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Gastric Variceal Bleeding In Patients of Liver Cirrhosis With Portal Hypertension

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ABSTRACT

Objective: to establish how common Gastric Variceal bleeding is in Chronic liver Disease patients to allow them to be screened regularly and avoid morbidity and mortality.
Study Design: Cross sectional study.
Place and Duration of Study: Gastroenterology Department, Liaquat National Hospital and Medical College, Karachi Pakistan, from Jan to Dec 2020.
Methodology: A total of 135 patients with history of melena, hematemesis and known diagnosis of Chronic liver Disease for more than six months who fulfilled the inclusion criteria were enrolled in this study. Gastroscopy was carried out and dilated veins in the gastric fundus, either with active spurter or an overlying punctum, were labelled as Gastric Variceal bleeding.
Results: This study included known Chronic Liver Disease patients for duration of 6 months or more with recent stigmata of upper Gastrointestinal Bleed. Out of 135 cases, 76(56.3%) were male and 59(43.7%) were female. Enrolled patients' mean age was 51.0±5.2 years, and the mean duration of Chronic liver Disease was 4.9±2.6 years. Gastric Variceal bleeding in Chronic liver Disease patients who underwent endoscopy had a frequency of 18(13.3%) times.
Conclusion: Gastric Variceal bleeding bleeding is rare but lethal complication of Chronic liver Disease, seen in patients in the age group of <50 years, female gender, hypertensive patients, and those with a duration of chronic liver disease <5 years.

Keywords: Chronic liver disease, Cirrhosis, Esophageal varices, Gastric variceal, Portal hypertension.

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INTRODUCTION

Gastric Variceal (GV) hemorrhage is a rare but lethal event compared to esophageal variceal (EV) bleeding, though it is less common.[1] Most GV patients have underlying hypertensive portal gastropathy instead of splenic vein thrombosis, in association with GV.[2] which is a dangerous complication.[3] Primary GVs are those that appear mainly in conjunction with EVs, while secondary GVs occur after EV obliteration.3 Gastric Fundus Varices (FV) are because of dilation of short or posterior gastric veins and also merge with a massive gastro renal shunt.[4] GOV1 (Esophageal varices extending down to cardia or lesser curvature) and GOV2 (Esophageal varices extending to gastric fundus) are two types of gastro-esophageal varices.[5] Approximately 20% of all variceal bleeding is because of GV. Literature indicates that GV is observed in about 22% of patients of cirrhotic liver with portal hypertension.[6,7] The management of bleeding FV with the aid of using endoscopic processes occasionally fails to stop the bleeding, and surgical interventions are needed for hemostasis.3 Conclusion, the mortality rate is extremely high in gastric fundal varix.[3] The mortality rate after bleeding in the gastric fundal varices ranges from 25% to 55%. Patients with GV are at a greater risk of rebleeding and have a lower survival rate.[4] Although various recent advances in agents and approaches have improved the results of GV bleeding, no consensus on the most helpful treatment has been found.[8] New endoscopic therapy options and radiological interventions treatments have expanded the treatment options for GV.[9] When compared to other therapeutic endoscopic techniques for GV, cyanoacrylate therapy produces positive outcomes, with a greater degree of hemostasis and a decreased rate of early and late rebleeding.[5,10] Due to lack of similar research in our region, we believe this study would help in knowing the local prevalence of GV bleeding in CLD patients so that the patients can be screened effectively to prevent morbidity and mortality.

METHODOLOGY

The cross-sectional study was conducted at the Gastroenterology Department of Liaquat National Hospital, Karachi, Pakistan from January to December 2020, after receiving approval from the Institutional

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Ethical Committee (Number 151-2020-LNH-ERC). Sample size was calculated using WHO software, based on a GVs prevalence of 22%.[6]

Inclusion Criteria: Patients with severe chronic liver disease beyond 6 months who had EGD, aged 40 to 60 years, of either gender, diagnosed based on medical history and physical examination, with the manifestation of at least any two of the following (hematemesis, melena, ascites and/or jaundice); hematology (low platelets 100/mm and prolong prothrombin time >15 seconds); and Ultrasound findings (coarse echo texture of the liver with irregular margins, dilated portal vein diameter >13mm, splenomegaly with bipolar diameter of >13cm and existence of ascites), were included.

Exclusion Criteria: Patients with joint disease and history of NSAIDS usage, as well as those with non-cirrhotic portal hypertension, GCS <14, NSAIDS use, and non-cirrhotic portal hypertension, were excluded.

Informed written consent was taken from all participants. Relevant clinical data were recorded from patients admitted through Emergency Department and Out-Patient Clinics who presented with a history of hematemesis, melena, undergoing gastroscopy, and patients with low GCS (drowsiness and altered behavior). The principal investigator examined the patient's clinical history, comorbidities such as diabetes, hypertension, and ischemic heart disease (all of which were confirmed by a documented record), and examination. Gastroscopy was performed with all aseptic measures under conscious sedation with injection midazolam after consent was obtained after the risks and advantages were explained. A consultant with two years of post-fellowship experience conducted the procedure. GV bleeding was characterized as dilated veins in the stomach fundus, either with an active spurter or an overlying punctum.

For statical data analysis Statistical Package for the Social Sciences (SPSS) version 21.0 was used. For categorical variables, percentages and frequencies were calculated. For quantitative variables, Mean±standard deviation were calculated. The Chi-square test was applied for inferential statistics, the *p*-value of ≤0.05 reflected significance.

RESULTS

This study included known chronic liver disease patients for 6 months or more with recent stigmata of upper GI Bleed that is hematemesis and melena. Out of 135 cases, 76(56.3%) were male and 59(43.7%) females. The patients' mean age was 51.0±5.2 years, mean duration of CLD was 4.9±2.6 years. Diabetes Mellitus was observed in 76(56.3%), Hypertension 84(62.2%), and ischemic heart disease in 17(12.59%) cases. GV bleeding in CLD patients who underwent endoscopy had a frequency of 18(13.3%) cases as shown in Table-I. It was observed that proportion of gastric variceal bleeding rate did not significantly differ (p-value > 0.05) neither between males and females nor the duration of chronic liver disease as shown in Table-II. Similarly, frequency of gastric variceal bleeding was also analyzed with hypertension, diabetic mellitus, and ischemic heart disease but these were not significant (*p*-value > 0.05) shown in Table-III.

Table-I Descriptive Statistics of The Patients (n=135)

Variables	Mean+SD/n(%)
Age (years)	51.0+5.2
Duration of CLD (years)	4.9+2.6
Gender	
Male	76(56.3%)
Female	59(43.7%)
Diabetes mellitus	
Yes	76(56.3%)
No	59(43.7%)
Hypertension	
Yes	84(62.2%)
No	51(37.8%)
Ischemic Heart Disease	
Yes	17(12.6%)
No	118(87.4%)
Gastric Variceal bleeding	
Yes	18(13.3%)
No	117(86.7%)

Table-II Association of Gastric Variceal Bleeding with Age, Gender, and Duration of Chronic Liver Disease (n=135)

Variables	Gastric Variceal Bleeding		*p*-value
	Yes n(%)	No n(%)	
Age			
≤ 50Years	8(12.5%)	56(87.5%)	0.50
51 to 55 Years	4(12.5%)	28(87.5%)	
>55 Years	6(15.4%)	33(84.6%)	
Gender			
Male	7(9.2%)	69(90.8%)	0.11
Female	11(18.6%)	48(81.4%)	
Duration of Chronic Liver Disease			
≤ 5 Years	13(14.8%)	75(85.2%)	0.86
6-10 Years	5(11.4%)	39(88.6%)	
>10 Years	0(0%)	3(100%)	

Table-3: Association of Gastric Variceal Bleeding with Hypertension, Diabetes Mellitus, And Ischemic Heart Disease (n=135)

Variables	Gastric variceal bleeding		p-value
	Yes n (%)	No n (%)	
Hypertension			
Yes	12(14.3%)	72(85.7%)	0.67
No	6(11.8%)	45(88.2%)	
Diabetes Mellitus			
Yes	12(15.8%)	64(84.2%)	0.34
No	6(10.2%)	53(89.8%)	
Ischemic Heart Disease			
Yes	4(23.5%)	13(76.5%)	0.18
No	14(11.9%)	104(88.1%)	

DISCUSSION

Gastric varices affect 20% of patients with portal hypertension, with non-cirrhotic etiologies being the most prevalent. As a result of splenic vein thrombosis, they might occur in the context of either generalized or segmental portal hypertension. Both esophageal and gastric varices bleeding still has a high mortality and morbidity rate. Within two years, around 20-30% of patients are expected to bleed from varices.[9] Overall variceal bleeding account for one-third of all upper GI bleeding.[10] Gastric varices account for about one-fourth of these variceal hemorrhage. Although bleeding is less common in gastric varices than in esophageal varices, but it can be serious.[11,12] Varices in the fundus of the stomach bleed more often than varices at other gastric locations.[13] For diagnosing the cause of bleeding, endoscopy is the major diagnostic tool. Endoscopy is also used for prognostic information and therapeutic action to halt bleeding in the setting of UGIB, which is associated with reduction in the necessitation of blood transfusions, intensive care hospital stay duration. Upper gastrointestinal endoscopy is a relatively safe technique in 90% of cases, with a chance of a serious complication of about 1 in 500 and a risk of mortality of about 1 in 10,000.[14] In our study 135 patients, 76(56.3%) were male and 59(43.7%) were female indicating a higher number of males. This predominance of the male gender is supported by other studies. Hadayat *et al*. in their study presented 62.7% males and 37.3% females.[15] Hameed *et al*. in their study showed that out of 27 patients, there were 12 females and 15 males, the male to female ratio was 1.25.[16] In our study the age ranges from 40 to 60 years, the average age is 51.04±5.27 years. Similar observations were presented by Khan *et al*. whose studies included 162 patients, with the average age of patients being 45 ±13 years.[17]

In patients with upper gastrointestinal bleeding because of portal gastropathy hypertension, hemorrhage from gastric varices is the source in 5–10% of the patients.[18] In our study, the frequency of CLD patients with gastric variceal bleeding who were undergoing gastroscopy was reported in 65.19% of cases. Sarin *et al*. prospectively followed 1128 patients and found gastric varices in 20% of patients at first endoscopy in patients with portal hypertension.[19] Hosking *et al*. in a study of 114 patients reported gastric varices in 17% of cases.[20] The greater seroprevalence of viral hepatitis in our country compared to developed countries may explain the increased prevalence of gastric varies hemorrhage in our study.[21] This could be owing to the high prevalence of chronic liver disease in our region, particularly chronic viral hepatitis. The key threat for viral hepatitis spread recognized are unscreened blood transfusions, salvage of one-use syringes, sharing of razors, intravenous drug addicts needle usage, toothbrushes, and nail cutters, acupuncture, tattooing, ear piercing, multiple sexual contact, dental treatment, and surgeries.[22]

Additional factors that may lead to the increased prevalence of chronic hepatitis and, subsequentlycirrh osis,includes delayed diagnosis of chronic hepatitis, insufficient access to healthcare resources, poor access to adequate diagnostic facilities, especially endoscopic equipment, expensive accessories and maintenance expenses, and a scarcity of training slots for healthcare workers are all contributing factors. The rising incidence of esophageal varices and subsequent hemorrhage from the upper GI tract may be due to affordability issue, lengthy cure period, and more definitive therapy for cirrhotic patients such as liver transplants and TIPS.[23] Svoboda *et al*.[24] studied the reason behind the bleeding in 137 cirrhotic, and varices were found to account for 57.7% of all bleeding cases for esophageal varices and 5.1% for gastric varices. Although gastric varices are less prevalent than esophageal varices, the bleeding is sometimes more serious and difficult to treat. The mortality rate from bleeding gastro-esophageal varices is between 15% and 20%.[25] In our study, stratification evaluation was used to control for the effect of age groups, and it was discovered that the percentage of gastric variceal hemorrhage did not differ significantly by age or gender. We believe the treatment of patients with

gastric cancer varices to continue improving over the next decade as more pharmacological agents that directly affect the intrahepatic circulation become available, as well as better endoscopic procedures, more efficacious coated stents for TIPS, and increased liver transplantation availability.

CONCLUSION

Gastric variceal hemorrhage is uncommon but lethal complication of chronic liver disease, it is seen in patients with the age group of <50 years, female gender, hypertensive patients, and patients with duration of chronic liver disease <5 years. Acute hemorrhage because of gastric variceal hemorrhage should be treated by a skilled and multidisciplinary team including hepatologists, endoscopists, and specialist nurses.

Conflict of Interest: None.

Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

MFZ & AA: Data acquisition, critical review, approval of the final version to be published.

HAK & GM: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

SK & MH: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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