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CLINICAL AND EPIDEMIOLOGICAL PROFILE OF ADULT PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT WITH UPPER GASTROINTESTINAL BLEED: A HOSPITAL-BASED PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT **Introduction:** Upper gastrointestinal bleeding (UGIB) is a common and potentially life-threatening medical emergency associated with significant morbidity and mortality. The causes of UGIB vary across regions depending on the prevalence of chronic liver disease, alcohol consumption, portal hypertension, Helicobacter pylori infection, and NSAID use. In Northeast India, alcohol-related liver disease and variceal bleeding are increasingly common causes of UGIB. **Aim:** To evaluate the socio-demographic, clinical, biochemical, imaging, endoscopic profile, and short-term outcomes of adult patients presenting with suspected UGIB in a tertiary care centre. **Materials and Methods:** This prospective observational study was conducted over one year in the Department of General Medicine and Emergency Department of Assam Medical College and Hospital. Adult patients aged ≥13 years presenting with hematemesis, melena, coffee-ground vomiting, or hematochezia suggestive of UGIB were included. Clinical evaluation, laboratory investigations, ultrasonography, and upper gastrointestinal endoscopy were performed. Patients were followed for transfusion requirement, ICU admission, re-bleeding, hospital stay, and mortality. Statistical analysis was done using SPSS version 25.0. **Results:** A total of 85 patients were studied. Mean age was 49.6 ± 15.2 years with male predominance (80%). Hematemesis (78.8%) and melena (61.2%) were the commonest presentations. Chronic liver disease (51.8%) and alcohol use (56.5%) were major comorbidities. Esophageal varices (37.6%) were the most common endoscopic finding followed by duodenal ulcer (18.8%) and gastric ulcer (16.5%). Blood transfusion was required in 71.8% of patients, while mortality was 7.1%. **Conclusion:** UGIB remains a major medical emergency in Northeast India, with variceal bleeding secondary to chronic liver disease being the predominant etiology. Early diagnosis, resuscitation, and timely endoscopic intervention are essential for improving outcomes.

KEYWORDS : Upper Gastrointestinal Bleeding; Hematemesis; Melena; Variceal Bleed; Endoscopy; Portal Hypertension.

INTRODUCTION

Upper gastrointestinal bleeding (UGIB), defined as bleeding originating proximal to the ligament of Treitz, remains one of the most common and potentially life-threatening emergencies encountered in clinical practice.[1] UGIB encompasses a broad spectrum of clinical presentations ranging from mild self-limiting bleeding to massive hemorrhage associated with hemodynamic instability, shock, multi-organ dysfunction, and death.[2] Patients commonly present with hematemesis, melena, or coffee-ground vomiting, although brisk upper gastrointestinal bleeding may occasionally manifest as hematochezia.[3] Additional manifestations include pallor, dizziness, syncope, fatigue, hypotension, tachycardia, and altered sensorium.

Despite substantial advances in endoscopic techniques, proton pump inhibitor therapy, vasoactive drugs, and intensive care management, UGIB continues to impose significant morbidity and mortality worldwide.[4] The incidence of UGIB globally has been estimated to range between 15 and 172 cases per 100,000 population annually, with mortality rates varying from 2% to 10% depending on patient characteristics, underlying etiology, and healthcare accessibility.[5] Re-bleeding remains another major concern occurring in approximately 7–32% of patients.[5]

The epidemiology and etiological profile of UGIB have evolved considerably over recent decades. Historically, peptic ulcer disease represented the predominant cause of UGIB. However, widespread use of proton pump inhibitors and Helicobacter pylori eradication therapy has altered disease patterns in many developed countries.[6] Conversely, developing countries continue to report a substantial burden of variceal bleeding due to chronic liver disease, portal hypertension, alcohol-related liver disease, viral hepatitis, and cirrhosis.[7]

Several studies from India have demonstrated marked regional variations in the etiology of UGIB. A large retrospective study from Northern India involving over 13,000 patients reported peptic ulcer disease as the most common endoscopic diagnosis.[8] In contrast, studies from Northeast India and neighboring South Asian countries have identified variceal bleeding as the leading cause, reflecting a higher prevalence of chronic liver disease and portal hypertension.[9] Such heterogeneity highlights the need for institution-specific and region-specific epidemiological data.

Risk stratification plays a pivotal role in the management of UGIB. The Glasgow-Blatchford score has been widely used to predict need for intervention, blood transfusion, ICU admission, and mortality.[10] Early identification of high-risk patients facilitates timely resuscitation, prioritization for endoscopy, and optimal resource utilization.

Endoscopy remains the cornerstone in the diagnosis and management of UGIB. Early endoscopy performed within 24 hours of presentation has been associated with reduced mortality, shorter hospital stay, decreased need for surgery, and improved overall outcomes.[11] Nevertheless, in resource-limited settings, delayed presentation and inadequate healthcare infrastructure continue to pose major challenges.

In Northeast India, especially Assam and surrounding regions, there remains limited prospective data regarding the clinical profile, laboratory abnormalities, imaging findings, endoscopic characteristics, and outcomes of patients presenting with UGIB. Given the increasing burden of alcohol-related liver disease and portal hypertension in this region, understanding local epidemiological trends is essential for developing evidence-based management strategies.

Therefore, the present study was undertaken to evaluate the socio-demographic characteristics, clinical presentation, biochemical profile, imaging findings, endoscopic spectrum, treatment modalities, and short-term outcomes of adult patients presenting with upper gastrointestinal bleeding in a tertiary care centre.

AIM

To evaluate the socio-demographic, clinical, biochemical, imaging, endoscopic profile and outcomes of adult patients presenting to the Emergency Department with suspected upper gastrointestinal bleeding.

OBJECTIVES

Primary Objective

1. To determine the socio-demographic and clinical profile of adult patients presenting with suspected upper gastrointestinal bleeding.

Secondary Objectives

1. To assess the biochemical and hematological abnormalities in patients with suspected UGIB.
2. To evaluate imaging and endoscopic findings and categorize etiology into variceal and non-variceal causes.
3. To record short-term outcomes including mortality, re-bleeding, duration of hospital stay, and ICU admission.

MATERIALS AND METHODS

This was a hospital-based prospective observational study conducted in the Department of General Medicine and Emergency Department of Assam Medical College and Hospital, Dibrugarh, Assam, India over a period of one year. Institutional Ethics Committee approval was obtained prior to commencement of the study and written informed consent was obtained from all participants or their legally authorized attendants.

A total of 85 consecutive adult patients presenting with suspected upper gastrointestinal bleeding were included in the study. Adult patients aged ≥13 years presenting with hematemesis, coffee-ground vomiting, melena, or hematochezia suggestive of upper gastrointestinal bleeding were included. Patients with lower gastrointestinal bleeding, traumatic or postoperative gastrointestinal bleeding, hematological bleeding disorders, pregnancy, and those unwilling to provide consent were excluded.

After initial resuscitation and hemodynamic stabilization, detailed history regarding presenting symptoms, alcohol consumption, smoking, NSAID use, antiplatelet use, anticoagulant use, previous episodes of gastrointestinal bleeding, and associated comorbidities was obtained. Comprehensive physical examination including pulse rate, blood pressure, respiratory rate, oxygen saturation, pallor, icterus, ascites, splenomegaly, and stigmata of chronic liver disease was performed.

Laboratory investigations included complete blood count, blood grouping and cross-matching, liver function tests, renal function tests, serum electrolytes, blood glucose, AST, ALT, PT, INR, HBsAg, and Anti-HCV. Risk stratification was carried out using the Glasgow-Blatchford Score (GBS).

All patients received standard medical management including intravenous fluids, proton pump inhibitors, vasoactive agents where indicated, antibiotics, and transfusion of blood products as required.

Ultrasonography abdomen was performed in all patients to evaluate chronic liver disease, portal hypertension, splenomegaly, hepatomegaly, ascites, and portal vein dilatation.

Upper gastrointestinal endoscopy was performed within 24 hours of admission after stabilization. Endoscopic findings were categorized into variceal and non-variceal causes. Therapeutic endoscopic interventions including variceal band ligation, sclerotherapy, and adrenaline injection were performed where indicated.

Patients were followed throughout hospitalization for assessment of transfusion requirement, ICU admission, re-bleeding, duration of hospital stay, and mortality.

Data were entered into Microsoft Excel and analyzed using SPSS version 25.0. Continuous variables were expressed as mean ± SD while categorical variables were expressed as frequencies and percentages. A p-value <0.05 was considered statistically significant.

RESULTS AND OBSERVATIONS

Table 1: Socio-demographic Profile of Study Population

Variable	Category	Frequency (%)
Age (years)	Mean ± SD	49.6 ± 15.2
Age Group	13–30	11 (12.9%)
	31–45	24 (28.2%)
	46–60	31 (36.5%)
	>60	19 (22.4%)
Gender	Male	68 (80.0%)
	Female	17 (20.0%)
Occupation	Farmer	21 (24.7%)
	Laborer	27 (31.8%)
	Service	12 (14.1%)
	Business	9 (10.6%)
	Others	16 (18.8%)
Socioeconomic Status	Lower	49 (57.6%)
	Middle	29 (34.1%)
	Upper	7 (8.2%)

Observation: Majority of patients belonged to the 46–60 years age group with marked male predominance.

Table 2: Comorbidities and Drug Use Among Study Population

Comorbidity / Risk Factor	Frequency (n)	Percentage (%)
Chronic liver disease	44	51.8%
Alcohol use	48	56.5%
Hypertension	19	22.4%
Diabetes mellitus	14	16.5%
Chronic kidney disease	6	7.1%
Coronary artery disease	5	5.9%
NSAID use	21	24.7%
Antiplatelet use	11	12.9%
Anticoagulant use	5	5.9%

Observation: Chronic liver disease and alcohol use were the most common associated comorbidities.

Table 3: Presenting Symptoms

Symptom	Frequency (n)	Percentage (%)
Hematemesis	67	78.8%
Melena	52	61.2%
Hematochezia	8	9.4%
Abdominal pain	26	30.6%
Syncope	11	12.9%
Jaundice	22	25.9%
Altered sensorium	9	10.6%

Observation: Hematemesis was the commonest presenting complaint followed by melena.

Table 4: Baseline Vitals and Risk Scores

Parameter	Mean ± SD
Pulse rate	104 ± 18/min
Systolic blood pressure	96 ± 18 mmHg
Shock index	1.08 ± 0.24
Glasgow Coma Scale	13.6 ± 1.8
Glasgow-Blatchford score	11.2 ± 3.4

Observation: Most patients had moderate-to-high Glasgow-Blatchford scores indicating severe UGIB requiring active intervention.

Table 5: Laboratory Parameters

Parameter	Mean ± SD
Hemoglobin (g/dL)	8.1 ± 2.3
Platelet count (/mm³)	1.28 ± 0.64 lakh/mm³
Total leukocyte count (/mm³)	11,600 ± 3,200
Blood urea (mg/dL)	54 ± 22
Serum creatinine (mg/dL)	1.4 ± 0.7
Total bilirubin (mg/dL)	3.2 ± 2.6
AST (IU/L)	86 ± 38
ALT (IU/L)	61 ± 27
PT (seconds)	21.4 ± 5.1
INR	1.82 ± 0.64

Observation: Severe anemia, thrombocytopenia, elevated bilirubin, transaminitis, and coagulopathy were commonly observed.

Table 6: Imaging Study in Study Participants

Imaging Finding (USG Abdomen)	Frequency (n)	Percentage (%)
Chronic liver disease with portal hypertension	36	42.4%
Splenomegaly	28	32.9%
Ascites	24	28.2%
Fatty liver	16	18.8%
Coarse liver echotexture	31	36.5%

Dilated portal vein	19	22.4%
Hepatomegaly	21	24.7%
Normal ultrasound study	10	11.8%

Observation: Ultrasonography frequently demonstrated chronic liver disease, portal hypertension, and splenomegaly.

Table 7: Endoscopic Findings

Endoscopic Finding	Frequency (n)	Percentage (%)
Esophageal varices	32	37.6%
Gastric ulcer	14	16.5%
Duodenal ulcer	16	18.8%
Gastritis/erosions	11	12.9%
Malignancy	4	4.7%
Mallory-Weiss tear	3	3.5%
Normal study	5	5.9%

Observation: Variceal bleeding was the most common endoscopic diagnosis.

Table 8: Treatment and Outcomes

Parameter	Value
Blood transfusion required	61 (71.8%)
Mean PRBC units transfused	2.3 ± 1.2
Endotherapy performed	39 (45.9%)
ICU admission	18 (21.2%)
Re-bleeding	7 (8.2%)
Mean hospital stay (days)	5.8 ± 2.6
Mortality within 24 hours	2 (2.4%)
Mortality within 7 days	5 (5.9%)
Overall mortality	6 (7.1%)

Observation: Mortality was higher among patients with variceal bleeding, hemodynamic instability, and high Glasgow-Blatchford scores.

DISCUSSION

The present prospective observational study evaluated the clinical profile, laboratory abnormalities, imaging findings, endoscopic spectrum, and short-term outcomes among adult patients presenting with upper gastrointestinal bleeding in a tertiary care hospital in Northeast India. UGIB continues to remain an important medical emergency associated with substantial morbidity and mortality.[1]

In the present study, the mean age of presentation was 49.6 ± 15.2 years, with the majority of patients belonging to the 46–60 years age group. Similar observations were reported by Kumar et al.[8] and Sharma et al.[9] Advancing age is associated with increased prevalence of chronic liver disease, NSAID exposure, peptic ulcer disease, and systemic comorbidities.

A marked male predominance (80%) was observed, which is consistent with previous Indian studies. [8] [9] This may be attributed to higher prevalence of alcohol use, smoking, chronic liver disease, and occupational stress among males.

Among associated comorbidities, alcohol use (56.5%) and chronic liver disease (51.8%) emerged as the major risk factors. Similar findings were documented by Baruah et al.[5] from Northeast India where alcohol-related chronic liver disease constituted a major contributor to UGIB admissions. Antiplatelet and anticoagulant use were also observed among elderly patients with cardiovascular disease, highlighting the increasing contribution of drug-related gastrointestinal bleeding.

Hematemesis was the commonest presenting complaint followed by melena, findings comparable to studies by Laursen et al.[6] and Hearnshaw et al.[7] Hematochezia was relatively uncommon and generally associated with massive upper gastrointestinal hemorrhage.

The present study demonstrated significant laboratory abnormalities including severe anemia, thrombocytopenia, elevated bilirubin, elevated AST/ALT, prolonged PT, and elevated INR. These abnormalities were more common among patients with chronic liver disease and portal hypertension due to impaired hepatic synthetic function and hypersplenism. Similar findings have been documented in previous Indian studies evaluating UGIB.[9,10]

Ultrasonography revealed chronic liver disease with portal hypertension, splenomegaly, and coarse liver echotexture in a substantial proportion of patients. Similar imaging findings have been reported in studies from Assam and neighboring northeastern states where alcohol-related cirrhosis remains highly prevalent. [5] Ultrasonography proved useful in identifying portal hypertension and advanced chronic liver disease prior to endoscopy.

Endoscopic evaluation revealed esophageal varices as the most common etiology (37.6%) followed by duodenal ulcer and gastric ulcer. These findings differ from many Western studies where peptic ulcer disease remains the predominant cause of UGIB.[11] However, several studies from India and South Asia have demonstrated increasing predominance of variceal bleeding due to the high burden of chronic liver disease and portal hypertension.[12,13]

Blood transfusion was required in 71.8% of patients while endoscopic intervention was performed in 45.9% of cases. Re-bleeding occurred in 8.2% and overall mortality was 7.1%, findings comparable to previous Indian observational studies.[10,14] Patients with hemodynamic instability, severe anemia, chronic liver disease, and higher Glasgow-Blatchford scores had poorer outcomes and increased mortality.

The mean duration of hospital stay in the present study was 5.8 ± 2.6 days. Patients with variceal bleeding, advanced liver disease, hypotension at presentation, and multiple comorbidities had prolonged hospitalization and higher mortality rates. Early endoscopy remains the cornerstone in UGIB management. Lau et al.[15] demonstrated that endoscopy performed within 24 hours significantly reduces mortality, re-bleeding, and duration of hospital stay.

The strengths of the present study include its prospective design and comprehensive evaluation of demographic, clinical, laboratory, imaging, and endoscopic parameters. However, being a single-centre study with a relatively small sample size, the findings may not be generalizable to the broader population.

Nevertheless, the present study provides important region-specific data regarding the epidemiological and etiological profile of UGIB in Northeast India and highlights the growing burden of variceal bleeding secondary to alcohol-related chronic liver disease.

CONCLUSION

Upper gastrointestinal bleeding remains a major medical emergency associated with substantial morbidity and mortality. The present study demonstrated that middle-aged males constituted the majority of patients presenting with UGIB, with hematemesis and melena being the predominant presenting complaints.

Alcohol use and chronic liver disease emerged as the major associated comorbidities in this region. Ultrasonography commonly demonstrated chronic liver disease, portal hypertension, splenomegaly, and coarse liver echotexture. Endoscopic evaluation revealed esophageal varices as the most common etiology of bleeding followed by peptic ulcer disease.

Severe anemia, thrombocytopenia, elevated liver enzymes, coagulopathy, hemodynamic instability, and higher Glasgow-Blatchford scores were associated with poorer outcomes, increased transfusion requirement, ICU admission, and mortality.

Early recognition, prompt resuscitation, risk stratification, imaging evaluation, and timely endoscopic intervention are essential for improving outcomes in patients with upper gastrointestinal bleeding.

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