Original Research Article

Endoscopic profile and clinical outcome of patients presenting with upper gastrointestinal bleeding

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ABSTRACT

Background: Acute upper gastrointestinal bleeding is a common medical emergency with significant mortality. The aim of the present study is to study endoscopic profile and clinical outcome of patients presenting with upper gastrointestinal bleeding in this region.
Methods: This prospective observational study carried out on 100 patients admitted with upper gastrointestinal bleeding. All patients included in study underwent upper gastrointestinal endoscopy after initial evaluation and stabilization. Status of study group patients was noted at discharge. Patients were telephonically contacted at day 15 and were asked about rebleed, readmission for gastrointestinal bleed or death of the patient.
Results: The mean age of patients was 48.98 ±14.50 years with male to female ratio of 2.57:1. The most common lesions causing UGI bleed were related to portal hypertension (esophageal and gastric varices) and were seen in 67% of patients. Non portal hypertensive lesions causing UGI bleed (peptic and other lesions) were seen in 46% patients. Twenty six percent patients had combination of lesions while endoscopy was normal in 3% patients. Rebleeding within 15 days was seen in 11 patients out of whom 3 died during same admission. Out of other 8 patients with rebleed, readmission was seen in 6 patients while 2 patients had minor bleed. We found no correlation of mortality and rebleed with factors like age, history of liver disease, diabetes, NSAIDs use, peptic ulcer disease and presence of cirrhosis. However the correlation between rebleed and death was found to be statistically significant.
Conclusions: Portal hypertension is the most common cause of upper gastrointestinal bleeding in this region. There is strong correlation between rebleeding and death. However there is no correlation between age, history of liver disease, diabetes, NSAIDs use, peptic ulcer disease and presence of cirrhosis with rebleed or mortality.

Keywords: Causes of upper gastrointestinal bleed, cirrhosis, Duodenal ulcer, Gastric ulcer, Gastrointestinal bleeding

INTRODUCTION

Upper gastrointestinal bleeding refers to blood loss within the intraluminal gastrointestinal tract from any location between the upper esophagus to the duodenum at the level of the ligament of Treitz.[1] It is a common medical emergency associated with significant morbidity and mortality. The overall incidence of acute upper gastrointestinal hemorrhage has been estimated at 50 to 100 per 100,000 patients per year, with an annual hospitalization rate of approximately 100 per 100,000 hospital admissions.[2,3] Causes of UGI bleed have been classified to variceal (e.g. esophageal and gastric varices) and non-variceal (e.g. peptic ulcer, erosive gastroduodenitis, reflux esophagitis, tumor, vascular ectatsia, etc.).[4] *Helicobacter pylori (H. pylori)* infection and the use of nonsteroidal antiinflammatory drugs (NSAIDs) are two of the major risk factors for peptic

ulcers and ulcer complications.[5] Variceal bleed is the major cause of upper gastrointestinal bleeding in cirrhotic patients, accounting for 70% of cases.[6] Mortality during the first episode is estimated to 15-20%, but is higher in severe patients (Child Pugh C), at around 30%, whereas it is very low in patients with compensated cirrhosis (Child Pugh A).[7] The main predictors of bleeding in clinical practice are: large versus small varices, red wale marks, Child Pugh C versus Child Pugh A–B.[8] The primary diagnostic test for evaluation of UGI bleed is endoscopy.[9] Early endoscopy and endoscopic appearance of certain lesions helps to guide care and thereby reduce the costs and duration of hospitalization.[10,11] At present, there is a paucity of data on endoscopic profile and clinical outcome of patients of UGI bleed from this region. Therefore, this study was planned with an aim to identify clinical and endoscopic profile of patients admitted with UGI bleed and to determine their clinical outcome.

METHODS

This observational prospective study was carried out on patients admitted with UGI bleed. Study was conducted over 9 months from August 2018 to May 2019 and included 100 patients presenting with upper gastrointestinal bleed. Written and informed consent was taken from every patient. Clearance was taken from ethical committee of our institute before undertaking this study. The study included patients aged 18 and above who were admitted with complaint of UGI bleed. Patients who were unfit for upper gastrointestinal endoscopy (UGIE) such as in or unconscious patients were excluded from the study. Patients were subjected to upper gastrointestinal endoscopy and endoscopic findings (and therapeutic procedure if any) were noted down. Status of all patients who underwent upper gastrointestinal endoscopy in this study was noted at the time of discharge/death. Patients were telephonically contacted 15 days after discharge and were asked about rebleed, readmission for gastrointestinal bleed or death of patient. Collected data was analyzed using statistical methods such as mean, median, standard deviation (SD) per value and Chi-square test/ Fisher's exact test. The results were displayed in tables with categorical variables presented as numbers and percentages, and the continuous variables presented as mean ± SD.

RESULTS

The study comprised of 100 patients presenting with of UGI Bleed during the study period. The mean age in the study population was 48.98 ±14.50 years and the male to female ratio was 2.57:1 (M: 72, F: 28). Epidemiological and clinical profile of patients is shown in Table 1.

In this study most common lesions causing UGI bleed were related to portal hypertension (esophageal varices, gastric varices) and were seen in 67% of patients (Figure 1). In patients with variceal UGI bleed, esophageal varices were seen in 62% cases, gastric varices in 2%,

esophageal + gastric varices in 3%, PGH + esophageal varices in 18% and PHG alone in 3% patients. Non portal hypertensive lesions causing UGI bleed were seen in 46% patients and various lesions noted on endoscopy are shown Figure 1. Twenty six patients had more than one kind of lesions on endoscopy as shown in Table 2.

Table 1: Epidemiological and clinical profile of patients.

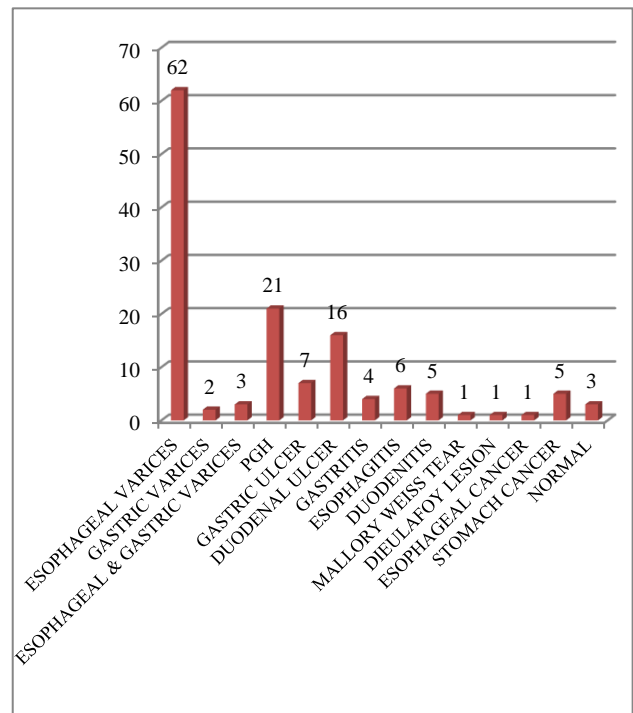| Clinical parameter	Number of patients	Percentage of patients
Males	72	72.0
Females	28	28.0
Hematemesis	79	79.0
Melena	81	81.0
Hematemesis and melena	60	60.0
Regular alcohol intake	49	49.0
Tobacco smoking and chewing	22	22.0
NSAIDs use	14	14.0
History of liver disease	54	54.0
History of variceal ligation	19	19.0

Figure 1: The endoscopic diagnosis of patients with UGI bleed.

In 3% patients UGIE was normal. In this study, 65 patients underwent endoscopic variceal ligation (EVL) of esophageal varices and 5 patients were injected with cyanoacrylate glue into the gastric varices. Out of the total of 23 patients with ulcer related bleed, 9 patients underwent endotherapy (adrenaline injection) and rest of

the lesions did not warrant any endoscopic intervention. One patient with duodenal ulcer needed surgical intervention due to failure of endotherapy. The endoscopic diagnosis of patients with UGI bleed cases are shown in Figure 1.

Table 2: Various combinations of lesions in seen in single patients

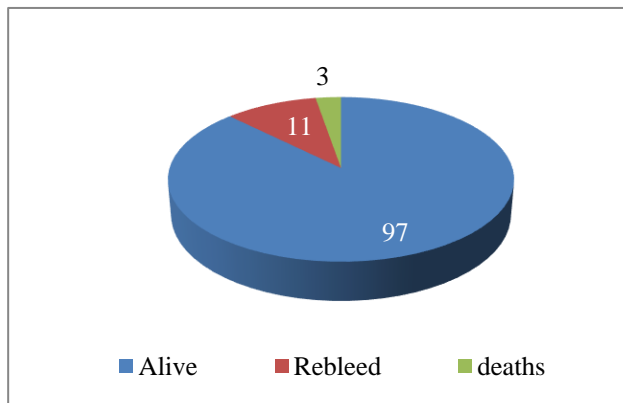|	
Varices+PHG	14 (14.0)
Varices+peptic ulcer	3 (3.0)
Varices+erosions	1 (1.0)
Varices+PHG+peptic ulcer	2 (2.0)
Varices+PHG+erosions	2 (2.0)
Varices+peptic ulcer+erosions	1 (1.0)
Gastric ulcer+erosions	3
Duodenal ulcer+erosions	1
Gastric ulcer+stomach cancer	1
PHG+erosions	2
PHG+duodenal ulcer+erosions	1

Figure 2: Clinical outcome of patients with UGI bleed.

In the present study, 11 (11%) patients rebled within 15 days of the initial presentation. Out of those 11 patients

with rebleeding, 3 (3%) patients died and all the deaths happened during same hospital stay (Figure 2). Eight patients had rebleeding after the discharge and out of them 6 got readmitted while 2 patients had minor bleed not warranting readmission.

Table 3: Age distribution of mortality and rebleed.

Age (in years)	Death	Rebleed
8-20	0	1.0%
21-30	0	3.0%
31-40	0	0.0%
41-50	2	5.0%
51-60	0	1.0%
61-70	1	1.0%
71-80	0	0.0%
81-90	0	0.0%
Total	3	11%
P value	0.722	0.231
Significance	Non significant	Non significant

In this study we analyzed the correlation of mortality and rebleed with different variables using Chi‑square test/ Fisher's exact test as shown in Table 3&4.

However correlation of mortality with age, comorbidities like diabetes and liver disease was not found to be statistically significant. Also correlation between mortality and etiologic factors such as NSAIDs/Antiplatelets use, peptic ulcer disease and cirrhosis with portal hypertension was not significant. Similarly no correlation was found between rebleed and age, NSAIDs, antiplatelets use, alcohol intake, smoking and tobacco consumption. Correlation between rebleed and history of liver disease, cirrhosis with portal hypertension and peptic ulcer disease was also statistically insignificant. However we found strong correlation between rebleed and death (Table 5).

Table 4: Correlation of death and rebleed with various clinical factors.

Clinical factors	Death			Rebleed		
	Percentage	P value	Significance	Percentage	P value	Significance
Diabetes	0.0	0.656	Non significant	2.0	0.588	Non significant
NSAIDs	0.0	0.633	Non significant	2.0	0.477	Non significant
Antiplatelets	0.0	0.885	Non significant	0.0	0.623	Non significant
Alcohol	1.0	0.42	Non significant	4.0	0.286	Non significant
Tobacco	0.0	0.35	Non significant	1.0	0.25	Non significant
History of liver disease	1.0	0.440	Non significant	4.0	0.178	Non significant
Portal hypertension/ cirrhosis	2.0	0.676	Non significant	5.0	0.073	Non significant
Peptic ulcer disease	1.0	0.548	Non significant	4.0	0.223	Non significant

Table 5: Correlation of rebleed and mortality.

Death	Rebleed	
	Number	**Percentage**
Yes	3	3.0
No	8	8.0
Total	11	11.0
P value	0.001	Highly significant

DISCUSSION

In our study majority of the patients (56%) were in the age group of 41-60 years and the mean age came out to be 48.98±14.50 years. Previously done studies from India have shown similar age profile of the patients. A study done by Kumar P et al reported mean age of 47.03 years.[12] In another study by Deep Anand et al, mean age of patients were 49±14.26 years.[13] The mean age of our study was also comparable to the studies done by Jain, Dewan and Prasad.[14-16] However a study done in UK by Hearnshaw et al reported much higher mean age of 64.4 years.[17] Majority of our patients were males with male to female ratio being 2.57:1 and similar male preponderance was seen in previous studies conducted in India and abroad possibly due the higher prevalence of risk factors like smoking and alcohol consumption among males.[13,17,18]

In the present study hematemesis was observed in 79% of the patients and 81% had melena as the presenting complaint. Majority of the patients had both hematemesis and melena as the presenting complaint as reported in study by Anand et al and Mahajan et al.[13,19] Variations in presentation among the cases of upper GI hemorrhage in the present study compared to other studies may be explained by the fact that hematemesis and melena are dependent upon the rate, amount and site of bleeding. Duodenal ulcer is likely to be present with melena more frequently than hematemesis while a bleeding gastric ulcer or esophageal varices patient may present with hematemesis more frequently than melena.

In our study 54% patients reported history of liver disease. A similar incidence was obtained in a study by Gado et al with 50% of the patients having history of liver disease.[20] In other studies lower incidence was seen. Study by Hearnshaw et al reported history of liver disease in 9% of the patients and in 4.2% of the patients as reported by Minakari et al.[17,21] A Tanzanian study had history of liver disease in 16.9% of the patients.[22] The high number of patients with underlying liver disease could be due to high prevalence of alcoholic cirrhosis and hepatitis C in this region.[23,24] There is a surge of alcohol related morbidity at a global scale and the Indian scenario is similar, with earlier age at alcoholism, an increasing per capita intake as well as trends of increasing "at risk" drinking as accompaniments of urbanization, globalization and a westernized lifestyle that the country is adopting.[25]

In this study history of regular alcohol intake was present in 49% of the patients. A study from Sikkim showed that 87% of the patients had history of alcohol consumption.[18] A similar study conducted by Anand et al showed history of alcohol consumption in 53.5% patients.[13] As mentioned earlier there is increased intake of alcohol in this part of the country. According to Global status report on alcohol and health 2018 by WHO, alcohol per capita consumption has increased in India from 4.3 liters in 2010 to 5.7 liters in 2016.

In our study varices were found in 67% of the patients followed by portal hypertensive gastropathy (21%). In 16% of the patients duodenal ulcer(s) were found and gastric ulcer(s) were found in 7% of the patients. Gastric varices, duodenitis and stomach cancer each constituted 5% of the patients. Esophagitis was found in 6% of the patients and gastritis in 4%. Dieulafoy lesion, Mallory weiss tear and oesophagus cancer each constituted 1% of the patients. In 3% of the patients on endoscopy normal study was obtained. No patient had gastric antral vascular ectasia (GAVE). In a study conducted by Anand D et a the most common cause of UGI bleed was portal hypertension related (esophageal and gastric varices) seen in 56.14% of patients, peptic ulcer related bleed was seen in 14.91% patients, gastric erosions were responsible for bleed in 12.28% patients, Mallory–Weiss tear was seen in 8.77% cases, gastric malignancy accounted for 4.38% of cases, Dieulafoy's lesion was responsible for bleed in 1.75% cases.[13] A study conducted by Jyoti Jain et al in Central India out of 118 patients who underwent endoscopy 47.4% had esophageal varices, 27.1% had portal hypertensive gastropathy, 14.4% had gastric erosions, 5.9% each had duodenal ulcers and esophagitis, 5% had gastric ulcer disease, 4.2% each had Mallory Weiss tear and had gastric malignancy, 1.7% had esophageal malignancy and 16.1% had normal endoscopic findings.[14] In our study, we had more than half of patients with portal hypertension related bleed secondary to cirrhosis of the liver, which are sicker than patients with other causes of GI bleed. Our being a tertiary referral center, many of these sick patients are referred to our center for evaluation and management therefore higher percentage of variceal bleed may be a referral bias in this study. Also incidence of alcohol intake[23] and Hepatitis C is more in this part of the country.[24] Normal endoscopic findings in 3% of the patients can be explained due to delay in endoscopy and minor mucosal lesions are well known to heal quickly and so the time interval between the bleeding episode and endoscopy influences endoscopic diagnosis.

In our study rebleeding within 15 days of the initial presentation was found in 11% of the patients (Figure 2). Out of them 5 had varices on UGIE, 4 had Peptic ulcer, 1 each had Mallory weiss tear and stomach cancer. Studies done by Prasad et al, Hearnshaw et al and Minakari et al showed rebleeding in 11.9%, 13% and 16.7% of the patients respectively.[16,17,21] However a study from

Tanzania[22] and by Gado et al reported rebleeding in 3.3% and 6% respectively.[20]

Death within 15 days of the initial presentation was found in 3% of the patients (Figure 2). All were in hospital deaths. Variability in death rate was observed in different studies. Indian studies reported death as 8.6%, 21%, 2.8% and 5.8%.[16,13,18,19] The low death rate as compared to the other studies can be due to timely therapeutic endoscopy, effective resuscitation and exclusion of unstable patients.[13,16,17,20,22] Also it can be attributed to low sample size of the study.

In our study we found no correlation between mortality and rebleeding with age, co morbidities (diabetes and liver disease), NSAIDs use, peptic ulcer disease and cirrhosis (Table 3 &4). This is in contrast to the various studies which showed a significant association between the variables. A study done by Prasad et al found factor associated with recurrent bleeding and mortality was chronic liver disease.[16] Similarly Anand D et al concluded that majority of mortality was seen in portal hypertension related bleeding.[13] A UK study found that mortality was highest in those with variceal bleeding (15%).[17] A study done by Minakari et al found that rebleeding (present in 16.5% of patients), was found to be more frequent in patients with older age, history of taking NSAIDs and smoking, presence of comorbidities and esophageal varices.[21] They found that mortality was also higher in the same group of patients that were seen to have a higher tendency for rebleeding. A Tanzanian study showed that the mortality rate of was significantly higher in patients with variceal bleeding, hepatic decompensation, comorbidities, malignancy, age>60 years.[22] Lack of correlation in our study can be attributed to the wide spread use of vasoconstrictors and small sample size.

However we found significant correlation between rebleeding and death (Table 4). Out of 11 patients who rebled in our study, 3 patients died during admission period. This fact was also observed in other studies. In a study done by Anand et al it was observed that increased mortality rate was seen in the patients who rebled during the same admission.[13] A similar study from Nepal reported rebleeding in 5 patients after 24 hours of performing UGIE out of which 4 patients expired.[15] Hearnshaw et al reported rebled in 13% of the patients and 27% of those patients died.[17] We recognize the limitations of the present study. The most important of them being that sample size though adequate for detection of endoscopic lesions, was inadequate for the subgroup analysis. The present study was a single center study and hence not reflects the wider population.

CONCLUSION

Portal hypertension is the most common cause of upper gastrointestinal bleeding in this region. There is strong correlation between rebleeding and death. However there is no correlation between age, history of liver disease, diabetes, NSAIDs use, peptic ulcer disease and presence of cirrhosis with rebleed or mortality. Mortality in patients with UGI bleed is low and could be due to small sample size and exclusion of very sick patients.

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