A Study of Clinical and Endoscopic Profile of Acute Upper Gastrointestinal Bleeding

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Citation

Dewan KR, Patowary BS, Bhattarai S. A Study of Clinical and Endoscopic Profile of Acute Upper Gastrointestinal Bleeding. *Kathmandu Univ Med J* 2014;45(1):21-25.

ABSTRACT

Backgroud

Acute Upper Gastrointestinal Bleeding is a common medical emergency with a hospital mortality of approximately 10 percent. Higher mortality rate is associated with rebleeding. Rockall scoring system identifies patients at higher risk of rebleed and mortality.

Objective

To study the clinical and endoscopic profile of acute upper gastrointestinal bleed to know the etiology, clinical presentation, severity of bleeding and outcome.

Method

This is a prospective, descriptive hospital based study conducted in Gastroenterology unit of College of Medical Sciences and Teaching Hospital, Bharatpur, Nepal from January 2012 to January 2013. It included 120 patients at random presenting with manifestations of upper gastrointestinal bleed. Their clinical and endoscopic profiles were studied. Rockall scoring system was used to assess their prognosis.

Result

Males were predominant (75%). Age ranged from 14 to 88 years, mean being 48.76+17.19. At presentation 86 patients (71.7%) had both hematemesis and malena, 24 patients (20%) had only malena and 10 patients (8.3%) had only hematemesis. Shock was detected in 21.7%, severe anemia and high blood urea were found in 34.2% and 38.3% respectively. Upper Gastrointestinal Bleeding endoscopy revealed esophageal varices (47.5%), peptic ulcer disease (33.3%), erosive mucosal disease (11.6%), Mallory Weiss tear (4.1%) and malignancy (3.3%). Median hospital stay was 7.28+3.18 days. Comorbidities were present in 43.3%. Eighty six patients (71.7%) had Rockall score < 5 and 34 (28.3%) had >6. Five patients (4.2%) expired. Risk factors for death being massive rebleeeding, comorbidities and Rockall score >6.

Conclusion

Acute Upper Gastrointestinal bleeding is a medical emergency. Mortality is associated with massive bleeding, comorbidities and Rockall score >6. Urgent, appropriate hospital management definitely helps to reduce morbidity and mortality.

KEY WORD

Comorbiditis, massive bleed, rockall score, upper gastrointestinal bleed

INTRODUCTION

Acute upper gastrointestinal (UGI) bleeding is defined as bleeding proximal to the ligament of Treitz.[1] It is one of the common medical emergencies that have a hospital mortality of approximately 7% to 10%.[2] The incidence of UGI bleeding is estimated to range from 50 to 150 cases per 100 000 population in developed countries.[3] Despite the advances in therapeutic management, mortality has remained unchanged which may be due to increased longevity, comorbid conditions in the elderly, liver disease, frequent use of non-steroidal anti-inflammatory drugs (NSAID) and anticoagulants.

Non variceal UGI bleeding is the most common cause where peptic ulcer disease accounts for 50% to 70%.[4] Oesophageal varices account for less than 10% of all causes of GI haemorrhages but have a very high mortality rate of at least 30% during their initial hospitalization, with a one year mortal¬ity rate approaching 60%.[5] Other less common causes are inflammatory lesions, Mallory Weiss tears, angiodysplasia, and Dieulafoy's lesion.[6] Rebleeding after hospital admission is associated with higher mortality. Various tools have been described for the prediction of outcome of the patients with acute UGI bleeding. In 1993, the Rockall Scoring system was introduced to predict the mortality and was validated for its use to identify the patients at high risk for rebleed and mortality.[7] In the present study we tried to identify the etiology of acute UGI bleed, clinical profiles of the patients and predict the mortality using the Rockall scoring system in patients admitted in College of Medical Sciences, Bharatpur, Nepal.

METHODS

This study was conducted in the Gastroenterology Unit of College of Medical Sciences teaching Hospital, Bharatpur, Nepal from Jan 2012 to Jan 2013 after clearance from ethical committee. One hundred and twenty patients who presented with features of acute upper gastrointestinal bleeding i.e. hematemesis, malena or syncope were hospitalized randomly irrespective of age, sex or comorbidities after obtaining written consent from the patient and/or their relatives. In emergency department, hemodynamic assessment was done with careful measurement of pulse and blood pressure including orthostatic changes and urine output. Patients were first hemodynamically stabilized; blood transfusion was given when required. Complete hemogram, biochemical tests including blood urea level, liver function tests, chest x-ray, ultrasonography of abdomen were done in all the patients.

Once the patient was hemodynamically stable, upper GI endoscopy was performed using PENTAX EPK 700 Endoscope. Rockall scoring system was used to predict the prognosis and rebleeding by dividing the patients into two groups i.e. Group I with Rockall score <5 and Group II with score > 6. Specific therapy was given depending upon the case. Patients with peptic ulcer disease were treated with IV Pantoprazole 80 mg IV bolus followed by 8 mg/hour in infusion for 48-72 hours and patients with esophageal varices were treated with IV Octreotide 50 mcgm/hour in infusion for at least 72 hours. Esophageal variceal banding was done in patients of portal hypertension at the time of doing diagnostic endoscopy. Comorbidities or complications of cirrhosis were managed with the standard protocols. Patients were observed in hospital for rebleed for at least 5 to 7 days. Data were analysed using spss ver 16.

RESULTS

This is a hospital based prospective and descriptive study. The present study comprised of 120 patients of acute UGI bleeding. The age ranged from 14 to 88 years, mean age being 48.76+17.19. Ninety patients (75%) were male and 30 patients (25%) were female with M:F = 3:1.

Eighty six patients (71.7%) presented with both hematemesis and malena, while 24 patients (20%) presented with only malena and 10 patients (8.3%) presented with only hematemesis. At the time of presentation, 26 patients (21.7%) had shock i.e. systolic blood pressure < 90 mm Hg, 41 patients (34.2%) had severe anemia (Hemoglobin <7gm%) and 46 patients (38.3%) had blood urea level (>45mg/dl).

Upper GI Endoscopy was done in all the patients to identify the cause of bleeding (Table 1). Majority of the patients (47.5%) had esophageal and gastric varices, where 49 patients were cirrhotics and 7 patients were non cirrhotic. Peptic ulcer disease was detected in 40 patients (33.3%). They were further classified according to Forrest classification. One patient (2.5%), 5 patients (12.5%), 28 patients (70%) and 6 patients (15%) were classified as Forrest IB, IIB, IIC and III respectively. Mallory Weiss tear was seen in 5 patients (4.1%). Erosive mucosal disease was found in 14 patients (11.7%). Four patients (3.3%) had GI bleeding secondary to malignant lesions-esophageal carcinoma, gastrointestinal stromal tumor (GIST) and gastric adenocarcinoma were detected in 1 (0.83%), 1 (0.83%) and 2 (1.6%) patients respectively.

Eighty six patients (71.7%) had Rockall score < 5 and 34 (28.3%) had >6. Comorbidities were present in 52 (43.3%) patients (Table 2). UGI endoscopy was done within 24 hours in 92 patients (76.7%), within 48 hours in 22 patients (18.3%) and after 48 hours in 6 patients (5%). None of the patients had rebleed after UGI endoscopy within 24 hours, however massive rebleeds (after 24 hours of endoscopy) was present in 5 (4.1%) patients, 4 patient of whom ultimately expired and only 1 patient survived.

The median hospital stay was 7.28+3.18 days. Blood transfusion was done in 93 patients (77.5%), some requiring up to 28 units, and mean number of transfusion being 2.94+3.57 units. One hundred and fifteen patients

Table 1. Etiology of upper gastrointestinal bleeding (n=120).

Endoscopic diagnosis	No of Patients	Percentage
Varicial bleeding	56	47.5%
Esophageal varices	57	
Cirrhosis of liver with portal hypertension	49	
Non cirrhotic portal hypertension	7	
Gastric varices	1	
Peptic Ulcer Disease	40	33.3%
Gastric Ulcer	23	
Duodenal Ulcer	16	
Gastric with DU	1	
Erosive mucosal disease	14	11.6%
Esophagitis	1	
Esophageal Ulcer	3	
Erosive Gastritis	2	
Hemorrhagic Gastritis	2	
Erosive Duodenitis	6	
Mallory Weiss Tear	5	4.1%
Malignancy	4	3.3%
Squamous cell carcinoma (esophagus)	1	
Adenocarcinoma of stomach	2	
Gastrointestinal stromal tumor (GIST)	1	
Total	120	100%

Table 2. Comorbidities associated with upper gastrointestinal bleeding (n=52).

Comorbidities	No of Patients	Percentage
GI and Hepatobiliary	17	32.6%
Cardiovascular	6	11.5%
Renal	9	17.3%
Neurological	4	7.6%
Respiratory	8	15.3%
Others	8	15.3%
Total	52	100%

(95.8%) recovered and discharged from the hospital and 5 patients (4.2%) expired. In the expired group (2 males and 3 females), 4 had portal hypertension with bleeding esophageal varices and cirrhosis of liver with Child Pughs C- 3 being alcoholic and 1 had cryptogenic cirrhosis of liver. The 5th patient had valvular heart disease with congestive cardiac failure and pancytopenia. All of them had Rockall score >6. Risk factors for death being massive rebleeding, comorbities and Rockall score >6. No surgical intervention was done in this series.

DISCUSSION

The mean age is variably reported in different series. In the present study, mean age was 48.76+17.19 which is similar to studies reported by from Nepal Gurung et al and Hussein et al that showed mean age 45.32+18.47 years and 44.6 years respectively.[8,9] From India, Anand et al reported mean age being 41 years and Rao et al reported a mean age of 43 years, from West Indies, Kaliamurthy et al reported higher mean age of 55 years.[10-12] Recent published UK audit showed even higher mean age of 64.4.[13]

In our study male patients were 75% and female 25%. In other parts of Nepal also, male predominance was reported by Bhattarai et al 71% and Gurung et al 64.4%.[8,14] Similarly in other studies also male to female ratio 3:1 and 3.2:1, 70.1% male in Jamaican study, 79% male in Sudan study, 78.4% males reported by Kashyap et al and 59% in UK audit.[9-13,15] In Nepal various risk factors like smoking and alcohol consumption that are commoner in male population might have some role in the contribution to UGI bleeding.

Greater number of patients in our study presented with malena i.e 110 patients (91.7%) of whom 86 patients (71.7%) presented with both hematemesis and malena. In the present study 26 patients (21.7%) had hypotension (systolic blood pressure <90 mm Hg) which was similar to 20% reported by Bessa et al.[16] These patients were timely resuscitated with intravenous fluid replacement, blood transfusion and intravenous proton pump inhibitors and octreotide. UGI endoscopy was done within 24 hours in 92 patients (76.7%). Esophageal variceal banding was performed when active bleeding or stigmata of recent hemorrhages were noticed at the time of diagnostic endoscopy.

The incidence of upper GI bleeding appears to be decreasing due to the prescription of proton pump inhibitors and efforts to eradicate *Helicobacter pylori* infections. But in south East Asian countries it appears to be increasing in particular groups of patients, such as those with a history of heavy alcohol consumption and oesophageal varices The commonest endoscopic finding was bleeding from esophageal and gastric varices (57 patients, 47.7%) where the cause of esophageal varices in 49 patients was cirrhosis of liver and in seven patients was non cirrhotic portal hypertension. Only one patient had bleeding gastric varices. Few studies showed esophageal varices as a leading cause of bleeding. From Nepal, 15.6% esophageal varices have been reported by Gurung et al and 33.3% by Bhattarai et al in their respective studies.[8,14] A study done in Pakistan by Adam et al found that esophageal varices were responsible for bleeding in 44.4% cases which was contrast to another study done in Pakistan by Bhutta et al where esophageal varices were detected only in 21%.[17,18] The discrepant result was explained due to various factors like hospital reporting of all the major and minor cases and doing endoscopy in time. In India, Anand et al investigated 408 patients of UGI bleed and found that 45.5% had esophageal varices and another study done by Rao et al showed esophageal varices as the most common cause (51%).[10,11] This shows that the trend of UGI bleeding in south East Asian countries

is different from the developed countries as UK Audit 2007 has reported only 11% bleeding varices and Snaders et al have reported only 4.4%.[13,19] In US, variceal bleeding accounts for around 6%.[20] Various risk factors may be responsible such as heavy alcohol consumption, ignorance, low socio-economical and poor nutritional status in the developing countries.

The second common cause in our study was peptic ulcer disease detected in 40 patients (33.3%). From India, Anand et al reported an incidence of 38.5% and Rao et al reported 28%.[10,11] In Pakistan, Bhutta et al reported 30.6% where another study by Adam et al showed much lower incidence of 19.7%.[17,18] Similar result was seen in UK audit 2007 in which the incidence was 36%.[13] However a quite high incidence of 41% has been reported by Kaliamurthy et al from Jamaica.[12] The incidence of bleeding from peptic ulcer disease in US is 60%.[20] Our patients were further classified according to Forrest classification for the prediction of rebleed. Maximum number of the patients (70%) with peptic ulcer disease had ulcer with hematin base (Forrest IIC). The rise in ulcer complications mostly in the elderly is more likely due to longer life expectancy in the modern world which is associated with higher incidence of both cardiovascular and rheumatological problems and consequently an increase use of anticoagulants and NSAIDs including aspirin.

In the present series, erosive mucosal disease was the third common endoscopic finding which comprised of 14 patients (11.7%) which was almost similar to other studies. Anand et al and Rao et al found erosive mucosal disease in 9%.[10,11] But Bhutta et al found a higher incidence rate of 18.4%.[18] Mallory Weiss tear and malignancy was seen in 5 patients (4.1%) and 4 patients (3.2%) respectively. Kashyap et al reported Mallory Weiss tear as a cause of upper GI bleeding in 12 patients (10.8%) and Bhutta et al reported in 2 patients (1.4%).[15,18] None of our patient had vascular ectasia as a cause of upper GI bleed.

Despite advances in therapy, the case-fatality rate has remained unchanged at 7% to 10%. In our series, 115 patients (95.8%) recovered and discharged from the hospital and 5 patients (4.2%) expired. Four patients who expired had cirrhosis of liver with portal hypertension and esophageal variceal bleeding with Child Pughs C- 2 patients were males and 2 females. The 5th patient had haemorhagic gastritis and valvular heart disease with congestive cardiac failure and pancytopenia. Rao et al investigated 1480 patients of upper GI bleeding between 1976 to 1989 where 1080 patients were treated conservatively and a very high mortality rate (162 patients: 15%) was noted which was attributed to massive esophageal variceal bleeding with portal hypertension and unavailability of blood in time.[11] Hussein et al investigated 238 patients and found a mortality rate of 3.4%. Kashyap et al studied 111 patients at Simla (India) and showed an overall mortality rate of 3.6% and all patients had esophageal variceal bleed.[9,15] Kaliamurthy et al reported a mortality rate of 5.7% and UK Audit 2007 reported 10%.[12,13]

Rockall score was calculated in all the patients to predict rebleed and mortality. In present study, mean Rockall score was 4.45+2.01 which was similar to a study done by Sanders et al.[21] Our patients had various comorbidities (43.3%) including gastrointestinal, cardiovascular, renal, pulmonary, neurological, and others like diabetes, liver disease etc. All the expired cases had Rockall score of >6, various comorbities and massive bleeding. In the expired group, 2 patients had developed hepatic encephalopathy Grade IV, 1 patient had bilateral lower lobe pneumonia and 1 patient presented with acute kidney injury. The 5th patient had pancytopenia with very low WBC count and developed severe hospital acquired pneumonia.

CONCLUSION

Acute Upper GI bleeding is a medical emergency. Patients with cirrhotic portal hypertension, Child Pughs C, having massive bleeding, comorbidities and Rockall score more than 6 are the most vulnerable group for fatal outcome in these patients. Urgent, appropriate hospital management definitely helps to reduce morbidity and mortality.

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