

The Relationship between Oesophageal Varices, Portal Vein Diameter And Splenic Length (Antero-Posterior)

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ABSTRACT

Objective: In this study our main objective is to evaluate the relationship between Oesophageal varices, Portal vein diameter and splenic length (antero-posterior).

Methodology: This Cross-sectional comparative study conducted at the Department of Hepatology, Bangabandhu Sheikh Mujib Medical University (BSMMU) from Jan 2010 to Dec 2011 where 50 Patients with cirrhosis of liver attending the department of Hepatology, BSMMU were included as a population in this study.

All the data was checked and edited after collection. It was expressed as Mean and SD. Data has been analyzed by ANOVA. p value of less than 0.05 was considered statistically significant. Statistical analysis was done by using SPSS-15 (Statistical package for social sciences) win version 15 software programme.

Results: During the study, the mean age was 43.12±15.68years. The highest frequency of cirrhosis patients was found in 41-50 years age groups (Frequency 12). Leading cause was HBV (68%) followed by HCV (12%), NBNC (12%), Wilson's disease (6%) and both HVB& HCV (2%). Also, grade-3 mean portal Vein diameter was found 12.67±2.47 mm

whereas; mean splenic length (antero-post.) was 13.82±2.12 cm.

Conclusion: Splenic antero-posterior measurement is not a reliable predictor for sizes of oesophageal varices. Further study is needed for better outcome.

Keywords: Oesophageal Varices, Portal Vein Diameter, Splenic Length (Antero-Posterior).

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INTRODUCTION

Cirrhosis is a diffuse (affect most of liver), chronic, progressive liver disease characterized by fibrosis, regenerating nodules, loss of lobular pattern, may be associated with necrosis, inflammation of variable degree or proliferating bile ducts.

Oesophageal varices are dilated blood vessels within the wall of the oesophagus. When Portal Hypertension occurs, blood flow through the liver is diminished. Thus, blood flow increases through the microscopic blood vessels within the oesophageal wall. As this blood flow increases, the blood vessels begin to dilate. This dilatation can be profound. The original diameter of the blood vessels is measured in millimeters while the final, fully established, oesophageal varix may be 0.5 to 1.0 cm or larger in diameter.¹⁻³

On the basis of these studies recent practice guidelines have recommended that all patients with cirrhosis undergo screening upper GI endoscopy to detect OV at the time of diagnosis so that they can be treated with pharmacological agents if medium/large OV detected. Furthermore, based on natural history data, expert consensus panels have also determined that surveillance endoscopies should be performed every 2-3 years in cirrhotic patients without varices and that patients with small varices be endoscoped every 1-2 years, and annually in the setting of decompensation.^{2,4}

In this study our main objective is to evaluate the relationship between Oesophageal varices, Portal vein diameter and splenic length (antero-posterior).

OBJECTIVE

General Objective

- To assess the relationship between Oesophageal varices, Portal vein diameter and splenic length (antero-posterior).

Specific Objective

- To detect cause of cirrhosis.
- To identify Oesophageal varices in Cirrhotic patients

METHODOLOGY

Study Type

This was a Observational, Cross sectional study

Study Place and Duration

This study was conducted at Department of Hepatology Bangabhandhu Sheikh Mujib Medical University (BSMMU) from Jan 2010 to Dec 2011.

Study Population

50 Patients with cirrhosis of liver attending the department of Hepatology, BSMMU were included as a population in this study.

Sampling Technique

Non probability convenience sampling technique was used.

Inclusion Criteria

- Patients with cirrhosis of liver with presence of varices, irrespective of a etiology, sex and age range between 15-75 years, attending the department of Hepatology, BSMMU:
- Clinical and biochemical features suggestive of chronic liver disease Plus
- Ultrasonographic evidence of small / coarse echotexture of liver
- Endoscopic evidence of oesophageal varices.

Exclusion Criteria

- Patients who received EVL therapy.
- Patients who received sclerotherapy.
- Active or recent GI bleeding within two weeks
- Hepatic coma
- Portal vein thrombosis.
- Non-cirrhotic portal hypertension.
- Cirrhosis of liver with any other severe co-morbid conditions.
- Patients getting beta-blocker.
- Severe cardiac failure
- Bronchial asthma
- COPD
- Severe renal insufficiency.
- Who refused to give consent to be included in the study.

Study Procedure

Patients were evaluated by detailed history and all patients were clinically examined and findings were recorded on the clinical information data sheet. Patients suggestive of cirrhosis and patients with prior diagnosis of cirrhosis were provisionally selected for the study. These patients underwent liver function tests- S. bilirubin, Prothombin Time, S. Albumin; USG of whole abdomen, endoscopy of upper GIT. USG was done by using 3.5 Mega Hartz Transducer with Mitsubishi-CP77ODW USG Machine. The findings of laboratory investigations, Endoscopy and ultrasound was recorded. For each patient ultrasound examination of abdomen for splenic size, ascites and portal vein diameter was done. Relevant investigations to find out the cause of cirrhosis such as serological marker of HBV, HCV were also done. Previously diagnosed cirrhotic patients were also evaluated

thoroughly by relevant physical examinations, investigations and reviewing previous documents. History of any EVL or sclerotherapy for varices was sought in these patients. History of active or recent (within 14 days) GI bleeding was noted in all patients.

Data Analysis

All the data was checked and edited after collection. It was expressed as Mean and SD. Data has been analyzed by ANOVA. p value of less than 0.05 was considered statistically significant. Statistical analysis was done by using SPSS-15 (Statistical package for social sciences) win version 15 software programme.

Table 1: Age distribution of the patients

Age group	%	n
>20	10%	5
21-30	12%	6
31-40	22%	11
41-50	24%	12
51-60	22%	11
61-70	6%	3
>70	4%	2

Table 2: Distribution of the patients according to cause of cirrhosis

Cause	%
HBV	68%
HCV	12%
NBNC	12%
Wilson's disease	6%
HVB& HCV	2%

Table 3: Relation between Oesophageal varices, Portal vein diameter and Splenic length (antero-posterior)

Oesophageal Varices	Mean Portal Vein diameter in mm	Mean Splenic length (antero-post.) in cm
Grade 1	10.62±1.85	12.97±1.72
Grade 2	10.74±2.40	12.88±1.96
Grade 3	12.67±2.47	13.82±2.12

RESULTS

In table-1 shows age distribution of the patients where the age range of the cirrhosis patients was 15-75 years and the mean age was 43.12±15.68years. The highest frequency of cirrhosis patients was found in 41-50 years age groups (Frequency 12).

In figure-1 shows gender distribution of the patients where among 50 cirrhotic patients 41were male.

In table-2 shows distribution of the patients according to cause of cirrhosis where most leading cause was HBV (68%) followed by HCV (12%), NBNC (12%), Wilson's disease (6%) and both HVB & HCV (2%).

In figure-2 shows size of oesophageal varices where Grade-1 OV was found in 11 patients (22%), Grade-2 in 13 patients (26%), Grade-3 in 26 patients (52%).

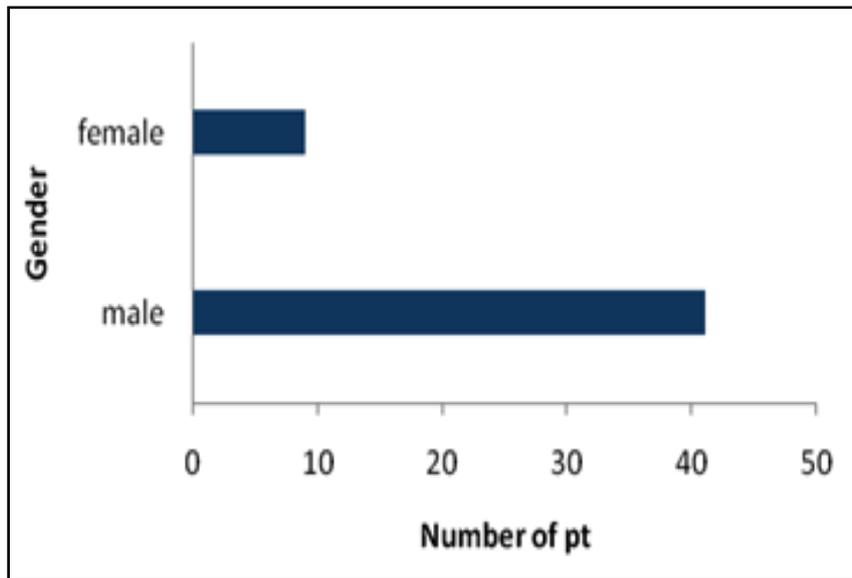


Fig 1: Gender distribution.

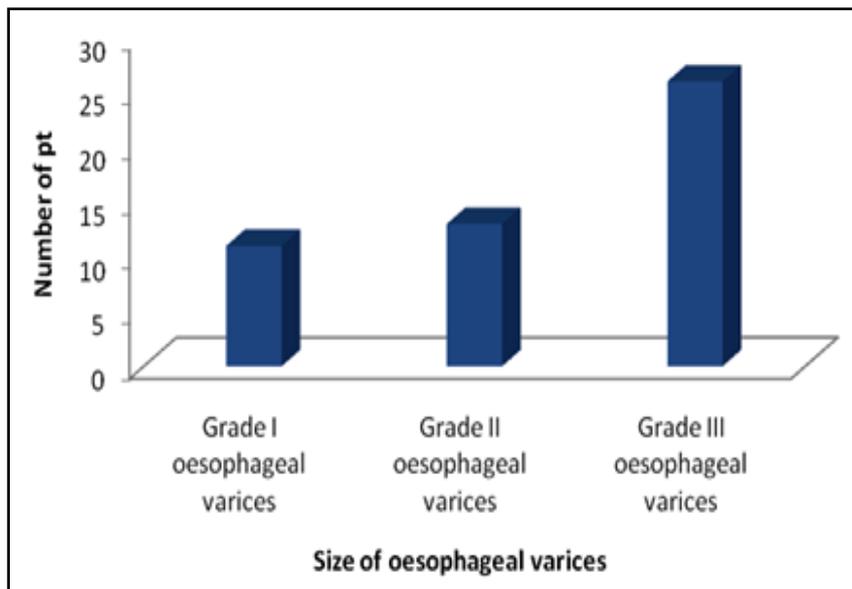


Fig-2: Oesophageal varices in Cirrhotic patients.

Table 4: One way ANOVA (Bonferroni) test to asses relationship between splenic length with different grades of Oesophageal varices

Oesophageal varices	Number of Patient	Mean splenic length	Oesophageal varices	Number of Patient	Mean splenic length	P value
Grade-1	n = 11	12.97±1.72	Grade-2	n =13	12.83±1/96	1.000
			Grade-3	n = 26	13.82±2.12	0.742
Grade-2			Grade-3	n =26	13.82±2.12	0.472

In table-3 shows relation between oesophageal varices, portal vein diameter and splenic length (antero-posterior) where for grade-3 mean portal Vein diameter was found 12.67 ± 2.47 mm whereas, mean splenic length (antero-post.) was 13.82 ± 2.12 cm. In table-4 shows one way ANOVA (Bonferroni) test to asses relationship between splenic length with different grades of Oesophageal varices where the results were not significantly found (P values were >0.05).

DISCUSSION

Among the patients,41 were male (82%) and 9 were female (18%),which is not far from the study by Fook Hong et al 1999,who found 38 males (66%) and 15 females (34%),and other study who found 29 males (62%) and 18 females (38%).⁴⁻⁶ The age ranged from 15-75 years with a mean age of 43.12 ± 15.7 years. The age distribution of other study, who found the age ranged from 22 to 79 years with a mean age of 56.6 ± 12.3 years.⁵

Etiology of their cirrhosis were different with leading cause HBV (68%) followed by HCV (12%), NBNC (12%), Wolson's disease (6%) and both HVB& HCV (2%). Another study also found HBV as a leading cause of cirrhosis 61.15% in Bangladesh.⁵

In this study, Grade-1 OV was found in 11 patients (22%), Grade-2 in 13 patients (26%), Grade-3 in 26 patients (52%). Minimum Portal Vein diameter was 6.6 mm and maximum diameter was 18 mm with a mean diameter of 11.72 ± 2.76 mm. For Grade 1, Grade 2 and Grade 3 OV, mean portal vein diameter were respectively 10.62 ± 1.85 mm, 10.74 ± 2.40 and 12.67 ± 2.47 mm. Minimum splenic anteroposterior measurement was 9.5 cm and maximum measurement was 18.3 cm with a mean of 13.37 ± 2.02 cm. For Grade 1, Grade 2 and Grade 3 OV, mean splenic anteroposterior measurement were respectively 12.97 ± 1.72 cm, 12.88 ± 1.96 cm and 13.82 ± 2.12 cm.

One way ANOVA test to asses relation of splenic length with different grades of Oesophageal varices (Bonferoni) was done but the results were also not significant (P values were >0.05).

But in other studies, they found significant relation between oesophageal varices and portal vein diameter and splenic length.

In another study reported that, 101 consecutive patients to see relationship between splenic size and OV, but found no significant correlation.^{1,4,6,7}

CONCLUSION

Splenic antero-posterior measurement is not a reliable predictor for sizes of oesophageal varices.

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