Original Article

Esophageal Varices

Prediction of Large Esophageal Varices in Patients with Decompensated Cirrhosis by Child-Pugh Score, in Medical Unit-II, Chandka Medical College Hospital, Larkana

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ABSTRACT

Objective: To assess prediction of large esophageal varices in patients with decompensated cirrhosis by Child-Pugh score, in Medical Unit-II, Chandka Medical College Hospital Larkana.
Study Design: Cross sectional study
Setting and Duration of Study: This study was carried out at Medical Unit II, Chandka Medical College & Hospital, Larkana from November 2011 to November 2012.
Materials and Methods: In this study 88 consecutive cirrhotic patients with ascites (those Patients who fulfilled the inclusion criteria) were included; blood samples for Serum bilirubin, serum albumin, and INR ratio were sent to single laboratory. Then, child Pugh score were assigned to each patient on the basis of clinical and to laboratory parameter. The ultrasound of abdomen was carried out for size of liver and spleen, portal vein diameter, and quantification of ascits. Eligible patients were subjected for upper gastrointestinal endoscopy for the presence of esophageal varices and their grading. The data was analyzed using SPSS version 19.
Results: The mean age of enrolled patients was 43.19±7.1 years. Of 88 patients, 69 (78.4%) were male and 19 (21.6%) were female. Child Pugh class relation to number of patients were; 52, 20, and 16 in class A, B, and C respectively. While Child Pugh class relation to frequency of esophageal varices were; 6, 11 and 14 in class A, B, and C respectively. Frequency of grading of esophageal varices was; 4, 13, and 14 in grade one, two, and three respectively. Distribution of large esophageal varices (LEVX) in relation to child Pugh class is one in class A, two in class B and 11 in class C.
Conclusions: It is concluded from this study that as the child pugh score advances, the number and size of esophageal varices increases, and chance of absence of varices decreases.
Key Words: Esophageal varices, Child Pugh score, Grades of varices

INTRODUCTION

Cirrhosis is an end result of various hepatic diseases resulting to fibrosis with replacement of normal hepatic architecture in to nodular form leading to opening of Porto-systemic shunts. Some patients with cirrhosis are completely asymptomatic and have a reasonably normal life expectancy. Others have symptoms of end-stage liver disease and have a limited chance for survival. Chronic liver disease and cirrhosis result in about 35,000 deaths each year in the United States. Cirrhosis is the ninth leading cause of death in the United States and is responsible for 1.2% of all US deaths. Many patients die from the disease in their fifth or sixth decade of life. Cirrhosis was the 10th leading cause of death for men and the 12th for women in the United States in 2001, killing about 27,000 people each year.[1] 26% of hepatitis B and 15% of hepatitis C leads to liver cirrhosis worldwide.[2] Many patients of liver cirrhosis ultimately develop complications; amongst them portal hypertension is one of the major complication manifested as esophageal varices.[2]

The portal vein carries approximately 1500 ml/min of blood from the small and large bowel, spleen, and the stomach to the liver. Obstruction of portal venous flow, whatever the etiology, results in a rise in portal venous pressure. The response to increased venous pressure is the development of a collateral circulation diverting the obstructed blood flow to the systemic veins. These Porto - systemic collaterals form by the opening and dilatation of preexisting vascular channels connecting the portal venous system and the superior and inferior vena cava.

In Western countries, alcoholic and viral cirrhosis are the leading causes of portal hypertension and esophageal varices. Thirty percent of patients with compensated cirrhosis and 60-70% of patients with decompensate cirrhosis have gastro esophageal varices at presentation. The de novo rate of development of esophageal varices in patients with chronic liver diseases is approximately 8% per year for the first 2 years and 30% by the sixth year. The risk of bleeding from esophageal varices is 30% in the first year after identification. Bleeding from esophageal varices

accounts for approximately 10% of episodes of upper GI bleeding.

At least two thirds of cirrhotic patients develop esophageal varices during their lifetime. Severe upper gastrointestinal (UGI) bleeding as a complication of portal hypertension develops in about 30%-40% of cirrhotic, [3] the reported mortality from first episode of variceal bleeding in western studies ranges from 17% to 57% as compared to 5-10% mortality reported in our population. [4]

Upper GI endoscopy is gold standard investigation for diagnosis of esophageal varices[5]. But because of various limitations (not available commonly at primary and secondary care centers, lack of experts and cost of procedure), and not all patients of cirrhosis are developing esophageal varices, so it cannot be performed in every patients. Therefore an alternate, easy, less costly, non invasive way to identify the high risk patients for large esophageal varices has to be sorted out. So this study may help us to detect those high risk patients of liver cirrhosis.

MATERIALS AND METHODS

This Cross-sectional study was conducted in medial unit II, Chandka Medical College & Hospital Larkana, over a period of one year, from November 2011 to October 2012.

After the approval from Ethical Review Committee of Chandka medical college hospital Larkana, Patients were selected from medical unit II indoor department, those Patients who fulfilled the inclusion criteria (Cirrhotic patients with ascites, aged >12 years of either sex, without past history of upper and lower GI bleeding) were enrolled in this study. A verbal and written consent was obtained from all the patients after having fully explained the purpose and protocol of the study by researcher.

After taking history and clinical examination, blood samples for Serum bilirubin, serum albumin, and INR ratio were sent to laboratory. Then, on the basis of clinical and lab parameter child Pugh scoring were assigned. The ultrasound of abdomen was carried out for size of liver and spleen, portal vein diameter, and quantification of ascits, by an expert having at least 5 years experience.

Upper gastrointestinal endoscopy of eligible patients was performed after explaining the procedure and getting written consent from patient. After premedication with intravenous injection of 2 mg Midazolam and Xylocaine 1% spray as a topical anesthetic, procedure was done with Fiberoptic Endoscope by expert endoscopist and esophageal varices were graded on the basis of de-Franchis classification, i.e. Grade1 (small size); small straight varices, not occupying the lumen. Grade 2 (medium size); enlarged tortuous varices occupying less than one third of the lumen. Grade 3 (large size) ; large coil-shaped varices occupying more than one third of the lumen.

Following patients were excluded from our study. Patients who were taking medications for prophylaxis of variceal bleed. Patients who had previously underwent scelerotherapy or band ligation. Patients with hepatocellular carcinoma, previous portasystemic anastomosis or portal vein thrombosis. Patients with medical contraindications to upper gastrointestinal endoscopy like shock, atlanto-axial sublaxation, any coagulation disorder or not willing for endoscopy. Patients of age less than 12 years.

Data Analysis: All the data were entered and analyzed using SPSS version 19.0. Frequency and percentages was computed for categorical variables like gender, child Pugh classification and classification of esophageal varices. Mean ± S.D. was computed for quantitative variables age. Child Pugh scoring was correlated with grading of esophageal varices and their signification was assessed by chi-square test.

RESULTS

In this study 88 patients were enrolled, male were 69 (78.4%) and female were 19 (21.6%), with male to female ratio were 3.6:1.Mean age of enrolled participants was 49 + 15.538.

Out of 88 study population 52 (29.1%) patients were found in Child Pugh class A, 20 (22.7%) in class B, and 16 (18.2%) in class C. Table: 1

Table No.1: **Salient Features of Study Population**

Gender	Male. 69 (74.41%)	Female. 19 (21.59%)	Male to Female Ratio (3.6:1)
Child Pugh Class (Frequency & Percentage)			
Class A	52 (29.1%)		
Class B	20 (22.7%)		
Class C	16 (18.2%)		
Esophaeal Varices (Frequency & Percentage)			
Present	31 (35.2%)		
Absent	57 (64.8%)		
Grading Of Esophageal Varices (Frequency & Percentage)			
Grade 1 (small)	4 (4.5%)		
Grade 2 (medium)	13 (14.8%)		
Grade 3 (large)	14 (15.9%)		

Esophageal varices were present in 31(35.2%) out of 88 study population, Grade one (GI) esophageal varices were found in 4 (12.90%), Grade two (GII) in 13(41.94%) and Grade three (GIII) in 14 (45.16%) patients.

Correlation of Child Pugh class with esophageal varices and their grade shows that, in Child Pugh class

A out of 52 patients; oesophageal varices were present in 6 (11.5%) patients, and out of 6 patients 3(50%) were in grade one, 2 (33.3%) were in grade two, and 1(16.7%) was in grade three. Table: 2

In Child Pugh class B out of 20 patients; 11(55%) had esophageal varices, and out of 11 patients 1(9.1%) had grade one, 8 (72.7%) had grade two, and 2 (18.1%) had grade three esophageal varices. Table: 2

Table No. 2: Child Pugh * Grades of esophageal varices (EV) Cross tabulation

			Grades of Esophageal Varices				
			No Varices	Grade 1	Grade 2	Grade 3	Total
Child Pugh	Class A	Count	46	3	2	1	52
		% within Child Pugh	88.5%	5.8%	3.8%	1.9%	100.0%
		% within Grades	80.7%	75.0%	15.4%	7.1%	59.1%
		% of Total	52.3%	3.4%	2.3%	1.1%	59.1%
	Class B	Count	9	1	8	2	20
		% within Child Pugh	45.0%	5.0%	40.0%	10.0%	100.0%
		% within Grades	15.8%	25.0%	61.5%	14.3%	22.7%
		% of Total	10.2%	1.1%	9.1%	2.3%	22.7%
	Class C	Count	2	0	3	11	16
		% within Child Pugh	12.5%	.0%	18.8%	68.8%	100.0%
		% within Grades	3.5%	.0%	23.1%	78.6%	18.2%
		% of Total	2.3%	.0%	3.4%	12.5%	18.2%
Total		Count	57	4	13	14	88
		% within Child Pugh	64.8%	4.5%	14.8%	15.9%	100.0%
		% within Grades	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	64.8%	4.5%	14.8%	15.9%	100.0%

Chi-square = 61.273, df=6, p= < 0.05

While in Child Pugh class C out of 16; esophageal varices were found in 14 patients, among them grade one was not found in any patient, grade two in 3 (21.4%) patients, while grade three in 11(78.6%) patients. Table: 2

It means that; as the child pugh class advances (A to C) the number and size of esophageal varices increases (in Child Pugh class A 50% in grade one, in class B 72% in grade two and in class C 78% in grade three) it was statistically significant (p= < 0.05). Table: 2

DISCUSSION

Cirrhosis is the most advanced form of liver disease and variceal hemorrhage is one of its lethal complications. Over half of the patients with cirrhosis develop varices. The risk of bleeding once varices formed is 20% to 35% within 2 years,[5] and the reported mortality rate from first episode of variceal bleeding is 17% to 57%, and of those who survive the initial episode of bleeding and who do not receive active treatment, the risk of recurrent bleeding is approximately 66% and usually occurs within 6 months of the initial bleeding episode.[6,7]

Because cirrhotic patients with large esophageal varices are at a high risk for bleeding, an overt hemorrhage from the gastric mucosa occurred in 60% of patients with severe PHG. It has been documented that empiric beta-blocker therapy for the primary prophylaxis of variceal hemorrhage is a cost-effective measure, and it decreases the incidence of bleeding and an effect on bleeding related mortality. The use of screening endoscopy to guide therapy adds significant cost with only marginal increase in effectiveness. This added cost to screening endoscopy is presumably due only to the large number of unplanned endoscopies; where the endoscopic findings do not significantly alter the treatment plan, hence identification of non invasive parameters that can accurately predict esophageal varices and help to identifying patients at greatest risk is important to improve the yield and cost- effectiveness of endoscopic screening.[8]

In this study esophageal varices has been related to child-pugh categories, to identify the large esophageal varices, in order to do endoscopy in selective patients and or to start the oral beta blockers in those who are not willing or fit for endoscopy.

In this study esophageal varices observed in 31 (35.2%) patients. Of 31 cases of varices, 12.90% were of Grade I, 41.94% in Grade II and 45.16% in Grade III. While some of local and European studies suggest higher frequencies of esophageal varices observed in cirrhotic patients, like 91.7% by Said HEE et al,[9] 70% by Gill ML et al,[10] 70.6% by Prihartini J et al,[11] 70.7% by Hong WD et al,[12] 76.9% by Stojanov DB et al,[13] and 80 % by Kaji BC et al.[14]

On other hand few studies suggest little bit lower frequencies, 29% by Almani SH et al,[15] 50% by thompoulos KC et al,[16] and two studies show 51% by Carles P et al[17] and Madhotra et al, [18] 55% by schwarzenberger E et al,[19] 58.4% by Sethar GH et al,[20] and 61% by Giannini E et al.[21] In all above studies other non invasive parameters were used for the

detection of esophageal varices. In our study large esophageal varices were present in 45.16 % of cases. In comparision to other studies large oesophageal varices were observed were, 30% [10], 33%,[16] 34% [14] and 46% by Sharma SK et al,[22] 50% Barrera F et al,[23] and 65%. [13] Study by Madhotra,[18] shows distribution of esophageal variecs to child pugh category A, 35%; B, 60%; C, 69% and large varices were 29% in category A, 24 % in category B and C, while in our study frequency of large esophageal varices were, 16.66% in class A, 18.18% in class B, and 92.85% in class C, which correlates with study by Said HEE,[9] they also observed increasing frequency of esophageal varices with advancement of child-pugh class (50% in A, 93.5% in B and 100% in C). In our study frequency and size of esophageal varices is correlated rather than frequency alone.

CONCLUSION

In this study we conclude that as the Child Pugh score advances the frequency of esophageal varices increases especially the large varices. So we recommend that those patients in which upper gastrointestinal endoscopy is not feasible of any reason, and having history of upper gastrointestinal bleeding, with Child Pugh class "C" then beta blocker drugs shuld be given for prophylaxis if there are no contraindications.

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