

The Relationship Between Serum Bilirubin Levels and Oesophageal Variceal Size in Patients with Chronic Liver

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The purpose of study was to find the relationship between serum bilirubin levels and oesophageal variceal size in patients suffering from chronic liver disease. Twenty patients with chronic liver disease and oesophageal varices were included in the study. Twenty percent had serum bilirubin levels upto 1.6mg% and varices of grade II. Twenty percent had serum bilirubin levels between 1.7-2.0 mg% and variceal grade was either II or III. In another 20% serum bilirubin levels were between 2.0-3.0mg% were associated with varices of grade III and IV. Forty percent patients with serum bilirubin more than 3mg% had grade III varices. Therefore 60% patients with serum bilirubin levels of 2mg% or more were associated with grade III or IV varices.

Key words: Serum bilirubin, oesophageal variceal size, chronic liver

Cirrhosis of the liver has worldwide distribution and is responsible for morbidity and mortality throughout the world. In underdeveloped countries such as Pakistan, the situation is graver than in developed countries because of high incidence of viral hepatitis B and C, Worldwide hepatitis B is probably the most common cause of acute and chronic liver disease¹. A major cause of death in patients with cirrhosis is gastrointestinal haemorrhage most often as a result of the portal hypertensive state². Cirrhotic with oesophagogastric varices have a 25-33% risk of initial variceal bleeding, a risk of 70% for recurrent variceal bleeding and an associated mortality of up to 50%³. The size of the varix must be graded⁴. In general it can be said that larger the varix, the more likely it is to bleed^{5,6,7,8}. It is obvious that variceal size is an important predictor of variceal haemorrhage and in planning prophylactic therapy for the same.

It is the purpose of this study to see if variceal size has any relation to serum bilirubin levels and to see if progressively increasing serum bilirubin levels are associated with increasing variceal size.

Patients and methods

This study was carried out on 20 patients suffering from chronic liver disease and oesophageal varices which were graded endoscopically (Table 1). Serum bilirubin was documented in each case. LFTs, abdominal ultrasound, viral markers, serum albumin, total serum proteins and PT were carried out on all patients.

Table 1. Grade of oesophageal varices

Grade	Endoscopic appearance
I	Varices can be depressed by endoscope
II	Varices cannot be depressed by endoscope
III	Varices are confluent around the circumference of endoscope.
IV	Varices are blue, tortuous and obliterating oesophageal lumen.

Four patients (20%) had serum bilirubin up to 1.6mg% and had oesophageal varices of grade II. Four patients (20%) had serum bilirubin levels between 1.7-2.0 mg% and had grade II to III varices. Another four patients (20%) had serum bilirubin levels between 2-3mg% and esophageal varices of grade III and IV. Eight patients (40%) had serum bilirubin more than 3mg% and grade III varices. Therefore, 60% patients with serum bilirubin levels of 2mg% or more were associated with grade III or IV varices.

Table 2.

n=	%age	Serum bilirubin	Grade of Varices
4	20	Upto 1.6mg%	Grade II
4	20%	1.7-2mg%	Grade II-III
4	20%	2-3mg%	Grade III-IV
8	40%	>3mg%	Grade III

Discussion

In view of the above results it seems almost tempting to say that the greater the bilirubin level, the larger is the size of the varix. Hence a test as simple and non-invasive as serum bilirubin may be able to predict variceal size. It may, therefore, be possible to plan prophylactic therapy for variceal heamorrhage as bilirubin levels increase. It must, however, be emphasised that this study is very limited. A large number of subjects need to be studied before this theory can be accepted.

In addition, according to our study 20% patients with grade III or IV varices had serum bilirubin levels between 2.0-3.0mg% but 40% patients with serum bilirubin levels more than 3mg% had only grade III varices. This seems to be a contradiction because the general trend has been of increasing variceal grade with rising bilirubin levels. This could be because patients in this group may have bled recently thus lowering portal pressure and variceal size.

Previous data on the relation of the presence of varices and variceal size to the degree of liver injury as

measured by the Child-Pugh score (of which serum bilirubin is a part) are conflicting. In some cross-sectional studies using the Cork regression analysis, a high Child score (where bilirubin levels increase with worsening score) was predictive of large varices^{9,10}. In other studies no direct correlation was found. To conclude it may be said that rising bilirubin levels may indicate increasing variceal size and hence the possibility of variceal haemorrhage, but further study needs to be done on this subject before this fact can be established.

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