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ORIGINAL ARTICLE

Prevalence of Oesophageal Varices in Newly Diagnosed Chronic Liver Disease Patients at The Jos University Teaching Hospital, Jos

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ABSTRACT

Background: Variceal bleeding is an important complication of portal hypertension and a major cause of death in patients with chronic liver disease (CLD) world wide. This study was carried out to document the occurrence of oesophageal varices and its clinical correlates among 80 Nigerian patients with CLD. **Patients and Methods:** Eighty patients with CLD were stratified into three groups based on Child- Turcotte- pugh's classification for severity of CLD in a one year study. They had upper gastrointestinal endoscopy to detect and characterize varices. **Results:** Sixty (75%) of the patients had oesophageal varices at endoscopy with 88.3% having grade 2 or 3 varices while 73.3% had moderate/large varices. Thirty five percent of the varices had "red signs" with "red whale" markings as the predominant red sign. Gastric varices were seen in 12.5%. Variceal size was significantly associated with severity of liver disease ($P<0.05$) as 90% of the patients with varices presented with Child's class B or C. A multiple logistic regression analysis identified advancing age, ascites, shrunken liver span and low platelet count as independent predictors of oesophageal varices. **Conclusion:** A large proportion of Nigerian CLD patients have advanced at-risk-for-bleeding oesophageal varices at diagnosis. Early diagnosis of CLD in Nigerians is warranted.

Key words: Prevalence, Oesophageal varices, Chronic liver disease, Cirrhosis

INTRODUCTION

Chronic liver disease (CLD) is a world wide medical problem.[1] It is the third leading cause of death after cancer and cardiovascular disease among people aged 25-65 years in the United States of America.[2, 3] The life time incidence of oesophageal varices among CLD patients approximates 50%, while the annual risk of developing varices is 5-15%.[2, 4] Variceal bleeding is perhaps the most dreaded complication of CLD.[2,5] The mortality rate for each bleeding episode is about 30%, however, if underlying aetiology remains untreated, as many as 70% of patients who bleed die within one year of the initial bleeding episode.[2,]

There has been great interest in primary prevention of variceal bleeding in the past 10-15 years. Numerous studies in the developed world have demonstrated the efficacy of pharmacotherapy for primary prevention of variceal bleeding in patients with high risk varices.[6] Recent data also suggest that variceal band ligation and injection sclerotherapy are effective in preventing variceal bleeding. To apply these primary preventive measures effectively, CLD patients with high-risk varices must be identified.

Although, there are no published studies describing the prevalence of oesophageal varices in CLD among Nigerians, several workers have studied aetiological factors for upper gastrointestinal haemorrhage (UGIH) in Nigeria. Oesophageal varices accounted for 10-30% of all cases of UGIH according to most reports from Southern Nigeria.[8-13] Higher figures were reported in Northern Nigerian cities of Zaria[14] (34.6%) and Jos[15] (32.8%). Whether these differences between the Northern and Southern parts of Nigeria represent genuine differences in aetiology of UGIH in Nigeria or are a manifestation of varying methods of investigating UGIH may only be determined by further studies.

This study characterises the occurrence of oesophageal varices and its clinical correlates in these patients.

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PATIENTS AND METHODS

This was a prospective descriptive study carried out between October 2003 and September 2004. Adults aged 18 years and above attending the Gastroenterology Out-Patient Clinics and those admitted under the Unit in the Medical wards of the Jos University Teaching Hospital, a referral centre for the states in North Central Nigeria were studied. Informed consent was obtained from all the participants and the Ethics Committee of the hospital approved the study.

Consecutive Patients with CLD were recruited into the study. The diagnosis of CLD was based on clinical, laboratory and ultrasonographic findings and where possible, confirmed by liver biopsy. Patients who presented with three or more of the following were diagnosed as having CLD; Bedside stigmata of CLD, Clinical features of portal hypertension (distended abdominal veins, splenomegaly, ascites, and encephalopathy.), Hypoalbuminaemia, Shrunken or enlarged nodular liver with increased echotexture, a blunt edge, and distorted architecture, with or without a dilated portal vein, thickened gallbladder wall, splenomegaly or ascites on abdominal ultrasound scan. These patients were stratified into three groups based on Child-Turcotte-Pugh's classification for severity of CLD[16]. Upper gastrointestinal endoscopy was performed on all the patients.

Excluded from the study were patients less than 18 years of age, patients too ill to undergo endoscopy and those who were unwilling to participate in the study.

Endoscopic procedure

The endoscopic instruments used were the end viewing Olympus GIF 2T10 or GIF P30 with a camera attached to a monitor. The procedure was done in the morning after an overnight fast of at least eight hours. Dentures (if present) were removed. Two percent lignocaine spray was used as pharyngeal anaesthesia. None of the patients required sedation. With the patient lying in the left lateral position and a tooth guard in place, the distal lubricated end of the endoscope was introduced through the mouth under direct vision. The patient was asked to swallow and the instrument advanced into the oesophagus. The length of the oesophagus as far as the cardia was visualised and the presence (or absence), extent, colour or size of any varix recorded.

Varices were graded as follows: Grade 0 – no varices seen, Grade 1 – varices flattened by insufflation of air, Grade 2 – varices not flattened by insufflation but separated by areas of normal mucosa and Grade 3 – varices not flattened by insufflation, confluent and large enough to occlude the lumen of the oesophagus.[17] Variceal size was estimated using the open end of the endoscopy biopsy forceps, which measures approximately 5mm in diameter. Varices were recorded as small (<5mm) or moderate/large (>5mm). The endoscope was then advanced into the stomach and duodenum in search of gastric extension of varices or other lesions.

Statistics: Data were analysed using the EpiInfo 2004; version 3.2.2 statistical soft ware. Results were expressed as means and/or median with ranges. Chi square was used to compare proportions of categorical data. P-value less than 0.05 was considered significant. Fisher exact test was used when number in cells was less than five. Multiple logistic regression analysis was performed to assess the independent predictors of the presence of varices.

RESULTS

A total of 80 CLD patients, 67 males (83.8%) and 13 females (16.2%) were recruited for the study. Their age ranged between 19 and 63 years (mean age = 41.8 ±11.7 years). The largest number of patients totalling 23 (28.8%) was in the age group 41-50 years (Fig 1). Forty one (51.2%) of the patients had significant history of alcohol ingestion while 25 (31.2%) had previous history of jaundice. Haematemesis and ascites were both present in 43.8% of the patients. The other clinical features are as shown in Table 1. No subject had spider naevi.

The mean serum albumin level was 30.3g/L ± 9.1 (range 13 – 54) with hypoalbuminaemia (levels < 28g/L) present in 68%. Mean total bilirubin was 27 μmol/L ± 29.7 (range 10 – 159) while mean prothrombin time was 21.5 sec ± 7.0 (range 13 – 47) and the mean platelet count was 202,000 ± 78,000 (range 67,000 – 370,000). In the majority of patients, liver enzymes were minimally elevated. Forty seven (58.8%) of the 80 patients recruited for the study were reactive to HbsAg, 10 (12.5%) had antibodies to HCV while 10 (12.5%) had

elevated serum α- fetoprotein levels. Histological confirmation was possible in only 11 (13.7%) of the patients. Seven patients (8.7%) had Child's class A, 34 (42.5%) Child's class B and 39 (48.8%) had Child's class C disease respectively.

Table 1. Clinical characteristics of study patients

Characteristics	
Gender (M/F)	67/13
Age (Mean, SD)	41.8 ±11.7
Clinical features (%)	
Pallor	66.2
Leuconychia	53.8
Jaundice	51.2
Ascites	43.8
Haematemesis	43.8
Hyperpigmentation	41.2
Parotid fullness	26.5
Splenomegaly	22.5
Reversed sleep wake cycle	18.8
Asterixis	12.5
Gynaecomastia	11.2
Palmar erythema	10.0

Table 2. Relationship between severity of CLD and size of varices

Child's class	Variceal size <5mm (%)	Variceal size ≥ 5mm (%)	Total
A	4 (66.7)	2 (33.3)	6 (100)
B	8 (34.8)	15 (65.2)	23 (100)
C	4 (12.9)	27 (87.1)	31 (100)

χ^2 for linear trend =5.3; p = 0.02.

Oesophageal varices were seen in 60 (75%) of the patients and 10 (12.5%) of the study population had gastric varices as well. Forty (66%) of the patients with varices had grade 3, 10 (17%) grade 2 and another 10 (17%) grade 1 varices respectively. The varices extended to the lower 1/3 of the oesophagus in 21 (35%) patients, lower 2/3 in 36 (60%) patients while 3 (5%) patients had varices involving the whole oesophagus respectively. "Red signs" were seen on 21(35%) of the varices and "red whale" markings were noticed to be the predominant red sign (66.7%). The other "red signs" were Cherry spot appearance. Peptic ulcers were present in 13 (16.2%) and portal hypertensive gastropathy in 11 (13%) patients respectively.

Table 3: Regression analyses of clinical features and laboratory indices with varices in CLD

Clinical characteristics	Odds Ratio (OR)	95% CI	p - value
Abdominal discomfort	0.001	00 - 1.6	0.07
Age	2.7	1.0 - 6.8	0.04
Ascites	4.4	2.7 - 7.0	0.03
Hyperpigmentation	0.00	2.2 - 9.0	0.07
Leuconychia	1.1	0.0 - 1.0	0.62
Shrunken Liver span	0.2	0.1 - 0.9	0.03
Massive bleeding	3.5	0.0 - 1.0	0.69
Pallor	0.00	0.0 - 1.0	0.80
PCV	0.7	0.4 - 1.1	0.13
Low platelet count	1.0	0.9 - 1.0	0.03
HCV	2.3	0.0 - 1.0	0.90

Of the sixty patients with varices, fifty four (90%) had Child's class B or C liver disease, while six (10%) had Child's class A disease. Out of the 31 patients with Child's class C disease, 27(87.1%) had large varices, 15 (65.2%) of the patients with Child's class B had large varices but only 2 (33.3%) of those with Child's class A disease had large varices (χ^2 for linear trend =5.3; p = 0.02; Table 2). This showed that the more severe the liver disease, the higher the occurrence of large varices. Advancing age (OR =2.65; 95% CI =1.0 -6.8), ascites (OR=4.4; 95% CI = 2.7 – 7.0), shrunken liver span (OR = 0.24; 95% CI = 0.7 – 0.9) and low platelet count (OR = 1.0; 95% CI = 0.9 – 1.0) were independent clinical predictors of varices (Table 3).

DISCUSSION

The prevalence of oesophageal varices in CLD patients in this study was 75%. This high prevalence rate compares well with the 60 – 70% reported by Samy[3], D`Amico[18] and Schepis et al[19] in the USA and Europe. The large number of decompensated CLD patients recruited into this study may partially explain the high prevalence of varices in this study. However, the prevalence of oesophageal varices in this study is higher than that reported by Buencamino and Jacobson[2], as well as Hegab et al[4], who placed the life time incidence of oesophageal varices at 50% for all patients with CLD with an annual risk

of developing varices in the range of 5-15%. This difference could probably be because the patients in their report had less severe liver disease at presentation when compared with the patients in the present study. This is more so considering that the natural history of CLD shows that most patients with CLD eventually develop varices and the prevalence of oesophageal varices in certain populations may be as high as 90%, depending on the predominant stage of presentation.[20,21,22]

Eighty three percent of the patients with varices had grade 2 or 3 varices and most of these (73.3%) had moderate/large varices (>5mm) with red signs present in 35%. Late presentation and the large number of subjects with decompensated CLD and upper gastrointestinal haemorrhage recruited into this study may explain in part the high rate of advanced oesophageal varices. These parameters are important predictors of variceal bleeding.[23] The finding of moderate/large varices with red signs in the presence of advanced liver disease might explain why as much as 43.8% of the patients in this study presented with haematemesis compared to 33% reported by Krige[4] in Britain and Buencamino in the USA.[2] This trend is supported by several authors (de Franchis and Primignani[23], Bosch et al[21] and Zoli et al[24]) who noted that variceal size is highly correlated with variceal bleeding, and may be the main endoscopic parameter proven to be a significant prognostic indicator for variceal haemorrhage. However, it was not possible to draw any conclusion on prognosis from this report since long term follow up of the patients was not part of the study.

Our study showed a significant relationship between variceal size and severity of liver disease, similar to other reports in the western countries. The values recorded in this study were, however, higher than those reported by the north Italian endoscopic club for the study and treatment of oesophageal varices in a metanalysis[25]. While they reported the prevalence of large varices to be 17%, 14% and 13% in Child's class A, B and C respectively, the corresponding values in this study were 33.3%, 65.2% and 87.1%, respectively. Our study indicates that the more advanced the disease, the higher the occurrence of large varices. Late presentation and advanced disease in this study population may be responsible for the difference since only 7 (8.7%) out of the 80 patients in this study had Child's class A disease. A similar picture of late presentation and advanced disease was reported recently by Lesi et al [26] in Western Nigeria.

Age, shrunken liver span; ascites and low platelet count were significantly associated with the occurrence of varices in this study. This is similar to the finding by Chalasani et al[27] who analysed patients undergoing screening endoscopy before liver transplantation and identified splenomegaly and low platelet count as independent predictors of varices. As such, these clinical and laboratory parameters may be useful predictors of varices in resource poor settings.

Our study was not without limitations. The study population was predominantly males and thus the relationship of varices to gender could not be elucidated, although similar observation of predominantly male presentation of CLD has been reported elsewhere in Western Nigeria[26]. It may be that Nigerian males are more exposed to the risk factors (alcohol, Hepatitis B and C viruses) that predispose to CLD than females. Another limitation in this study was the fact that it was a hospital based study and only patients with distressing symptoms would more likely be recruited hence the association of varices with advanced disease in newly diagnosed CLD patients. A community survey would have readily eliminated this error but this would be expensive and time consuming.

In conclusion, this study shows a high prevalence of advanced, large and high risk oesophageal varices in Nigerian CLD patients. This clinical pattern of varices seen in a setting of predominantly advanced liver disease conforms to the group of CLD patients who are at risk of variceal haemorrhage and who would benefit from primary or secondary therapies aimed at lowering portal pressure, obliterating varices and preventing variceal bleeding. Prospective studies with large sample sizes and follow up need to be carried out. This would demonstrate the natural history of CLD, the development and progression of oesophageal varices, the risk factors for variceal bleeding, and the benefits of intervention.

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