamic instability being a significantly related risk factor for mortality. Age above 60 years, active bleeding, repeated hematemesis, history of liver cirrhosis, co-morbid illness & blood transfusion of more than 5 units are significant contributors to initial hemodynamic instability &mortality.

Keywords: Management, Strategies, Gastrointestinal, Bleeding, UGIT, Disease, Patient.

INTRODUCTION

Gastrointestinal (GI) bleeding is a prevalent issue in emergency medical practice and should be regarded as potentially life-threatening until proven otherwise. As with all genuine emergencies, the conventional triad of medical history, physical examination, and diagnosis must be accomplished in parallel with resuscitation and stabilisation (van Leerdam, M.E., 2008). Upper GI bleeding is defined as that originating proximal to the ligament of Treitz, whereas lower GI bleeding originates more distally (Laine, L. *et al*., 2012). Factors associated with a high morbidity rate include hemodynamic instability, repeated hematemesis or hematochezia, failure to clear with gastric lavage, age older than 60 years, and coexistent organ system disease (Gralnek, I.M. *et al*., 2008). UGIB has the capacity to occur in patients of any age but is most prevalent among adults over the age of 40 and is more common in males than in females (2:1 ratio). Elderly patients have been shown to have reduced capacity to compensate for acute haemorrhage, and the majority of fatalities occur in this demographic (Ibrahim, M. *et al*., 2018). It is estimated that in excess of 2% of all hospital admissions in the United States, and 5% of admissions from emergency departments, are related to acute gastrointestinal bleeding. In the vast majority of these patients, the bleeding originates in the upper gastrointestinal tract (Barkun, A.N. *et al*., 2010). Although bleeding stops spontaneously in up to 80% of patients, approximately 10% of those admitted require intervention to control their haemorrhage. Despite the advances in diagnostic and therapeutic care, the overall mortality of admitted patients remains at 8% to 10%, showing no significant change over the past 40 years. Please refer to the fourth, fifth, eighth, and ninth items (Blatchford, O. *et al*., 2000). Upper gastrointestinal tract bleeding (UGIB) is a prevalent condition involving multiple etiologies or anatomic sites. The aetiology of this condition is multifactorial, with common causes including, but not limited to, peptic ulcer disease, erosive gastritis, varices, Mallory-Weiss tears, epistaxis, hemoptysis, aortoenteric fistulas, Borehaave

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syndrome, cancer, vascular anomalies, causal ingestion, and anastomotic ulcers. Peptic ulcer disease is the most common etiology, with predisposing factors including cigarette smoking, alcohol ingestion, and hereditary factors. The prevalence of erosive gastritis, esophagitis, and duodenitis among cases of UGI hemorrhage is approximately 13%. Esophageal and gastric varices are the result of portal hypertension and are frequently a consequence of alcoholic liver disease. Mallory-Weiss syndrome is characterized by upper gastrointestinal bleeding resulting from a longitudinal mucosal tear in the cardioesophageal region, with risk factors including alcohol abuse, hiatal hernia, and underlying esophagitis. (Stanley, A.J. *et al*., 2017; Saltzman, J.R. *et al*., 2011) Further potential etiologies comprise the following: stress ulcer, arteriovenous malformation, and malignancy (Bryant, R.V. *et al*., 2013). It is important to note that sources of bleeding in the ear, nose, and throat can also manifest as GI hemorrhage. The clinical presentation of the condition can be subtle, with patients presenting with symptoms such as severe tachycardia, angina, acute myocardial infarction, hypotension, syncope, weakness, confusion, or even full cardiac arrest. It is widely acknowledged that hematemesis, melena, and hematochezia are among the most prevalent etiologies of upper gastrointestinal bleeding (UGIB). The prevalence of UGIB is greater than that of LGIB; therefore, it is imperative to exclude a more proximate source of significant bleeding before concluding that the bleeding originates from the lower GI tract (Robertson, M. *et al*., 2016; Abougergi, M.S., 2018).

PATIENT AND METHOD

The present study will employ a patient-centred approach, utilising a methodological framework that is both systematic and rigorous.

A cross-sectional study was conducted on 150 patients (83 male and 67 female) who presented with upper gastrointestinal tract bleeding and were admitted to the hospital wards via the emergency department at Al-Yarmook Teaching Hospital between March 2024 and March 2025.

The age of the subjects ranged from 16 to 85 years, with a mean age of 49 years.

Following the administration of preliminary haemodynamic resuscitation measures, a comprehensive history was obtained from each patient, and a meticulous physical examination was conducted. Extensive laboratory investigations were then performed on all patients, and upper gastrointestinal tract endoscopies were scheduled. The results of these endoscopies were meticulously documented, along with any endoscopic interventions that were performed.

The initial vital signs recorded in the emergency department included a systolic blood pressure below 100 mmHg and/or a pulse rate of more than 100 mmHg. These findings, in conjunction with the clinical picture, were indicative of risk factors for haemodynamic instability in this study.

The monitoring of patient vital signs, mental state, and urine output was conducted, and any required blood transfusions were meticulously recorded.

The provision of an emergency surgical consultation is considered requisite for all patients classified as critically ill. This consultation is to be provided when blood replacement exceeds 5 U within the initial 4 to 6 hours, or when 2 U of blood is required every 4 hours following the replacement of initial losses in order to maintain normal cardiac output (3).

The collection of historical data from patients following their admission and stabilisation emphasised the clinical presentation (haematemesis, melena, haematochezia, hypotension, syncope), the history of previous gastrointestinal bleeding, the history of liver disease, and the presence of comorbidity (hypertension, heart failure, diabetes, ischemic heart disease, liver cirrhosis, coagulopathy, drug history, specifically NSAIDs, steroids, anticoagulants, and history of weight loss).

In addition, a comprehensive record of the patients' laboratory data was maintained, encompassing the following parameters: haemoglobin, complete blood count, blood sugar, renal function test, liver function test, coagulation profile, basic metabolic panel, ECG monitor, X-ray, and the re-assessment of their haematocrit levels after 48 hours.

RESULTS

The following outcomes have been assessed in relation to:

The mortality rate during admission is a crucial metric in healthcare research, providing valuable insights into the quality of patient care and the effectiveness of treatment protocols.

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Table 1: Clinical Presentation of Patients

Clinical Presentation	Number of Patients	Percentage (%)
Hematemesis	72	48.0
Melena	99	66.0
Hematochezia	2	1.3
Signs & Symptoms of Blood Volume Loss	47	31.3
(e.g., hypotension, syncope, pallor, oliguria, clouded sensorium)		

Table 2: Frequency & Percentage of Risk Factors for UGIT Bleeding

Risk Factor	Number of Patients	Percentage (%)
Aspirin & other NSAID ingestion	71	47.3
Steroid	6	4.0
Anticoagulant drugs	5	3.3
History of Peptic Ulcer	14	9.3
Current Smoking	56	37.3
Alcohol	9	6.0

Table 3: Main Causes of UGIT Bleeding Diagnosed by Upper GIT Endoscopy

Cause	Number of Patients	Percentage (%)
Duodenal Ulcer	39	26.0
Gastritis	25	16.6
Duodenitis	19	12.6
Esophageal Varices	18	12.0
Gastric Ulcer	13	8.6
Esophagitis	7	4.6
Ca Stomach	3	2.0
Mallory Weiss Tear	3	2.0
Cause Not Identified	23	15.3

Table 4: Main Risk Factors Contributing to Mortality Rate During Admission

Risk Factor	Number of Patients	Deaths	Mortality Rate (%)	Overall Mortality Rate (%)
Hemodynamic Instability at Presentation	47	13	27.7	8.7
Age Above 60 Years	39	10	25.6	6.7
Chronic Liver Disease	31	11	35.5	7.3
Recurrent Bleeding/Hematemesis	11	3	27.3	2.0
Blood Transfusion (> 5 units)	17	5	29.4	3.3
Active Bleeding	37	7	18.9	4.7
Comorbid Illness	38	5	13.2	3.3

Table 5: In-Hospital Outcome in Hemodynamically Stable and Unstable Patients

Condition	Number of Patients	Percentage (%)
Stable Hemodynamic Condition	91	88.4
Unstable Hemodynamic Condition	20	42.6
Overall (Both Conditions)	111	74.0

DISCUSSION

The present study demonstrates that the primary age group affected by UGIT bleeding is between 40 and 50 years of age, with a mean age of 49 years. This finding aligns with the results reported by Khaldoon Th. Al-Abachi, *et al*., (24) reported a mean age of 43.68 years (± 19.11 years).

The male-to-female ratio in this study was found to be almost equivalent (1.2:1), with a marginally higher prevalence of male subjects.

A nationwide study was conducted in the USA in 1998 and 2006. The incidence was found to be marginally higher in females (49% vs. 51%) (25) for males and females, respectively, with a nearly similar ratio observed in both cases.

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The present study indicates that duodenal ulcer (DU) was the primary cause of upper gastrointestinal tract (UGIT) bleeding in 39 (26.0%) cases, followed by gastritis in 25 (16.6%) cases and deodinitis in 19 (12.6%) patients.

The prevalence of esophageal varices was found to be 12% among patients, while in 15.3% of cases, the underlying cause remained undetermined following endoscopy.

A study conducted at a major hospital in Riyadh revealed that DU was the most prevalent cause of upper GIT bleeding (29.2%) (26). However, a study conducted at Kathmandu University Hospital in Nepal revealed that PU disease was the most prevalent cause of upper GIT bleeding (27). Notably, GU was observed to be more common than DU.

Non-steroidal anti-inflammatory drugs (NSAIDs) are among the most common medications prescribed worldwide. However, their use is limited by concerns regarding gastrointestinal adverse effects. Indeed, NSAIDs are a well-established risk factor for upper gastrointestinal bleeding (27, 28). This is confirmed by the finding that 47.3% of patients were taking aspirin or other NSAIDs prior to the onset of bleeding. As Kaviani, *et al*., (29) demonstrate, 75% of patients surveyed reported regular consumption of low-dose aspirin or other non-steroidal anti-inflammatory drugs (NSAIDs).

It is evident that the result obtained in this study surpasses that of Khaldoon Th. Al-Abachi, *et al*., (24) conducted a study in Mousil City, the results of which indicated that NSAIDs were associated with 9.0% of cases of UGIT bleeding.

In the present study, smoking was identified as a significant risk factor, with its prevalence recorded at 37.3% among the patient population. Furthermore, a noteworthy finding was the observation of alcohol consumption in 6% of patients with UGIT bleeding, which is a notable observation.

The history of peptic ulcer was found in 9.3% of patients& it is lower than that reported by Kaviani, *et al*., Study (29), which was 16%.It may be difficult to interpret the relevance of this finding because many patients did not seek a gastroenterologist for the diagnosis of PU disease &documented a medical report was not documented for them.

Melena was the most common clinical presentation (66.0%). Although rare, hematochizia can present in patients with upper GIT bleeding, in this study it presents in (1.3%), hypotension &/or tachycardia, syncope &orthostatic changes present in (31.3%) in this study.

The present study revealed an overall mortality rate of 12.7%. The principal risk factors that were found to be conducive to the study's outcomes were as follows:

In the present study, 47 patients (31.3%) exhibited haemodynamic instability at the time of initial presentation. Of these, 13 patients (27.3%) ultimately succumbed, resulting in an overall mortality rate of 8.7%.

The medical records of the patients revealed that 31 individuals (20.7%) had a history of chronic liver disease or cirrhosis. Of these, 11 (35.5%) patients died, resulting in an overall mortality rate of 7.3%.

The mean age of the patients was above 60 years, with 39 (26.0%) of them being above 60 years of age. Of these, 10 (25.6%) patients died, resulting in an overall mortality rate of 6.7%.

Active bleeding was identified in 37 patients (24.7%), and 7 of these patients (18.9%) died, resulting in an overall mortality rate of 4.7%.

Co-morbid illness was identified in 38 patients (35.3%), of whom five patients (13.2%) died, resulting in an overall mortality rate of 3.3%.

In 17 cases (11.3%), more than five units of blood were transfused. Five of these patients (29.4%) died, resulting in a mortality rate of 3.3%.

In 11 cases (7.3%), recurrent bleeding was observed. Of these, three patients (27.3%) died, resulting in an overall mortality rate of 2%.

The results of the present study are consistent with those of the study conducted by Bettina Katschinski, *et al*., [Wang, J. *et al*., 2013] in which death was found to be significantly associated with rebleeding, age over 60 years, active bleeding, and the presence of shock at admission. However, the overall mortality rate in the present study was lower than that observed in the aforementioned study (8.5% vs. 12.7%).

The study by Christine S. Clarke, *et al*., revealed that patients receiving more than six units of blood exhibited a higher mortality rate compared to those with upper gastrointestinal tract bleeding who

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required less than six units of blood (38% vs. 15%, respectively).[Garg, S. K. *et al*., 2017] Also, confirm, the mortality rate of patients with haemodynamic instability on arrival was higher (267/536 vs. 24/36, P = 0.018).

UGIT bleeding may be complicated by hemodynamic instability, studies shows that hemodynamic instability related to higher & mortality &carries poor early &late outcome, in this study hemodynamic instability at initial presentation was found in 47(31.3%) of patients, with active bleeding &age above 60 year &history of chronic liver disease being the main contributors.

In this study, active bleeding was found in 10(9.7%) hemodynamically stable patients & 27 (57.4%) hemodynamically unstable patients, with an extremely significant difference between them (p value 0.0001*).

In this study, age above 60 was found in 57.4% of hemodynamically unstable patients compaired to 11.6% of hemodynamically stable patients, with a significant difference between the two groups (p value 0.0001*).

Chronic liver disease was found in 16(12.6%) hemodynamically stable patients & 15(31.9%) hemodynamically unstable patients, with a significant difference between both groups (P value 0.02*). [Lahiff, C. *et al*., 2012; Masoodi, M. *et al*., 2012]

Co-morbid illness was found in 21(20.4%) of hemodynamically stable patients & in 17(36.2%) hemodynamically unstable patients, with a significant difference between the two groups (P value 0.04*).

Recurrent bleeding was found in 4(3.9%) hemodynamically stable patients & 7(14.9%) hemodynamically unstable patients; the difference between these groups was significant (P value 0.03*).

This study shows that initial hemodynamic instability is related to worse outcomes during admission in comparison to the hemodynamically stable group in terms of:

- Higher mortality rate compared with hemodynamically stable patients (27.6% vs.5.8%)
- Frequent need of emergency surgical treatment (12.8%) of hemodynamically unstable patients.
- Higher frequency of endoscopic intervention (17.0% vs.5.8%) for hemodynamically unstable &stable, respectively
- Less incidence of spontaneous stop of bleeding(42.6% vs. 88.4%) for hemodynamically unstable &stable respectively

In the Baradarian, *et al*., study, showed that early intensive resuscitation of upper GIT bleeding patients complicated by initial hemodynamic instability showed a significant decrease in morbidity & mortality, where mortality rate had fallen from 11% to 2.8% in patients in patients who received early intensive resuscitation (p value 0.04) which is significant. [Klebl, F. *et al*., 2005; Coskun, F. *et al*., 2005]

CONCLUSION

The most prevalent cause of upper gastrointestinal tract bleeding (UGIT) at Al-Yarmook Teaching Hospital was found to be duodenal ulcer (DU), gastritis, deodination, and oesophageal varices, in descending order of frequency.

The most prevalent risk factor associated with UGIT bleeding is the use of aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs). Additionally, smoking and a history of peptic ulcer disease have been identified as significant risk factors.

UGIT bleeding is widely regarded as a serious medical emergency, with a mortality rate that is considered to be of significant concern. The condition is characterised by initial haemodynamic instability, which is a well-documented risk factor for mortality.

The presence of the following factors is associated with an increased risk of initial haemodynamic instability and mortality: age above 60 years, active bleeding, repeated haematemesis, history of liver cirrhosis, comorbidity, and blood transfusion of more than five units.

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