ORIGINAL ARTICLE

Spectrum of upper gastrointestinal bleed in patients with cirrhosis of liver

Bhattarai S1,Dewan KR1,Shrestha G1,Patowary BS1

1Department of Medical Gastroenterology, CMS Teaching Hospital, Chitwan, Nepal

Conflict of Interest: No

ABSTRACT

Introduction: Acute upper gastrointestinal (UGI) bleeding is a serious medical problem in patients with cirrhosis of liver associated with high mortality. Gastro-oesophageal variceal bleed is the most common complication of portal hypertension in patient with liver cirrhosis. But patients with liver cirrhosis do not bleed only from varices.

Methods: One hundred and twenty patients with clinical features, laboratory, sonological and endoscopic evidence of portal hypertension suggestive of cirrhosis of liver and presentation with upper gastrointestinal bleed were included in the study. After haemodynamic stability, each patient underwent UGI endoscopy usually within 12 hours and the aetiology with diagnostic findings were documented.

Results: The most common cause of UGI bleed in cirrhotic patients was ruptured oesophageal varices in 66.7 % of cases. Non variceal causes of UGI bleed accounted for 33.3 % of cases in our study. The majority of non variceal bleed was peptic ulcer disease and accounted for 19.2 % of total UGI bleed in liver cirrhosis.

Conclusions: The most frequent causes of acute gastrointestinal bleeding in cirrhosis was oesophageal varices followed by duodenal ulcer, gastric ulcer, portal hypertension gastropathy, erosive gastropathy, mallory-weiss tear and others. Cirrhotic patients with variceal etiology have more chances of rebleeding and have higher mortality than those with non variceal aetiologies .

Keywords: Upper gastrointestinal bleed; cirrhosis of liver ;endoscopy; oesophageal varices; peptic ulcer disease

SPECTRUM OF UPPER GASTROINTESTINAL BLEED

IN PATIENTS WITH CIRRHOSIS OF LIVER

INTRODUCTION

Acute upper gastrointestinal bleeding is a serious medical problem in cirrhotic patients. Acute gastrointestinal (GI) bleeding is a potentially life-threatening emergency that is a common cause of hospitalization with increased morbidity and mortality. Upper gastrointestinal bleeding (UGIB) is defined as bleeding derived from a source proximal to the ligament of Treitz. Bleeding from the upper GI tract is more common than bleeding from the lower GI tract.1

Acute upper gastrointestinal bleeding is a serious medical problem in patients with cirrhosis of liver.2 The most frequent causes of acute bleeding in cirrhosis are from oesophageal varices, gastric varices, peptic ulcer disease, portal hypertension gastropathy, reflux oesophagitis, mallory-weiss tear, erosive gastropathy and others.3,4 Variceal bleed is the most dangerous complication of portal hypertension in patient with liver cirrhosis. 5

This study was undertaken to highlight the clinical spectrum and identification of different aetiologies of upper gastrointestinal bleed in patients with liver cirrhosis. This study may prove helpful in establishing clinical and endoscopic correlations and formulating guidelines in patients with cirrhosis of liver presenting with UGI bleed.

**METHODOLOGY**

This observational, cross-sectional, prospective hospital based study was carried out in the department of medical gastroenterology at College of Medical Sciences Teaching Hospital, Nepal from January 2015 to December 2016. All cases hospitalized under the department of medical gastroenterology for acute upper gastrointestinal bleeding with clinical features, laboratory and sonological findings and/ or endoscopic evidence of portal hypertension suggestive of cirrhosis of liver were included in the study.

Cirrhotic patients with upper GI bleeding presenting with either haematemesis and/or melaena were taken into study . Data regarding demographic variables, clinical features, bleeding characteristics were collected and alongside blood investigations like complete blood count, platelets count, blood grouping, liver function test , prothrombin time / international normalized ratio ( PT / INR), coagulation profile and viral serologies were sent. Patients were classified under CTP classes.

After haemodynamic stabilization ,usually within 12 hours but sometimes as late as 48 hours, each patient underwent endoscopic investigation by standard flexible gastro-duodenal endoscope ( PENTAX EPK 700, PENTAX JAPAN Inc) and diagnostic findings were documented. In cases, when multiple lesions were found in UGI endoscopy, the lesion with active bleeding or recent stigmata of haemorrhage was considered the cause of bleeding. For control of bleeding, endoscopic and pharmacologic treatments were used .Variceal bleeders were treated with injection terlipressin or octeotride +/-variceal band ligation. Clinical outcomes during hospitalization including rebleeding and mortality were assessed.

**Statistics**

Data were collected on a structured proforma and entry was done in Statistical Packages for the Social Sciences version 20. All categorical data were expressed in percent and absolute number. All numerical continuous data were expressed in mean ±SD. The data analysis was done using SPSS version 20. All tests were analyzed with a 95% confidence interval and a P value of <0.05 was considered significant.

**RESULTS**

One hundred twenty patients of cirrhosis of liver presenting with UGI bleeding were enrolled in the study. There were 93 males and 27 females (M:F=7:2). Mean age of the patients was 53.4 years ( range of 24 to 75 years).

Alcoholic cirrhosis accounted for 108 (90 %) of total cases. Six cases (10 %) were diagnosed with chronic hepatitis B. Three cases (2.5%) were of chronic hepatitis C and rest 3 (2.5%) were classified as cryptogenic.

Fifty six patients (46.7 %) presented with haematemesis and melaena , twenty four (20 %) with melaena only and rest forty (33.3%) presented with only haematemesis. Forty four patients (36.7%) presented with shock.

The most common cause of UGI bleed was ruptured oesophageal varices in 80 patients (66.7 %). Non variceal causes of UGI bleed accounted for 33.3 % of cases in our study. The majority of non variceal bleed was due to peptic ulcer disease and that accounted for 19.2 % of total UGI bleed cases in liver cirrhosis. Out of 40 non variceal bleed cases, 13 had duodenal ulcers and 10 had gastric ulcers. Majority of cases with or without varices were of Class C. Class C individuals were found to present with variceal bleed 5.6 times that in Class B.

UGI endoscopy of all these patients revealed that 90 patients had varices. Eighty five had esophageal varices and five had gastric varices. Out of 90 patients with gastro-oesophageal varices, 80 patients with oesophageal varices (88.9%) presented with UGI bleeding. No patients with gastric varices presented with UGI bleeding.

Cirrhotic patients were classified under three categories according to UGI endoscopy. First category consisted of 60 patients who had only varices and identified as sole bleeding source on UGI endoscopy. Second category included 30 patients who had varices with non variceal mucosal lesions also. Twenty patients out of these 30 patients actually bled from esophageal varices. Ten bled from other lesions , four from duodenal ulcer, three from gastric ulcer and three from erosive gastritis. Third category comprised of last 30 patients who had no varices but had other non variceal mucosal lesions. Nine of these patients bled from duodenal ulcer, seven from gastric ulcer, and seven from portal hypertensive gastropathy, three from erosive gastritis, three from mallory-weiss tear, and a single case from gastric carcinoma.

Mean complete Rockall score after UGI endoscopy was 4.73±1.20 in variceal group and 4.14±0.98 in non variceal group. Thirty patients (37.5%) in variceal group and five patients (12.5%) in non variceal group had Rockall score more than or equal to 5.

The ratio of patients with variceal bleed group presenting in shock was double than those with non variceal bleed group. Rebleeding within 14 days was higher with variceal group compared to that with non variceal group ( 30 % vs. 10 %). Similarly, mortality was also higher with variceal group compared to that with non variceal group (27.5 % vs. 7.5%) as shown in table 1.

|  |  |  |
| --- | --- | --- |
| PARAMETERS | VARICEAL GROUP(N=80) | NON VARICEAL GROUP (N=40) |
| Male: Female | 3:1 | 4:1 |
| CTP Class A | 0 | 0 |
| CTP Class B | 12 | 15 |
| CTP Class C | 68 | 25 |
| Haematemesis only | 30 | 10 |
| Melaena only | 12 | 12 |
| Haematemesis + melaena | 38 | 18 |
| Causes of  UGI bleed | Esophageal varices 80 | Duodenal ulcer 13 |
| Gastric ulcer 10 |
| Portal hypertensive gastropathy 7 |
| Erosive gastritis 6 |
| Mallory Weiss tear 3 |
| Gastric carcinoma 1 |
| Mean Haemoglobin | 7.71±1.63 gm % | 8.18±1.48 gm% |
| Shock ( SBP< 90 mm Hg) | 36 (45 %) | 8 (20 %) |
| Mean Rockall score | 4.73±1.20 | 4.14±0.98 |
| Rockall score > 5 | 30 (37.5 %) | 5 (12.5%) |
| Rebleeding within 14 days | 24 ( 30 %) | 4 (10 %) |
| Death | 22 (27.5 %) | 3(7.5 %) |

Table 1: Distribution of subjects according to aetiology of UGI bleed

DISCUSSIONS

One hundred twenty patients of cirrhosis of liver presenting with UGI bleeding were enrolled in this study with 93 male (77.5 %) and 27 female (22.5%) ; M:F = 7:2. Studies by Svoboda et al.,6 Romcea et al.7, Olajide et al.8, also have highlighted male predominance of UGI bleed in cirrhosis . Mean age of cirrhotic patients with UGI bleed in this present study was 53.4 years which is almost similar to those reported by Svoboda et al.6 (mean age of 56.9 yrs ) and Romcea et al.7( mean age 56.8 years). However, Olajide et al.8 has reported a lesser mean age of 48.5 years.

In the present series, predominant clinical form of upper gastrointestinal bleed was both haematemesis and melaena in fifty six (46.7 %) , only melaena in twenty four (20 %) and only haematemesis in rest forty (33.3%) patients . Haematemesis and melaena predominated in 84.17% , melaena in 14.81% and hematochezia in 1.01% patients in a series reported by Romcea et al.7

Majority of cases with or without varices were of Class C .Class C individuals were found to present with variceal bleed 5.6 times that in Class B. Several studies have have highlighted that variceal rupture risk increases with the increase in severity of the liver disease.7,9,10

The most frequent aetiology of upper GI bleed in cirrhosis was rupture of esophageal varices in eighty (66.7 % ) patients in our study. Variceal bleed accounted 57.7 %, 73% and 50% of acute UGI bleed in cirrhotics in their studies by Svoboda et al.6 ,Romcea et al.7 and Olajide et al.8 respectively.

Non variceal causes of UGI bleed accounted for 33.3 % of total patients in our study. The majority of non variceal bleed was peptic ulcer disease and accounted for for 19.2 % of total UGI bleed in liver cirrhosis. Duodenal ulcers were seen more commonly than gastric ulcers. Peptic ulcers with predominance of duodenal ulcers were also noted in studies by Svoboda et al.6, Romcea et al.7 and Gonzalez et al.11 The various aetiologies of non variceal bleed in some series has been highlighted in table 2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Non variceal bleed:  Aetiology | Present study | Svoboda et al.6 | Romcea et al.7 | Gonzalez et al.11 |
| Peptic ulcer disease | 57.5 % | 43.1% | 55% | 50.6 % |
| Portal gastropathy | 17.5% | 22.4% | 17.5% | 14.4% |
| Erosive gastritis | 15% | 3.5% | 11.25% | 4.5% |
| Mallory Weiss tear | 7.5% | 6.9% | 6.25% | 11.3% |

Table 2: Studies showing different aetiologies of non variceal bleed in cirrhosis

Larger percentage of patients in variceal bleed group had Rockall score more than or equal to 5 when compared to non variceal group (37.5% vs. 12.5%) in the present series.

Rebleeding after primary hemostasis within 14 days was higher with variceal group compared to that with non variceal group ( 30 % vs. 10 %). Rebleeding rate during hospitalization was, however only marginally higher in variceal bleeding group compared to non variceal bleed group (18.9% vs. 17.2%) in the study by Svoboda et al6 which is in contrary to the present study.

Mortality during hospitalization was higher with variceal bleed group compared to that with non variceal bleed group (27.5 % vs. 7.5%) in the present study . Similarly ,mortality was 20.2% among variceal bleed group and 6.9 % among non variceal bleed group in the study by Svoboda et al.6

**Conclusions**

UGI bleed from oesophageal varices is a common manifestation in patients with cirrhosis of liver . The present study showed a high incidence of UGI bleed in cirrhosis patients secondary to ruptured oesophageal varices that accounted to 66.7 %. However, cirrhotic patients do not always bleed from varices. These patients can also bleed from non variceal or other co-existing mucosal aetiologies as well. In our series, we found that one-third patients ( 33.3%) with liver cirrhosis had UGI bleed of non variceal aetiology, of which the most common was peptic ulcer; duodenal followed by gastric ulcers. Other causes observed were portal hypertensive gastropathy, erosive gastritis and Mallory Weiss tear. Variceal bleed patients present with higher Rockall score compared to those with non variceal bleed. UGI bleed of variceal etiology has more chances of rebleeding and has higher mortality than those with non-variceal aetiologies .

The relatively large number of non-variceal bleeding in cirrhotic patients highlights the importance of UGI endoscopy findings in identifying the etiology of upper gastrointestinal bleeding and therefore the proper management.

REFERENCES:

1. Bacon BR . Cirrhosis and its complications. In:, Kasper DL, Fauci AS, Hauser SL, Longo DL, Jameson JL, Loscalzo J, editors. Harrison’s principles of internal medicine.19th ed. New York: Mc Graw Hill; 2012:2058-66.
2. Sherlock S, Dooley J. Diseases of the Liver and Biliary System, 12th ed. London: Blackwell Scientific Publications; 2011:179-81.
3. Heidelbaugh J, Bruderly M. Cirrhosis and chronic liver failure. Diagnosis and Evaluation J Am Fam Physician 2006;74(5):756-62.
4. Dagradi AE, Mehler R, Tan DTD, Stempien SJ. Sources of upper gastrointestinal bleeding in patients with liver cirrhosis and large esophagogastric varices. Am J Gastoenterology. 1970;54(5):458-63.
5. [Kordiak J](http://www.ncbi.nlm.nih.gov/pubmed?term=Kordiak%20J%5BAuthor%5D&cauthor=true&cauthor_uid=19606706), [Wcisło S](http://www.ncbi.nlm.nih.gov/pubmed?term=Wcis%C5%82o%20S%5BAuthor%5D&cauthor=true&cauthor_uid=19606706), [Santorek-Strumiłło E](http://www.ncbi.nlm.nih.gov/pubmed?term=Santorek-Strumi%C5%82%C5%82o%20E%5BAuthor%5D&cauthor=true&cauthor_uid=19606706), [Bartkowiak R](http://www.ncbi.nlm.nih.gov/pubmed?term=Bartkowiak%20R%5BAuthor%5D&cauthor=true&cauthor_uid=19606706), [Brocki M](http://www.ncbi.nlm.nih.gov/pubmed?term=Brocki%20M%5BAuthor%5D&cauthor=true&cauthor_uid=19606706), [Misiak P](http://www.ncbi.nlm.nih.gov/pubmed?term=Misiak%20P%5BAuthor%5D&cauthor=true&cauthor_uid=19606706).Upper gastrointestinal bleeding in patients with portal hypertension--review of clinical cases from 2002-2008. [Pol Merkur Lekarski.](http://www.ncbi.nlm.nih.gov/pubmed?term=Upper%20gastrointestinal%20bleeding%20in%20patients%20with%20portal%20hypertension--review%20of%20clinical%20cases%20from%202002-2008%5D.%20%5BArticle%20in%20Polish%5D%20Kordiak%20J%2C%20Wcis%C5%82o%20S%2C%20Santorek-Strumi%C5%82%C5%82o%20E%2C%20Bartkowiak%20R) 2009 ;26(155):488-90
6. Svoboda P, Konecny M , Martinek A, Hrabovsky V, Prochazka V , Ehrmann J . Acute upper gastrointestinal bleeding in liver cirrhosis patients. Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub. 2012 ; 156(3):266–70.
7. Romcea AA, Tanțău M, Seicean A, Pascu O. The etiology of upper gastrointestinal bleeding in cirrhotic patients. Clujul Medical 2013 ; 86( 1):21-23
8. Olaiide 0, Odelowo MD, Duane T, Smoot MD, Kyungsook K. Upper gastrointestinal bleeding in patients with liver cirrhosis. J Natl Med Assoc. 2002;94:712-15.
9. Fallatah HI, Al Nahdi H, Al Khatabi M, Akbar HO, Qeari YA, Sibiani AR, et al. Variceal hemorrhage: Saudi tertiary center experience of clinical presentations, complications and mortality. World J Hepatol, 2012; 4(9):268-273.
10. Cerqueira RM, Andrade L, Correia MR, Fernandes CD, Manso MC. Risk factors for in-hospital mortality in cirrhotic patients with oesophageal variceal bleeding. Eur J Gastroenterol Hepatol, 2012; 24(5):551-557
11. [González J A](http://www.ncbi.nlm.nih.gov/pubmed?term=Gonz%C3%A1lez-Gonz%C3%A1lez%20JA%5BAuthor%5D&cauthor=true&cauthor_uid=21677330), [García-CompeanD](http://www.ncbi.nlm.nih.gov/pubmed?term=Garc%C3%ADa-Compean%20D%5BAuthor%5D&cauthor=true&cauthor_uid=21677330), [Vázquez-ElizondoG](http://www.ncbi.nlm.nih.gov/pubmed?term=V%C3%A1zquez-Elizondo%20G%5BAuthor%5D&cauthor=true&cauthor_uid=21677330), [Garza G A,](http://www.ncbi.nlm.nih.gov/pubmed?term=Garza-Galindo%20A%5BAuthor%5D&cauthor=true&cauthor_uid=21677330) [Jáquez-Q JO,](http://www.ncbi.nlm.nih.gov/pubmed?term=J%C3%A1quez-Quintana%20JO%5BAuthor%5D&cauthor=true&cauthor_uid=21677330)  [Maldonado-Garza H](http://www.ncbi.nlm.nih.gov/pubmed?term=Maldonado-Garza%20H%5BAuthor%5D&cauthor=true&cauthor_uid=21677330). Nonvariceal upper gastrointestinal  bleeding in patients with liver cirrhosis. Clinical features, outcomes and predictors of in-hospital mortality. A prospective study. [Ann Hepatol.](http://www.ncbi.nlm.nih.gov/pubmed/21677330) 2011 ;10(3):287-95
12. d I Fallatah, Haifaa Al Nahdi, Maan Al Khatabi, Hisham O Akbar, Yousif A Qari, Abdul Rahman Sibiani,
13. Salim Bazaraa
14. d I Fallatah, Haifaa Al Nahdi, Maan Al Khatabi, Hisham O Akbar, Yousif A Qari, Abdul Rahman Sibiani,
15. Salim Bazaraa
16. Hind I Fallatah, Haifaa Al Nahdi, Maan Al Khatabi, Hisham O Akbar, Yousif A Qari, Abdul Rahman Sibiani,
17. Salim Bazaraa
18. Fallatah HI, Al Nahdi H, Al Khatabi M, Akbar HO, Qari YA,
19. Sibiani AR, Bazaraa S

Fallatah HI, Al Nahdi H, Al Khatabi M, Akbar HO, Qari YA,

Sibiani AR, Bazaraa S