# Diffuse Gallbladder Wall Thickening In Relation To Esophageal Varices In Patients With Liver Cirrhosis.

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# BACKGROUND

- Liver cirrhosis may be defined as a diffuse process characterized by fibrosis and conversion of normal liver architecture into abnormal nodules.
- The prevalence of chronic liver disease/cirrhosis worldwide is estimated to be 100 (range, 25 to 400) per 100,000 subjects, but it varies widely by country and by region. A study done in Bangladesh at BSMMU Hospital and Sir Salimullah Medical college Hospital, Dhaka, showed that prevalence of cirrhosis is 2.6% .
- According to the World Health Organization, about 800,000 people die of cirrhosis annually

# BACKGROUND Cont.-

- Cirrhosis of liver can occur with or without the development of portal hypertension. Individual who develops portal hypertension presents with splenomegaly and varices in addition to other clinical symptoms and signs. As the portal vein drains the lower end of esophagus as well as gall bladder so increase in portal pressure is reflected in the gall bladder.
- The reflected retrograde pressure is manifested by thick, edematous gall bladder and also venous engorgement of this organ. So, this study was designed to make a relation between gall bladder wall thickening (GBWT) and esophageal varices (EV) in liver cirrhotic patient.

# RATIONALE

Esophageal varices may cause life-threatening bleeding with high hospital cost. Mortality rate is still above 45% in those with poor liver function e.g Child-Pugh-C patients.

Since effective preventive modalities for variceal hemorrhage have been established, the early detection of esophageal varices is critical for prevention of bleeding. Currently, endoscopic screening is widely recommended to patients who have the diagnosis of cirrhosis.

# RATIONALE Cont.-

- When endoscopy is used to evaluate the presence of esophageal varices in all liver cirrhotic patients , this would unnecessarily expose them to the hazards of endoscopy including distress , pain and esophageal perforation. Also, a great deal of health care resources are required in terms of cost and man power.

- Several studies have been published concerning the non-invasive diagnosis of EV in patients with liver cirrhosis as a result of the growing pool of patients with liver cirrhosis. Therefore, there is a particular need for non-invasive predictors of the presence EV as they might help relieving medical, social, and economic costs.

# RATIONALE Cont.-

- Gallbladder wall thickening (GBWT) measured at abdominal sonogram can play a significant role in detecting the presence of esophageal varices in patients with portal hypertension due to liver cirrhosis.
- Bangladesh is a developing nation. Here endoscope is not available in Upazilla health complex even in District hospitals but ultrasonogram is available there. So, by measuring GBWT at abdominal sonogram we can start prophylactic medication to reduce the complication of the disease.

# METHODS

- Study type: Descriptive and cross-sectional study.
- Study place: Rajshahi Medical College Hospital.
- Duration of study: January 2013 to December 2014 Study Population: All diagnosed cases of liver cirrhosis attending in Medicine unit of Rajshahi Medical College Hospital. Liver cirrhosis patients were diagnosed on clinical suspicion, liver function tests, by ultrasonography and/or presence of esophageal varices revealed by upper GI endoscopy
- Sampling Method: Purposive sampling method
- During the study period 50 cases fulfilling inclusion and exclusion criteria were included.

# Inclusion criteria:

- All diagnosed cases of liver cirrhotic patients.
- Age >18 years.
- Sex-both male and female.

# Exclusion criteria:

- Congestive cardiac failure
- Nephrotic syndrome
- Calculus and acalculus  cholecystitis
- Liver cirrhotic patients with other complications e.g. hepatic encephalopathy, hepatoma, SBP, hepatorenal syndrome.
- Patients with bleeding episode
- Pregnancy.
- Medical contraindication to perform upper GI endoscopy.

# Results: age distribution

| Age group | No. of patients | percentage(%) |
|---|---|---|
| 20—29 years | 05 | 10 |
| 30—39years | 07 | 14 |
| 40—49 years | 15 | 30 |
| 50 –59years | 14 | 28 |
| >60 years | 9 | 18 |
| | | |
| Total | 50 | 100 |

# Patient distribution according to the level of Gall bladder wall thickness

| GBWT | Frequency | Percentage (%) |
|---|---|---|
| 1-3 mm | 8 | 16 |
| 3.1-5.9 mm | 10 | 20 |
| 6-8.9 mm | 16 | 32 |
| 9-12 mm | 16 | 32 |
| Total | 50 | 100 |
| Mean (±SD) =7.09(±2.90) range: 1.20—11.50 mm | | |

# Distribution according to the presence of esophageal varices.

| Esophageal varices | No. of patients | Percentage(%) |
|---|---|---|
| Presence | 42 | 84 |
| Absence | 8 | 16 |
| Total | 50 | 100 |

# Distribution according to grade of esophageal varices

| Grade of Esophageal varices | No. of patients | Percentage (%) |
|---|---|---|
| Grade-I | 9 | 21.4 |
| Grade-II | 17 | 40.5 |
| Grade-III | 16 | 38.1 |
| Total | 42 | 100 |

# Distribution according to the presence or absence of esophageal varices and level of Gall bladder wall thickness

| | | | Grading of esophageal varix | | | | |
|---|---|---|---|---|---|---|---|
| | | | Grade I | Grade II | Grade III | Absent | Total |
| Gall bladder | Normal(1-3mm) | | 0 | 0 | 0 | 8 | 8 |
| | | | .0% | .0% | .0% | 100% | 100% |
| | Mild( 3.1-5.9 mm) | | 9 | 1 | 0 | 0 | 10 |
| | | | 90% | 10% | .0% | .0% | 100% |
| | Moderate( 6-8.9 mm) | | 0 | 16 | 0 | 0 | 16 |
| | | | .0% | 1000% | .0% | .0% | 100% |
| | Severe (9-12 mm) | | 0 | 0 | 16 | 0 | 16 |
| | | | .0% | .0% | 100% | .0% | 100% |
| Total | | | 9 | 17 | 16 | 8 | 50 |
| | | | 18.0% | 34.0% | 32.0% | 16.0% | 100% |

# Distribution according to the level of Mean Gall bladder wall thickness with or without esophageal varices

| Grading of esophageal varix | Gall bladder wall thickness in mm Mean | N | % of Total N |
|---|---|---|---|
| Absent | 2.3125 | 8 | 16.0% |
| Grade I | 5.4333 | 9 | 18.0% |
| Grade II | 7.3563 | 17 | 34.0% |
| Grade III | 9.9824 | 16 | 32.0% |
| Total | 7.0960 | 50 | 100.0% |

# ANOVA table showing a significant statistical correlation (P value < 0.001).

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Gall bladder wall thickness in mm * Grading of esophageal varix | Between Groups (Combined) | 350.646 | 3 | 116.882 | 85.163 | .000 |
| | Within Groups | 63.133 | 46 | 1.372 | | |
| | Total | 413.779 | 49 | | | |

# Conclusion

- In patients with liver cirrhosis, the presence of EV is directly related to the level of GBWT and there is also association with the grade of EV and level of GBWT.
- All of the patients with a GBWT value >3 mm had esophageal varices.
- This finding will permit the use of GBWT as a preliminary indirect parameter that will predict the presence of esophageal varices (EV).
- It can help clinicians in determining the urgency of care, especially where endoscopy facilities are not available.

# Thank you