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To Study The Prevalence Of Esophageal Varices in Patient With Liver Cirrhosis in J.A. Group of Hospitals, Gwalior: A Cross-sectional study

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Abstract

Background: Esophageal varices is serious complications of liver cirrhosis because of its high mortality. The incidence of esophageal varices increases by nearly 5% per year, and the rate of progression from small to large varices is approximately 5 to 10 % per year. Incidence of first variceal haemorrhage ranges from 20 to 40% within two years. Additionally, the mortality associated with bleeding varices is extremely high between 20 and 35% even with the best in hospital care. There is also a high rate of recurrence of bleeding in up to 60% of the survivors. It is essential to identify and treat those patients at risk because each episode of variceal haemorrhage carries 20% to 30% risk of death, and 70% of patients not receiving treatment will die within 1 year of the initial bleeding episode. Thus, prevention of esophageal variceal bleeding remains at the forefront of long-term management of cirrhotic patients.

Methods: For this study, patients with liver cirrhosis, admitted in the department of medicine, JA Group of Hospitals, GR Medical College were included. The study was conducted between September 2011 and November 2012 and cases were evaluated on the basis of clinical, haematological, ultrasonographic and upper gastrointestinal endoscopic finding. Total number of included cases were 100.

Result: The prevalence of esophageal varices was 75% in cirrhotic patients out of which 28% had bleeding. The Prevalence Of Gastric Varices Was 1.33%.

Conclusion: Cirrhotic patients should undergo endoscopic screening and administration of prophylactic measures like beta adrenergic antagonists or surgical interventions for prevention variceal haemorrhage.

Keywords: Cirrhosis, Esophageal, Varices, Bleeding, Prevalence

Introduction

Gastroesophageal varices are the most important clinical manifestation of portal hypertension. One of the common underlying causes of portal hypertension is cirrhosis. The most common causes of cirrhosis include chronic viral hepatitis B or C, alcohol abuse, and fatty liver disease. In cirrhosis, esophageal varices develop when blood flow through the liver is obstructed by scarring and blood accumulates in the portal vein, causing pressure to rise within the portal system. Increased portal pressure leads to the formation of portosystemic collaterals in watershed areas that receive drainage from both the portal and systemic systems, including the lower esophagus, stomach, abdominal wall, and rectum. Due to this higher pressure, the veins in the esophagus and other watershed territories begin to expand, resulting in varices. Esophageal varices leak or rupture, leading to potentially severe blood loss. Once esophageal varices are identified, they can be graded based on their size and risk of bleeding.

Chronic liver disease is the 10th leading cause of death in adults in the United States, accounting for approximately 25 000 deaths annually (1% of all deaths)[1]. Esophageal varices are one of the serious complications of liver cirrhosis because of its high mortality. Esophageal varices are present in 50–60% of patients with compensated cirrhosis and up to 85% in patients with decompensated cirrhosis[2]. After varices have developed, one third of all patients die of bleeding gastroesophageal varices[3,4] A first variceal bleed occurs at a rate of 10–15% per year, depending on the individual risk factors[19] and a recurrent VH at a rate of up to 60% per year[5]. It is essential to identify and treat those patients at risk because each episode of variceal haemorrhage carries 20% to 30% risk of death, and 70% of patients not receiving treatment will die within 1 year of the initial bleeding episode [6]. As the prevention of esophageal variceal bleeding remains at the forefront to reduce the mortality in cirrhotic patients, our study aimed to find out the prevalence of esophageal varices in cirrhotic patients in tertiary centre at Gwalior.

Material And Methods

Our study is a cross-sectional study. For this study, patients with liver cirrhosis who were admitted in the department of medicine, JA Group of Hospitals, GR Medical College were included. The study was conducted between September 2011 and November 2012. After getting informed consent each patient was subjected to a detailed history and clinical examination and also haematological, ultrasonographic and upper gastrointestinal endoscopic evaluation was done. Total number of included cases were 100.

Inclusion Criteria:

1. Already diagnosed patients of liver cirrhosis.

2. Age between 16-70 years.

Exclusion Criteria:

1. Patient with bleeding diathesis.

2. Patient with coagulation disorder.

3. Patients with any illness or infection that could influence the platelet count.

4. Patients with ascites and splenomegaly with cause other than cirrhosis and portal hypertension.

5. Patient with history of drug intake that may derange the liver enzyme levels, haematological, bleeding and coagulation profiles.

Depending on the presence of esophageal varices (EV) and bleeding, patients were divided into three groups: GROUP A-cirrhotic patients with EV without any bleeding episode, GROUP B-cirrhotic patients with EV with bleeding episode and GROUP C-cirrhotic patients with no EV.

Statistical Analysis: All obtained data were entered in Microsoft excel sheet 2007 and were analysed using IBM SPSS 21 software.

Observation & Result:

This study is a prospective cross-sectional study was conducted among the 100 cirrhotic patients and Group A included 54, Group B 21 and Group C 25 cases. The mean age of the total cases were 45.59 years. The mean age for males was 45.85 years and for females was 45.75 years. In cirrhotic males, the most common cause was alcohol related 62.34% and most were in the age group 36-55 years followed by hepatitis B 15.58% and cause was unidentified in 20.78%. In cirrhotic females, cause was unidentified in 56.52% and, most common cause is hepatitis B 30.43 % and no females were alcoholic in our study. 92% patients belonged to decompensated liver disease. All the females in the present study had decompensated liver disease (child B+C) as compared to 89.61% in males. In our study 75% (75/100) had esophageal varices. 50.67% (38/75) had grade III esophageal varices of these 12 (31.58%) patients had bleeding episode. 16% (12/75) had grade II esophageal varices of these 4 (33.33%) patients had bleeding episode. 98.67 % (74/75) had more than or equal to two columns. 69 % (69/100) had portal hypertensive gastropathy. 32 % (24/75) had positive red whale sign of these 21 (87.5%) patients had bleeding. 3 % (3/100) had gastric varices of these 2 (66.67%) patients had bleeding episode.

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Table No. 1 Age and Gender distribution among the three comparable groups

S.No.	Age Group (in yrs.)	Group A (n=54)		Group B (n=21)		Group C (n=25)		Total (n=100)	%
		M	F	M	F	M	F		
1.	15-25	3	5	2	1	2	1	14	14%
2.	26-35	5	3	1	0	2	2	13	13%
3.	36-45	9	3	6	1	6	0	25	25%
4.	46-55	10	1	3	2	6	0	22	22%
5.	56-65	5	1	3	0	3	0	12	12%
6.	66-75	7	2	2	0	2	1	14	14%
	Total	39	15	17	4	21	4	100	

Table No. 2 The distribution of etiology of cirrhosis among the study groups with gender distribution

S.No.	Etiology	Males (n=77)			Females (n=23)		
		group A (n=39)	group B (n=17)	group C (n=21)	group A (n=15)	group B (n=4)	group C (n=4)
1.	Hepatitis B	4	4	4	5	1	1
2.	Hepatitis C	0	0	0	3	0	0
3.	Alcohol	28	10	10	0	0	0
4.	Alcoholic Hepatitis	0	0	1	0	0	0
5.	Others	7	3	6	7	3	3

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Figure: 1

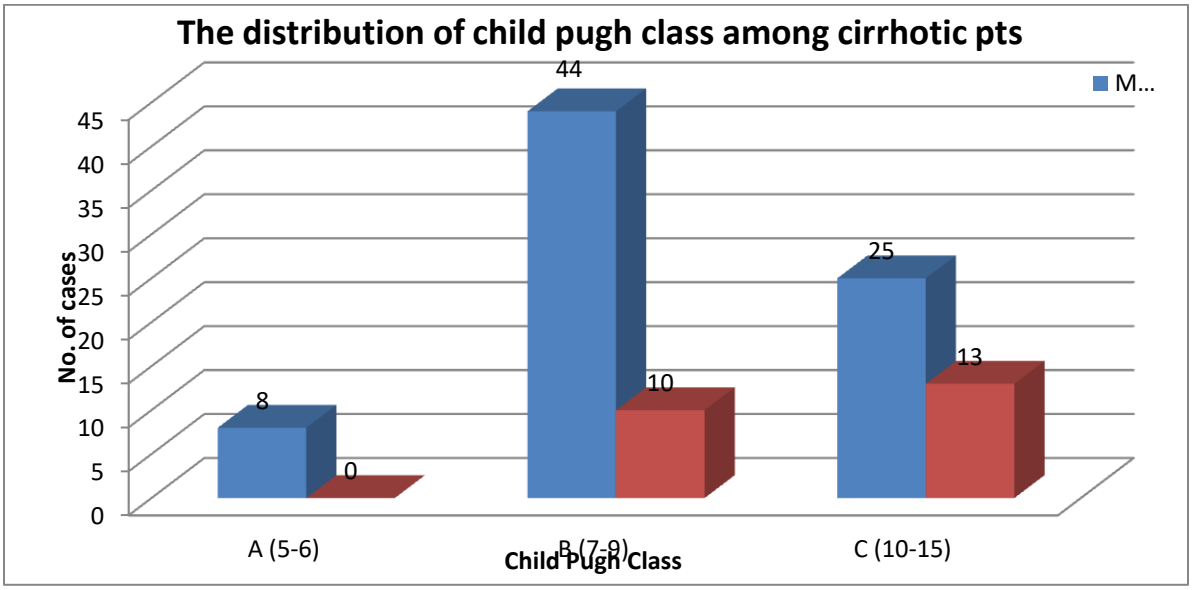

Figure: 2

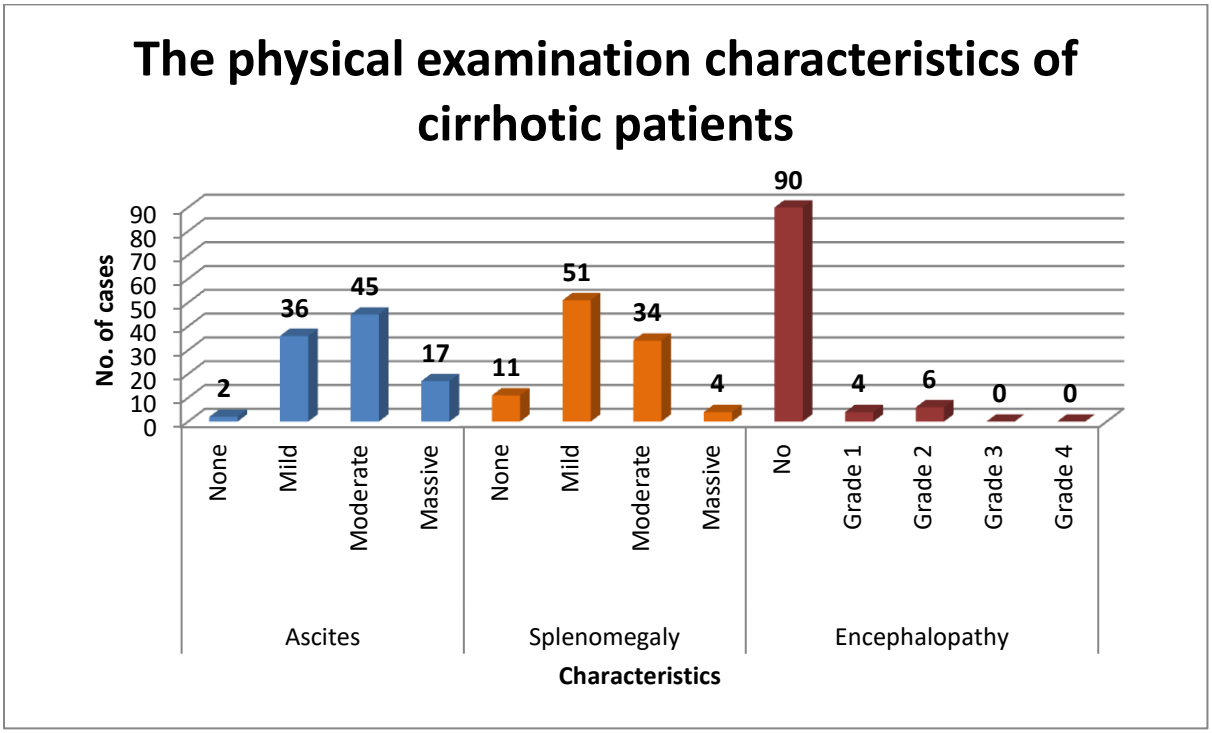

Table No. 3 The haematological parameters and liver function tests of cirrhotic patients

S. No.	Laboratory parameter	Mean ± Standard dilation
1.	Hb (in gms)	8.42±2.52
2.	Platelet count (in lakhs)	1.62±0.703
3.	Sr. Creatinine	1.096±0.534

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S. No.	liver function tests	
1	Sr. Bil (in mgs)	3.84 ± 5.12
2	SGOT	110.52 ± 168.63
3	SGPT	69.12 ± 97.66
4	Sr. Albumin	2.35 ± 0.62
5	Prothrombin time (in sec)	17.22 ± 2.52

Table No. 4 The endoscopic findings in cirrhotic patients

S.No.	Endoscopic findings	GROUP A	GROUP B
1.	Esophageal varices		
	(a) Size :		
	Grade I	12	0
	Grade II	13	4
	Grade III	26	12
	Grade IV	3	4
	(b) Column		
	1	1	0
	2	11	1
	3	38	16
	4	5	3
2	Red whale sign		
	+	3	21
	-	51	0
3.	Gastric varices		
	+	1	2
	-	53	19
4.	Portal Hypertensive gastropathy		
	+	48	21
	-	6	0

Discussion:

Esophageal varices are present at diagnosis in approximately 50% of cirrhotic patients, being more common in Child-Pugh class C patients, compared to Child-Pugh class A patients (85% versus 40%) [7,8]. De novo formation of varices occurs at a rate of 8% per year [8,9] Once varices form, they progress from small to large at a rate of 5-12% per year [10]. Rupture and bleeding of varices indicates a poor outcome. Once esophageal varices have been identified in a

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patient with cirrhosis, the risk of variceal bleeding is 25-35% and accounts for 80-90% of bleeding episodes in these patients [10-12]. Bleeding caused by rupture of the esophageal varices is associated with a mortality rate of 20% when patients are treated optimally in hospital [13]. The 6 week mortality with each episode of variceal hemorrhage is approximately 15 to 20%, ranging from 0% among patients with Child class A disease to approximately 30% among patients with Child class C disease [14,15] and up to 70% of untreated patients die within 1 year of the initial bleeding episode[16]. Survivors of an episode of active bleeding have a 70% risk of recurrent hemorrhage within one year.[17] The poor outcome of variceal bleeding makes identification of those at high risk and prevention of a bleeding episode critically important.[18] Early diagnosis of esophageal varices before the first bleed is essential as studies of primary prophylaxis with nonselective beta blockers have clearly shown that the risk of variceal bleeding can be reduced by 50% to about 15% for large oesophageal varices.[19]

In our study prevalence of esophageal varices was 75% in cirrhotic patients out of which 28% had bleeding. 25% of patients had no varices. Out 75 cirrhotic patients with varices 16% had grade 1, 22.67% had grade 2, 50.67% had grade 3 and 9.33% had grade 4 esophageal varices. The prevalence of gastric varices was 1.33%. A Hekmatnia[20] study reported 62% cirrhotic patients had esophageal varices. Filippo Schepis et al[21] reported that Esophageal varices were in 63 of the 143 patients examined (44%). Ravi Madhotra et al[27] reported Ninety-four patients (51%) had varices; of whom, 90 had only EV (small, n = 66; large, n = 24), 13 had EV and gastric varices, and 4 had isolated gastric varices .

In the present study the mean age of the total subjects were 45.59 years. The mean age of the cirrhotic patients with non-bleeding varices was 46 years ; that of cirrhotic patients with bleeding varices was 45.5 years and that of cirrhotic patients with no varices was 44.5. There was no significant difference in the mean age among the three groups which is consistent with, Tarzani et al study [22] in which mean age was 47.5 years and Limquaico J et al[23] study, mean age was 49 years. In Annet et al study[24], the mean age was 55 years. In Feng Hu Li et al[25], the mean age was 53.8 years. Bleeding risk was negatively correlated with age in Cales et al study [26]. In the present study 14% of cirrhosis was in the younger age group 15-25 years. In the present study the male:female ratio of all cirrhotic was 77:23 (77%:23%); in non-bleeding varices group male:female ratio was 39:15; in bleeding varices group male:female was 17:4 and in no varices group male:female ratio was 21:4. The mean age for males was 45.85 years and for females was 45.75 years. In the present study 61.04% of the males were in the age group 36-55 years and among females 52.17% were in the age group 15-35 years. 50.65% of males had non-bleeding varices (group A) whereas 65.23% of females had non-bleeding varices in the present study. 22.08% of males had bleeding varices whereas 17.39% of females had bleeding varices in the present study. 27.27% of males had no varices whereas 17.39% of females had no varices in the present study. In the study there was no significant difference between males and females, among the three groups which similar to Limquiaco J et al study[23] where males were 71% and females were 29%. In Feng Hu Li et al[25] ,78% males were 78% and females were 22%. In cases where etiology was known alcoholic cirrhosis was found in 48% (48/100) compared to 19%(19/100) found in post necrotic cirrhosis due to hepatitis B and 3% in post necrotic cirrhosis due to hepatitis C . In the present study unidentified etiology (others) was 29%(29/100). This is similar to S.K Sharma et al study[28] where 36% was due to alcohol, 16.8% due to hepatitis B, 14.8% due to HCV, 21.8% due to unknown cause. In cirrhotic with non-bleeding varices (group A), 51.85% (28/54) had alcohol etiology , 16.66%(9/54) had hepatitis B etiology and 5.55% (3/54) had hepatitis C etiology. In cirrhotic with bleeding varices (group B) , 47.61%(10/21) had alcohol etiology, 23.81% (5/21) had hepatitis B etiology. In cirrhotic with no bleeding varices (group B) , 40% (10/25) had alcohol etiology, 20%(5/25) had hepatitis B etiology. In the present study unidentified etiology (others) were 29%(29/100). In Limquiaco J et al study[23], 40% were due to HBV, 37% was due to alcohol. 22% due to schistosomiasis and only 2% had cryptogenic cirrhosis. In the present study, the most common etiology in cirrhotic patients is alcohol 48% followed by hepatitis B 19% and in29% (other) etiology was undetected. In cirrhotic males, the most common etiology is alcohol 62.34 % (48/77) and

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most were in the age group 36-55 years followed by hepatitis B 15.58% (12/77) and etiology was unidentified in 20.78(16/77). In cirrhotic females, etiology was unidentified in 56.52% (13/23) and, most common etiology is hepatitis B 30.43 % (7/23) and no females were alcoholic.

In the present study, 75% had varices, out of this 28% had bleeding. 38% (38/100) had grade III EV of this 12(31.58%) patients had bleeding, 17% (17/100) had grade II EV of this 4(23.53%) patients had bleeding. Amico GD et al [1] reported prevalence of varices in patients with cirrhosis to be approximately 60-80% and the risk of bleeding is 25-35%. Sarangapani A[31] et al reported EVs were detected in 77 of 106 patients (72.6%). In the present study gastric varices were found in 4%(n=3) of cases whereas Limquico et al[23] had reported 23% gastric varices, Kim et al[29] reported 25% gastric varices**.** Palmer et al [30] reported 16% of gastric varices. In the present study portal gastropathy was present in 69% (69/100) cases. Limquaico et al[23] reported 23% of portal gastropathy. In the present study red whale sign was present in 5.56 % in group A and 100% in group B which is statistically significant (P value <0.05) Merli M et al[8] showed that Predictor for bleeding was the presence of red wale marks at first endoscopy.

Conclusion:

Our study findings conclude that the prevalence of esophageal varices was 75% in cirrhotic patients out of which 28% had bleeding and 25% of cirrhotic patients had no varices. Cirrhotic patients should undergo endoscopic screening and administration of prophylactic measures like beta adrenergic antagonists or surgical interventions for prevention variceal haemorrhage.

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