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Original Article

Spectrum of upper gastrointestinal bleed: An experience from Eastern India

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Abstract

Background/Aims: The etiology of upper gastrointestinal bleed (UGIB) is variable in different geographical regions. Epidemiological data are helpful in knowing the burden of the problem. This study was conducted to know the etiological spectrum, mortality, morbidity, and predictors of outcome in patients with acute UGIB. **Materials and Methods:** We retrospectively analyzed the data of patients admitted to our hospital between January 2013 and May 2015, with UGIB and noted the clinical presentation, etiology of bleed, and outcome. **Results:** A total of 337 patients [272 (80.7%) male, 65 (19.3%) female (male:female ratio: 4:1)] of UGIB were included in the study. The mean age of the patients was 55.11 ± 14.8 years (Range - 14–85 years). The most common etiology of UGIB was peptic ulcer (40.05%) followed by varices (33%). Majority of patients were managed medically. Endotherapy was required only in 33% patients. The mean duration of hospital stay was 6.6 ± 5.79 days. Rebleed was seen in 11 (3.2) patients and surgery was required in 6 (1.7%). In hospital, mortality was 2.6%. Age ≥65 years (odds ratio [OR]: 9.5, 95% confidence interval [CI]: 3.108–29.266), serum albumin <3 g/dl (OR: 3.1, 95% CI: 1.049–9.682), and serum creatinine >2 mg/dl (OR: 4.1, 95% CI: 1.068–8.591) were associated with increased mortality. **Conclusions:** Peptic ulcer disease is still the most common cause of UGIB. Majority of patients can be managed medically. Rebleed rate, need for surgery, and mortality due to UGIB are declining. Elderly age (>65), hypoalbuminemia serum albumin<3g/dl (<3) and renal dysfunction (serum creatinine >2) are important factors associated with increased mortality.

Key words

Clinical presentation, etiology, outcome, upper gastrointestinal bleed

Introduction

Upper gastrointestinal bleeding (UGIB) is a gastrointestinal emergency that can result in significant morbidity, mortality, and use of health-care resources.[1] Population-based epidemiology data are important to get insight into the actual health-care problem. The etiology of UGIB may vary in different geographical regions. Epidemiological data are helpful in knowing the burden of the problem, the etiology, and severity of the disorder which ultimately helps in making strategies to combat morbidity and mortality. The advances in medical practice in recent decades have influenced the etiology and management of UGIB. There are only a few recent epidemiological surveys regarding acute UGIB in India. In studies done in the Western population, peptic ulcer disease still constitutes the most common cause of UGIB.[1-4]

Few studies have shown a decrease in rates of mortality and rebleeding.[1,2] However, other studies have failed to reproduce

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the same results.[3] The mortality due to this condition has largely remained unchanged.[4] In this study, we retrospectively analyzed the data of patients admitted with acute UGIB and noted the clinical presentation, etiology of bleed, and outcome.

Materials and Methods

We retrospectively analyzed the data of 337 consecutive patients who were admitted to Apollo Gleneagles Hospital from January 2013 to May 2015 with UGIB. The study was approved by the Institute Ethics Committee. Patients included were aged >12 years. A diagnosis of acute UGIB was based on the presence of hematemesis and/or melena. We retrospectively analyzed baseline clinical data, laboratory reports, transfused blood units, endoscopic records, and subsequent follow-ups until patient death or discharge.

Results

A total of 337 patients of UGIB were included in the study. Majority of 272 (80.7%) patients were male and only 65 (19.3%) were female (male:female ratio: 4:1). The mean age of the patients was 55.11 ± 14.8 years (range - 14–85 years). Majority (54%) of the patients were in the age group of 20–60 years. Furthermore, a large proportion of patients (43%) were in the elderly age group (age >60 years). Young adults (age <20 years) constituted a small (2.3%) number.

The clinical presentation of the patients [Table 1] was mainly in the form of hematemesis (n = 205, 60.8%). Melena as presentation was seen in 171 (50%) of patients. Hypotension was noted in 50 (14.8%) patients at presentation and altered sensorium in 24 (7.12%). Table 2 shows the laboratory profile of the patients at presentation.

The most common etiology [Table 3] of UGIB was peptic ulcer, seen in 135 (40.05%) patients. Varices were present in 33% (n = 114) patients, whereas mucosal erosive disease was present in 17.7% (n = 36) patients. Other lesions identified were Mallory–Weiss tear (n = 8), malignancy (n = 10), gastric antral vascular ectasia (GAVE) (n = 7), arteriovenous malformation (3), Dieulafoy lesion (7), and polyps in six patients. However, no lesion could be identified on endoscopy in 12 (3.6%) patients.

Among the 135 patients presented with peptic ulcer bleed, majority had Forrest Class III ulcer (n = 63, 46.7%) followed by Forrest Ib (n = 29, 21.5%), Forrest IIb (n = 15, 11.1%), Forrest IIa (n = 13, 9.6%), and Forrest IIc (n = 10, 7.4%). Only 5 (3.7%) patients had Forrest Ia ulcers with active spurting bleed. Of the 114 patients who presented with variceal bleed, 92 (80.7%) had only esophageal varices (small varices in 29 [31.5%] and large varices in 63 [68.5%]). While 19 (16.7%) patients had both esophageal and gastric varices, isolated gastric varices were seen in 3 (2.6%) patients with variceal bleed.

Table 1: Clinical presentation of patients presenting with upper gastrointestinal bleed

Presentation	*n* (%)
Hematemesis	205 (60.8)
Melena	171 (50.7)
Hematochezia	13 (7.4)
Postural symptoms	54 (16)
Hypotension	50 (14.8)
Altered sensorium	24 (7.12)

Table 2: Laboratory parameters in patients with acute upper gastrointestinal bleed

Parameter	Mean±SD
Hemoglobin (g/dl)	8.63±3.09
Platelet count ×10^3 cells/cumm	160.45±117.06
Blood urea (mg/dl)	60.90±43.18
Creatinine (mg/dl)	0.98±0.82
SGPT (IU/L)	50.38±70.71
SGOT (IU/L)	59.81±71.55
ALP (IU/L)	99.00±104.84
Bilirubin (mg/dl)	2.25±3.48
Albumin (g/dl)	3.532±0.59
PT (s)	21.33±12.00
INR	1.98±0.70

SGPT=Serum glutamate-pyruvate transaminase, SGOT=Serum glutamic-oxaloacetic transaminase, ALP=Alkaline phosphatase, PT=Prothrombin time, INR=International Normalized Ratio

Table 3: Etiology of upper gastrointestinal bleed

Endoscopic diagnosis	*n* (%)
Peptic ulcer disease including duodenal and gastric ulcer	135 (40.05)
Variceal bleeding	114 (33.8)
Mucosal erosive disease including esophagitis, gastritis, and duodenitis	36 (10.6)
Mallory-Weiss tear	8 (2.3)
Malignancy	10 (2.9)
Arteriovenous malformation	3 (0.8)
Gastric antral vascular ectasia	7 (2)
Dieulafoy lesion	7 (2)
Polyps	6 (1.78)
None identified	12 (3.6)

Etiology of bleed in different age groups

In patients <60 years (n = 191), variceal bleed accounting for 38.2% (n = 73), whereas 61.8% (118) patients had nonvariceal bleed. Furthermore, nonvariceal bleed was the more common cause of UGIB in patients aged ≥60 years (n = 146) years accounting for 71.9% (n = 105) of the cases.

Comorbidities, drug intake, and addiction in patients with upper gastrointestinal bleed [Tables 4 and 5]

One hundred and ninety-six (58.1%) patients of the study group had comorbidities. Of them, 114 (41.8%) patients had one long-term comorbidity, 60 (17.8%) patients had 2 comorbidities, and 22 (6.6%) patients had ≥3

comorbidities. The most common comorbidity was chronic liver disease 118 (35%). Diabetes mellitus present in 63 (18.6%) patients followed by hypertension in 83 (24.6%) patients. Other comorbidities were in seen in the form of Coronary artery disease (CAD) in 34 (10.8%), chronic obstructive pulmonary disease in 30 (8.9%), and past history of cerebrovascular accident in 11 (3.2%) patients.

Management of the patients

Patients were managed as per standard guidelines.[5,6] Eighty-eight (50.3%) patients required <2 PRBC transfusions, whereas 60 (34.3%) patients received 2–4 and 27 (15.4%) patients received >4 transfusions. The mean duration of hospital stay was 6.6 ± 5.79 days. Endotherapy was required in 112 (33%) in the form of combined gold probe and injection therapy in 24 (7.1) patients, Hemoclip (conventional) application in 18 (5.3%) patients, OVESCO clips [Figure 2] in 6 (1.7%) patients, and argon plasma coagulation [Figure 3] in 15 (4.4%) patients. While band ligation was done in 40 (11.8%) patients with esophageal varices, Ella stent [Figure 4] (self-expanding metal stents) was placed in 5 (1.4%) patients with refractory variceal bleed. Cyanoacrylate glue injection for fundal varices was done in 8 (2.3%) patients. To achieve hemostasis, ten patients also required additional hemospray powder administration.

Outcome of the patients [Figure 1]

While eleven (3.2) patients had rebleed, 9 (2.6%) patients died during hospitalization. Surgery was required in 6 (1.7%).

Table 4: Comorbidities, drug intake, and addiction in patients with upper gastrointestinal bleed

Comorbidity	(%)
CLD	118 (35)
COPD	30 (8.9)
CAD	34 (10.08)
CVA	11 (3.2)
CKD	9 (2.6)
Malignancy	13 (3.8)
Diabetes	63 (18.6)
HTN	83 (24.6)
NSAID	27 (8)
Antiplatelets	30 (8.9)
Vitamin K antagonist	4 (1.2)
Alcohol abuse	63 (18.7)

CLD=Chronic liver disease, COPD=Chronic obstructive pulmonary disease, CAD=Coronary artery disease, CVA=Cerebrovascular accident, CKD=Chronic kidney disease, HTN=Hypertension, NSAID=Nonsteroidal anti-inflammatory disease

Table 5: Number of comorbidities in patients with upper gastrointestinal bleed

Number of comorbidities	Frequency (%)
0	141 (41.8)
1	114 (33.8)
2	60 (17.8)
3	22 (6.6)

Comparison between patients with variceal and nonvariceal bleed [Tables 6 and 7]

With respect to age and gender, there was no significant difference between the patients with variceal and nonvariceal bleed. In the clinical presentation, hematemesis was significantly more seen in patients with variceal bleed, whereas melena and presence of abdominal pain were significantly more in patients with nonvariceal bleed ($P < 0.05$). While presence of chronic liver disease was as expected, significantly more in patients with variceal bleed, presence of CAD, cerebrovascular disease, and malignancies was significantly more in patients with nonvariceal bleed.

Alcohol consumption was noted significantly higher in patients with variceal bleed, whereas smoking, use of nonsteroidal anti-inflammatory drugs (NSAIDS), and antiplatelet were significantly higher in patients with nonvariceal bleed. The International normalized ratio (INR), serum bilirubin, and serum creatinine were significantly higher in patients with variceal bleed. Platelet count and serum albumin were significantly lower in patients with variceal bleed. Although the in hospital mortality was not significantly different, the rebleed rate and the need for surgery were significantly higher in patients with nonvariceal bleed.

Predictors of outcome

The following variables were analyzed in relation to outcome - age, gender, presence of hematochezia, presence of postural symptoms, hemodynamic instability on admission, presence of signs of liver cell dysfunction, laboratory parameters including blood urea, serum creatinine, platelet count, serum bilirubin, serum albumin, and INR, and blood transfusion requirements [Table 8].

Predictors of mortality

The following factors were associated with increased risk of mortality in patients undergoing UGIB - age: ≥65 years, blood transfusion: >2 units, blood urea: >50 mg/dl, and serum albumin: <3 g/dl. On multivariate analysis, age ≥65 years (odds ratio [OR]: 9.5, 95% confidence interval [CI]: 3.108–29.266), albumin <3 g/dl (OR: 3.1, 95% CI: 1.049–9.682), and serum creatinine >2 mg/dl (OR: 4.1, 95% CI: 1.068–8.591) were associated with increased mortality.

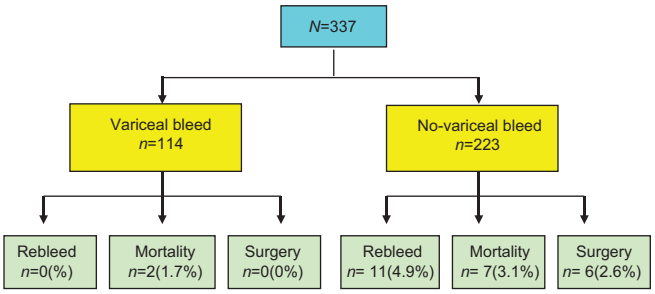

Figure 1: Outcome of the patients with acute UGI Bleed

Table 6: Differences in patients with variceal and nonvariceal bleed

Parameters	Variceal (*n*=114) (%)	Nonvariceal (*n*=223) (%)	*P*
Gender			
Male	91 (79.8)	181 (81)	0.768
Female	23 (20.2)	42 (19)	
Age	53.16±13.7	56.11±15.3	0.084
Hematemesis	98 (68)	109 (48.8)	0
Melena	8 (7)	163 (73)	0
Hematochezia	1 (0.8)	8 (3.5)	0.062
Pain abdomen	0	27 (12.1)	0
Smoking	11 (9.6)	51 (22.8)	0.031
NSAID use	0	27 (12.1)	0
Antiplatelet use	4 (3.5)	26 (11.6)	0.013
Anticoagulation	0	4 (1.7)	0.150
Alcohol abuse	43 (37)	20 (8.9)	0
CLD	105 (92.1)	13 (5.8)	0
CKD	1 (0.8)	8 (3.5)	0.144
CAD	1 (0.8)	33 (14.1)	0
CVA	0	11 (4.9)	0.016
GI malignancy	0	13 (10.3)	0.009
Hypotension	15 (13.1)	35 (15.7)	0.973
Postural symptoms	14 (12.2)	40 (17.9)	0.143
Rebleed rates	1 (0.8)	11 (4.9)	0.016
Need for surgery	0	6 (2.6)	0.07
Mortality index	2 (1.7) s	7 (3.1)	0.456

CLD=Chronic liver disease, CKD=Chronic kidney disease, CAD=Coronary artery disease, CVA=Cerebrovascular accident, GI=Gastrointestinal, NSAID=Nonsteroidal anti-inflammatory disease

Table 7: Comparison of laboratory parameters between patients of variceal and nonvariceal bleed

Parameter - mean	Variceal bleed (*n*=114)	Nonvariceal bleed (*n*=223)	*P*
Hemoglobin (g/dl)	8.66±2.66	9.46±3.23	0.197
Platelet count $\times 10^3$ cells/cumm	95±65.9	201±113	0.000
Blood urea (mg/dl)	52.25±38.99	60.20±46.9	0.716
Creatinine (mg/dl)	1.00±0.79	0.96±0.87	0.000
SGPT (IU/L)	44.95±95.24	30.85±28.60	0.563
SGOT (IU/L)	72.98±62.41	68.71±23.13	0.651
Bilirubin (mg/dl)	3.76±4.37	1.00±1.72	0.000
Albumin (g/dl)	2.21±0.61	3.80±0.42	0.000
INR	1.74±0.70	1.17±0.71	0.023

SGPT=Serum glutamate-pyruvate transaminase, SGOT=Serum glutamic-oxaloacetic transaminase, INR=International Normalized Ratio

Effect of comorbidity on outcome

There was a trend, although insignificant, toward increased mortality rates with increasing comorbidities. Furthermore, there was no significant difference between rebleed and surgery in relation to a number of comorbidities.

Discussion

UGIB is one of the common medical emergencies encountered in clinical practice. The etiology of UGIB may vary in different geographical regions. Population-based epidemiological data revealing the current trends in India are sparse. Even fewer studies are available which simultaneously study the outcomes of both variceal and nonvariceal bleed. In this study, we retrospectively analyzed the data of 337 patients from Eastern India who presented with acute UGIB.

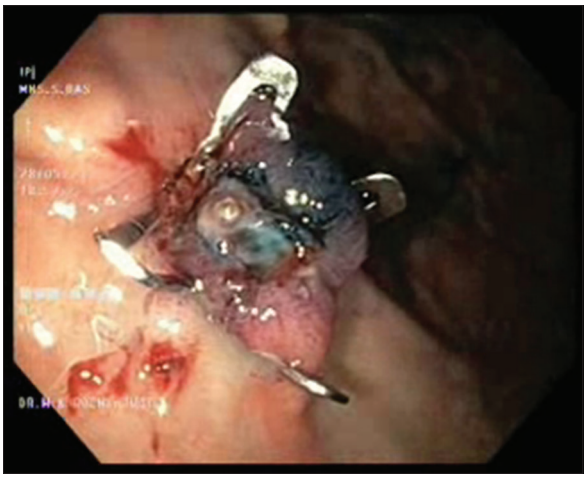

Figure 2: Actively bleeding duodenal ulcer, hemostasis achieved with OVESCO clip placement

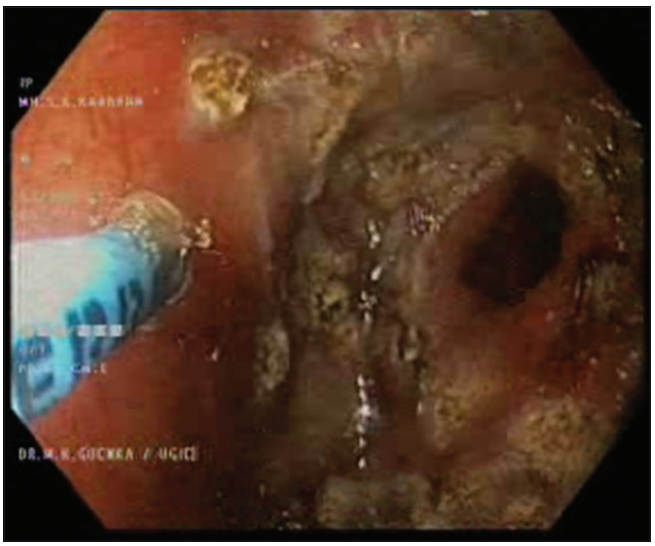

Figure 3: APC being done for bleeding gastric antral vascular ectasia

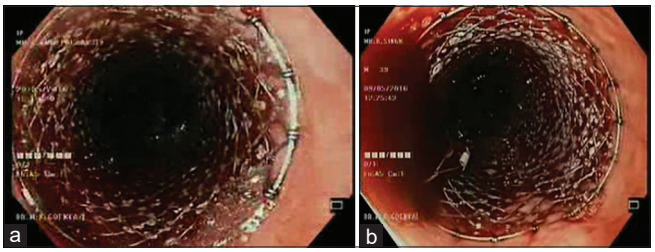

Figure 4: (a and b) Self-expandable esophageal covered metal stent (SX-ELLA Danis; Ella-CS, Hradec Kralove, Czech Republic) placed in a patient with refractory variceal bleed

Overall, the most common etiology of acute UGIB in our study was peptic ulcer disease (40%). Variceal bleed was the second most common (33%) etiology of UGIB in our study. This is in tune with the several previous studies [Table 9] which had shown peptic ulcer as the most common etiology of UGIB.[7-11] In addition, in a recent study from South India, peptic ulcer was found to be the most common etiology.[12] Another recent study from Middle East has shown that peptic ulcer disease is the most common cause of UGIB.[13] This shows that the trend is similar with regard to the etiology of UGIB. However, this is in contrast to the reported spectra from Northern and Western India that create the impression that variceal bleeding is the most common cause of UGIB in India.[14-17] This may be due to the regional differences in the prevalence of chronic liver disease.

Table 8: Variables analyzed for outcome in patients with acute upper gastrointestinal bleed

Variables analysed	*P*		
	Mortality	Rebleed	Surgery
Age ≥65 years	0	0.868	0.980
Gender	0.761	0.623	0.794
Presence of hematochezia	0.214	0.846	0.831
Presence of postural symptoms	0.970	0.067	0.061
Hemodynamic instability	0.083	0.351	0.337
Blood urea ≥50 mg/dl	0.032	0.362	0.219
Serum creatinine ≥2 mg/dl	0.034	0.184	0.023
Serum bilirubin ≥3 mg/dl	0.93	0.026	0.461
Serum albumin <3 g/dl	0.012	0.029	0.586
Platelet count ≤150×10^3 cells/cumm	0.869	0.042	0.273
INR ≥2	0.672	0.730	0.813
Hemoglobin on admission ≤7 g/dl	0.635	0.074	0.265
Number of comorbidities	0.213	0.432	0.784
Blood transfusion >2 units	0.023	0	0
Need for relook endoscopy	0.564	0.768	0.089

INR=International Normalized Ratio

In patients <60 (n = 191) years, variceal bleed accounted for 38.2% (n = 73), whereas 61.8% (118) patients had nonvariceal bleed. In addition, nonvariceal bleed was the more common cause of UGIB in patients aged ≥60 years accounting for 71.9% (n = 105) of the cases. These rates were similar to those obtained in a study conducted by Charatcharoenwitthaya *et al*.,[18] where the acid-related disorders formed the most common endoscopic diagnosis in patients with age ≥65 years with the incidence of peptic ulcer being 68%. Increased incidence of antiplatelet use for comorbidities and NSAID use could explain the increased incidence of peptic ulcers in these patients.[18]

The causes of UGIB in patients with liver cirrhosis can be grouped into two categories: The first includes lesions that arise by virtue of portal hypertension, namely, gastroesophageal varices and portal hypertensive gastropathy (PHG); and the second includes lesions seen in the general population (peptic ulcer, erosive gastritis, reflux esophagitis, Mallory–Weiss syndrome, tumors, etc.). In our study, among 118 patients with CLD, variceal bleed (n = 105 [92%]) was the most common cause of UGIB followed by peptic ulcer disease in 4%, PHG and GAVE in 3%, and mucosal erosive disease was seen in 1%. In another study evaluating the etiology of UGIB in CLD patients done by del Olmo *et al*., the most common etiology was variceal bleed 53.1% followed by peptic ulcer bleed 18.7% and Mallory–Weiss tear 3.7%.[19]

The clinical presentation of UGIB may vary. In our study, the clinical presentation of the patient was mainly in the form of

Table 9: Comparison of etiological spectrum of upper gastrointestinal bleed in different regions of India

	Present study Kolkata	Odisha[9]	New Delhi[14]	Mumbai[15]	Chennai[10]	Kerala[11]	Ahmedabad[16]	Shimla[17]
Year of study	2016	2012	1983	2001	2007	2009	2008	2005
Study population (n)	337	608	408	398	408	1582	100	111
PUD (duodenal ulcer + gastric) (%)	40.2	58.75	30	15.3	17.88	35.	14	61.9
Variceal bleed (%)	33.8	12.83	45.5	56	33.33	30.97	37	10.8
Erosive gastritis (%)	10.6	1.18	8.5	4.5	43.6	13	14	11.7
Malignancy (%)	2.9	7.89	NA	0.75	2.4	2	9	7.2

NA=Not available, PUD=Peptic ulcer disease

Table 10: Comparative outcomes of patients with upper gastrointestinal bleed in various studies

Author	Study type, country	Year, number of patients	Rebleed (%)	Mortality total (%)	Surgery (%)
Current study	Retrospective, India	2013-2015, 337	3.2	2.6	1.7
Shrestha and Sapkota[20]	Prospective, Nepal	2010-2013, 589	7.5	6.1	1.2
Simon *et al*.[12]	Prospective	2012, 214	8.9	5.1	3.7
Ragesh *et al*.[13]	Prospective, Qatar	2012, 251	8.3	10.3	4.7
van Leerdam[8]	Prospective, Netherlands	2000, 769	16	13	7
Sato *et al*.[22]	Retrospective, Japan	2003-2010, 9987	NA	16.8	NA
Del Piano *et al*.[25]	Retrospective, Italy	2006-2007, 1413	5.4	4	14.3

NA=Not available

hematemesis (60.8%). While 50% of patients presented with melena. Hematemesis was significantly higher in patients with variceal bleed, whereas melena and presence of abdominal pain were significantly more in patients with nonvariceal bleed ($P < 0.05$). As esophageal varices and gastric varices bleed more acutely and in proximity to the oral cavity, these patients tend to present more with frank hematemesis as compared to patients with PUD. Among the 135 patients presented with peptic ulcer bleed, majority of patients had clean-based ulcers (Forrest Class III ulcer [$n = 63$, 46.7%]) followed by Forrest Ib ($n = 29$, 21.5%), Forrest IIb ($n = 15$, 11.1%), Forrest IIa ($n = 13$, 9.6%), and Forrest IIc ($n = 10$, 7.4%). Only 5 (3.7%) patients had Forrest Ia ulcers with active spurting bleed. Endoscopic therapy was given to those with active bleeding, a nonbleeding visible vessel, an adherent clot, or bleeding esophageal varices.

In our study, with respect to age and gender, there was no significant difference between the patients with variceal and nonvariceal bleed. In the clinical presentation, hematemesis was significantly more seen in patients with variceal bleed, whereas melena and presence of abdominal pain were significantly more in patients with nonvariceal bleed ($P < 0.05$). While presence of chronic liver disease was significantly more in patients with variceal bleed, presence of CAD, cerebrovascular disease, and malignancies was significantly more in patients with nonvariceal bleed. Alcohol consumption was noted significantly higher in patients with variceal bleed, whereas smoking, use of NSAIDS, and antiplatelets were significantly higher in patients with nonvariceal bleed. INR, serum bilirubin, and serum creatinine were significantly higher in patients with variceal bleed. Platelet count and serum albumin were significantly lower in patients with variceal bleed. These parameters thus actually give a clue toward the etiology of UGIB and may help in starting early appropriate therapy. Although the mortality index was not significantly different, the rebleed rate and the need for surgery were significantly higher in patients with nonvariceal bleed.

The management of patients with acute UGIB requires appropriate resuscitation, fluid and blood transfusion, and use of PPI. Vasopressin and octreotide in appropriate circumstances. Endotherapy may be required in a proportion of patients in the form of injection adrenaline, thermal coagulation, application of Hemoclips and band, and sclerosing agents in case of varices. In our study, endotherapy was required in 112 (33%). Hence, a significant (66%) proportion of patients did not require any form of endotherapy, rather were only managed medically. This highlights the importance of medical management in patients with UGIB.

The outcome of UGIB is varied [Table 10]. Few studies have shown a decrease in rates of mortality and rebleeding. However, other studies have failed to reproduce the same results. The mortality due to this condition has largely remained unchanged. Traditionally quoted as between 3% and 10%,[20-25] more recent studies have shown improved inpatient mortality rates of 2–2.5%.[26,27] In our study, the mortality index was 2.6% which comparatively low. This decrease in mortality may be attributed to early presentation of the patient to the hospital and appropriate management. As ours is a tertiary care, a well-equipped hospital in a metropolitan city of Eastern India, the patient generally comes from nearby areas early on. Furthermore, increased public awareness of the medical illness over the years may contribute to early presentation to the hospital.

Various factors may predict the outcome of UGIB. Of them, albumin level <3.0 g/dL (A), INR >1.5 (I), altered mental status (M), systolic blood pressure ≤90 mmHg (S), and age >65 years have been shown significantly affect the outcome of acute UGIB.[28] In our study, on multivariate analysis, age ≥65 years (OR: 9.5, 95% CI: 3.108–29.266), albumin <3 g/dl (OR: 3.1, 95% CI: 1.049- 9.682), and serum creatinine >2 (OR: 4.3, 95% CI: 1.069–8.642) were predictors of increased mortality.

Conclusions

It can be concluded from our study that peptic ulcer disease is the most common cause of UGIB whereas, and variceal bleed is the second most common cause of UGIB. In the clinical presentation, hematemesis is seen significantly more seen in patients with variceal bleed, whereas melena and presence of abdominal pain are more in patients with nonvariceal bleed. The presence of CAD, cerebrovascular disease, and malignancies is seen more commonly in patients with nonvariceal bleed. Alcohol consumption is noted to be significantly higher in patients with variceal bleed, whereas smoking, use of NSAIDS, and antiplatelets were significantly higher in patients with nonvariceal bleed. INR, serum bilirubin, and serum creatinine were significantly higher in patients with variceal bleed. Platelet count and serum albumin were significantly lower in patients with variceal bleed. Although the in hospital mortality was not significantly different, the rebleed rate and the need for surgery were significantly higher in patients with nonvariceal bleed. There was a trend toward increased mortality in patients with an increasing number of comorbidities. The mortality rate was low in our study, also the rebleed rate and need of surgery were less frequent. Elderly age, albumin <3 g/dl, and serum creatinine >2 mg/dL were found to be important predictors of mortality. Majority of the patients could be managed medically. Only one-third of patients required some form of endotherapy.

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Conflicts of interest
There are no conflicts of interest.

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