

The Etiology of Upper Gastrointestinal Bleeding in Patients with Liver Cirrhosis in Dhulikhel Hospital

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ABSTRACT

Background

Acute upper gastrointestinal bleeding is a serious medical problem in cirrhotic patients. Patients with cirrhosis may develop upper gastrointestinal bleeding from a variety of lesions, including those due to portal hypertension, namely gastroesophageal varices and portal hypertensive gastropathy and other lesions as seen in the general population.

Objective

To investigate the etiology of upper gastrointestinal bleeding in liver cirrhotic patients.

Method

A retrospective review of 72 patients with liver cirrhosis and upper gastrointestinal bleeding from January 2013 to March 2016 was carried out at Dhulikhel Hospital. Child Pugh score was used to assess severity. Endoscopic diagnosis was documented.

Result

Out of 72 patients, 56 (77.8 %) were male and 16 (22.2%) were female. The most common age group was 30-42 years age. Fifty four cases of cirrhosis were associated with alcohol consumption. The Child-Pugh score was A in 20 patients (27.8%), B in 15 patients (20.8%) and C in 37 patients (51.4%). A combination of alcohol consumption and HCV infection was significantly associated with a higher Child-Pugh score ($p=0.031$). Twenty six (36.11%) patients had esophageal varices as cause of bleeding on endoscopic examination while 29(40.28%) had varices and other lesions identified at endoscopy. Of these 29 patients, 18 were found to have bled from esophageal varices, and 11 were found to have bled from coexisting lesion.

Conclusion

We found that variceal bleeding was the commonest cause of bleeding in cirrhotic patients, with 55 (78.5%) having varices and 44 (61%) actually bleeding from varices.

KEY WORDS

Alcohol, Cirrhosis, Endoscopy, Non-variceal upper gastrointestinal hemorrhage, Variceal bleeding

INTRODUCTION

Acute gastrointestinal bleeding is a potentially life-threatening medical emergency that remains a common cause of hospitalization. Upper gastrointestinal bleeding (UGIB) is defined as bleeding from a source proximal to the ligament of Treitz.¹ The incidence of UGIB is reported to be 100/100,000 per annum worldwide.²

Liver cirrhosis is characterized by fibrosis and the formation of regenerative nodules. The exact prevalence of cirrhosis worldwide is unknown. Global prevalence of cirrhosis from autopsy studies ranges from 4.5% to 9.5% of the general population.³⁻⁵ In 2001, it was the 14th and 10th leading cause of death in the developing and developed countries, respectively, and will become the 12th leading cause of death in 2020.^{6,7} There are several causes of cirrhosis with major causes being alcohol and chronic viral hepatitis (Hepatitis B and C).

One of the main complications of cirrhosis is portal hypertension. Clinically significant complications like ascites and/or varices develop at a Hepatic Venous Pressure Gradient (HVPG) of above 10 mm of Hg. 30 to 40% of patients with compensated cirrhosis and 60% of patients with ascites present have esophageal varices at the time of diagnosis.⁸ The annual incidence for the development of new varices is between 5 and 10%.⁹⁻¹¹ Varices have the tendency to increase in size and can rupture and bleed.¹⁰ Variceal hemorrhage carries a significant mortality of 7–15%.¹²⁻¹⁴ UGIB in cirrhotic patients occurs mainly from esophageal and gastric varices. However, there are numerous cases of non-variceal bleeding in cirrhotic patients. For this reason, the present paper aims to analyze the etiology of bleeding in patients with cirrhosis.

METHODS

A retrospective review of 150 cases of upper gastrointestinal bleeding who presented to Dhulikhel Hospital between January 2013 and March 2016 was carried out. These cases consisted of out-patients and in-patients who had history of hematemesis and/or melena as indicators of upper gastrointestinal bleeding. Out of these patients, 72 met the criteria of cirrhosis by Ultrasound Imaging and were selected for this study. Child-Pugh score was used to assess the severity of cirrhosis. Diagnostic findings at upper gastrointestinal endoscopy were documented. Data analysis was done using the SPSS version 20. Descriptive studies were used to describe and characterize the study population and data was analyzed using Chi-square and Fischer's Exact test. Significance level in this study was set at p value of < 0.05.

RESULTS

Patient Characteristics

Patient characteristics are presented in Table 1. Out of 72 patients, 56 (77.8 %) were male and 16 (22.2%) were female. Most common age group was 30-42 years (45.8%), followed by 18-30 years (29.1%) while the least common age group was above 60 years (2.77%). Fifty-four cases of cirrhosis were associated with Alcohol consumption, 6 with HCV and Alcohol, 5 with HBV and Alcohol and 2 cases with Hepatitis B. And in 5 cases, cause was not identified. The Child-Pugh score was A in 20 patients (27.8%), B in 15 patients (20.8%) and C in 37 patients (51.4%).

Table 1. Patient Characteristics

Characteristics	N (%)
Sex	
Male	56 (77.8%)
Female	16 (22.2%)
Age Groups	
18-30	21 (29.1%)
30-42	33 (45.8%)
42-60	16 (22.2%)
>60	2 (2.77%)
Etiology	
Alcohol Abuse	54 (75%)
HBV	2 (2.77%)
HBV and Alcohol both	5 (6.9%)
HCV and Alcohol both	6 (8.3%)
Cause unidentified	5 (6.9%)
Child Pugh Score	
A	20 (27.8%)
B	15 (20.8%)
C	37 (51.4%)

A combination of alcohol consumption and HCV infection was significantly associated with a higher Child-Pugh score ($p=0.031$). However, a combination of alcohol consumption and HBV infection was not associated with higher Child Pugh score ($p=0.113$). Six (8.3%) patients had both Alcohol and HCV infection as etiology out of which 2 belonged to Child B and 4 to Child C, while all 5 patients with both Alcohol and HBV infection as etiology belonged to Child C category.

Endoscopic Findings

Different etiologies of UGI Bleeding are shown in Figure 1. Six patients had Mallory-Weiss Tear, 4 had Duodenal Ulcer, 2 had Gastric Ulcer, and 4 had Reflux Esophagitis as the sole cause of bleeding on examination. Twenty-six patients had Esophageal Varices as cause of bleeding on endoscopic examination while 29 patients had varices and other lesions identified at endoscopy.

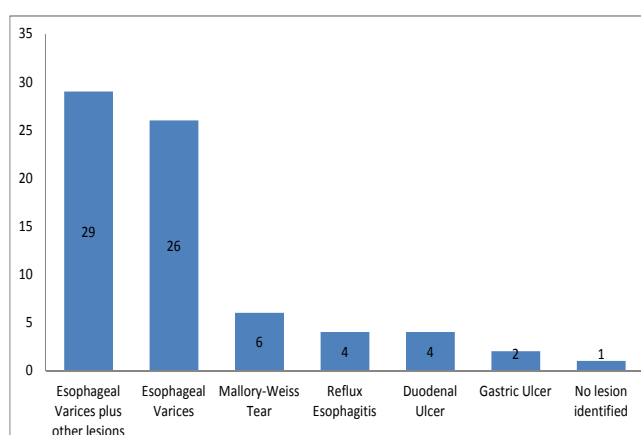


Figure 1. Etiology of UGI Bleeding

Out of 26 cases of Esophageal Varices, 8 had Grade 2, 14 had Grade 3 and 4 had Grade 4 Esophageal Varices. Out of 29 cases who had Esophageal Varices and other lesions, 4 had Grade 1, 10 had Grade 2, 12 had Grade 3 and 3 had Grade 4 Esophageal Varices. Of these 29 patients, 18 were found to have bled from Esophageal Varices, and 11 were found to have bled from coexisting lesions. Of those 11 patients who had coexisting lesions, 4 had Fundal Varices bleed, 3 bled from Portal Hypertensive Gastropathy, 2 bled from Gastric Ulcer, 1 each bled from Angiodysplasia and Duodenal Ulcer. However the source could not be identified in 1 patient.

Among 20 patients in Child A category, 11 had no varices, 1 had Grade 1, 5 had Grade 2 and 3 had Grade 3 varices. Likewise, out of 15 patients in Child B category, 4 had no varices, 2 had Grade 1, 5 had Grade 2 and 4 had Grade 3 varices. Among 36 patients in Child C category, 1 had no varices, 1 had Grade 1, 8 had Grade 2, 19 had Grade 3 and 7 had Grade 4 varices (see Table 2).

Table 2. Child-Pugh Score and Presence or Absence of Varices

Grade	Child A	Child B	Child C
1	1	2	1
2	5	5	8
3	3	4	19
4			7
No Varices	11	4	1

DISCUSSION

Upper gastrointestinal bleeding in patients with portal hypertension has been classically related to ruptured esophageal varices, and portacaval shunt operations have been performed for many years, even though diagnosis of the bleeding site was only presumptive.¹⁵ Non-variceal causes are equally important causes of bleeding in cirrhotic patients. The present study confirms what other authors have reported that bleeding in patients with cirrhosis may be due to several causes other than varices.^{16,17}

For the rational management of bleeding in these patients, including their medical and/or surgical treatment, the

source of the hemorrhage must be identified. Early endoscopy has remarkably improved the rate of accurate diagnosis in gastrointestinal hemorrhage and has replaced other diagnostic measures, including radiography. Many bleeding lesions, particularly erosions and acute ulcers, are underdiagnosed on barium meal examination and, conversely, radiology may show more than one possible source of bleeding.¹⁸ Endoscopy should be carried out as soon as possible; if it is delayed, acute gastric lesions may heal and disappear.

Out of 72 patients, 56 were male (77.8%) and 16 were female (22.2%). This finding of male preponderance is similar to studies done by Nagarajaiah et al., Maskey et al. and Rati et. al.¹⁹⁻²¹ This could possibly be explained by the greater prevalence of alcoholism in males. The most common age group was 30-42 years. This could reflect the number of years it takes to achieve a cumulative dose of alcohol required to cause cirrhosis.

Of 72 patients, 65 had alcohol as the etiology of cirrhosis, which is similar to the findings of Maskey et al., Sharma et al. and Mishra et al.^{20,22,23} Combination of alcohol and HCV infection as etiology had statistically significant association with higher Child Pugh Score, while other etiologies including alcohol and combination of alcohol and HBV didn't have statistically significant association with higher Child Pugh Score.

In this study, varices without any other co-existing lesions were seen in 26 patients. Twenty nine had varices plus coexisting lesions, of whom 18 bled from varices and 11 bled from the coexisting lesions. Seventeen had bled from other lesions without any varices identified during endoscopy. Thus, while there were varices in 55 (78.5%) patients, only 44 (61%) bled from varices. So, the most frequent etiology was that of variceal bleeding, the results being similar and keeping in with those reported in literature.²⁴⁻²⁷

Patients with liver cirrhosis do not only bleed from varices, but also bleed from other lesions seen in the general population like peptic ulcer disease, Mallory-Weiss tears and angiodysplasia. In this study, 37.5% of the patients bled from nonvariceal source. Peptic Ulcer (Gastric and Duodenal Ulcer) and Mallory Weis Tear was comparable in the etiology of non-variceal upper gastrointestinal bleeding but its frequency rate is not the same as that found in the specialty literature.^{27,28}

CONCLUSION

Thus we can say that cirrhosis was more common in males with alcoholic cirrhosis being the commonest, followed by virus related cirrhosis. We also found that Variceal Bleeding was the commonest cause of bleeding in cirrhotic patients. However, a significant limitation of this study is its small sample size, which could well affect the accuracy of our conclusion and may not reflect the exact scenario of the community.

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