ABSTRACT

Background: Chronic liver disease is a major world health problem with a high mortality rate especially in countries where hepatitis B virus is endemic. Over the years, certain clinical and biochemical parameters, in addition to mathematical models, have been used to assess mortality in chronic liver disease patients so as to prioritize treatment for those with the most severe liver disease and at greatest risk of mortality. The MELD score was developed in 2000 and has replaced the Child-Pugh score in several countries as the evaluation of choice in selecting patients most likely to die from decompensated liver disease and are thus, more likely to have the maximum benefit from urgent medical and surgical interventions.

Aims and Objectives: The main objective of this study was to determine the predictive ability of selected clinical indices (age, sex, alcohol consumption, ALT/AST ratio, HBsAg and anti-HCV status), the Child-Pugh and MELD scores in assessing mortality from CLD.

Subjects and Methods: This was a prospective cohort hospital based study of the predictive ability of the Child-Pugh and MELD scores and specified clinical indices to determine mortality from chronic liver disease at a tertiary and a general hospital in Anambra state, Nigeria. One hundred and twelve subjects with clinical, biochemical, sonographic and histologic features of chronic liver disease were recruited over a nine month period from September, 2007 to May 2008 and were followed-up for three months to determine the outcome at the end of this period.

Subjects were clinically evaluated and liver function tests, prothrombin time, serum creatinine were assayed for. Serological tests for HBsAg and anti-HCV were assayed by
immunochromatographic method. HBeAg was assayed by enzyme-linked immunosorbent assay for those who were HBsAg positive.

Results: Of the two thousand and ninety-nine patients seen at the MOPD during the study period, CLD accounted for 5.3%. One hundred and twelve patients with CLD were recruited into the study, comprising of 60(54%) cases of HCC, 46(41%) of liver cirrhosis and 6(5%) of chronic hepatitis. There were 74 males and 38 females with a male to female ratio of 2:1. Their ages ranged from 19-86 years with a mean age of 50±17 years. Only 106 patients completed the study while 6 were lost to follow-up. Of those who completed the study, 70(66%) died and 36(34%) survived. HCC and liver cirrhosis comprised 48(69%) and 22(31%) of the non-survivors respectively and both were associated with increased mortality (p=0.000). Older age, gender, upper gastro-intestinal bleeding and hepatic encephalopathy showed significant correlation with mortality (p<0.05) respectively. Elevated serum ALT and creatinine, hypoalbuminaemia and prolonged prothrombin time were also associated with increased mortality (p<0.05) respectively. Alcohol consumption above 40g for males and 20g for females and AST/ALT ratio >1 were not associated with mortality (p>0.05). Despite the finding that HBsAg positivity correlated significantly with the diagnosis of CLD, (p=0.002), it does not predict mortality (p=0.64). HBeAg and anti-HCV positivity also showed no association with mortality (p>0.05).

The mean survival for C-P classes A and B was 7 weeks and 4 weeks for class C respectively. While the mean survival for MELD score of ≤10 was 8 weeks, for score 11-20 was 6 weeks, for scores 21-30 was 4 weeks and those ≥31 was 2 weeks. The mortality rate for the C-P class A, B and C were 2.9%, 20% and 77% respectively while that for the different categories of the MELD score in increasing order were 2.9%, 40%, 32.9% and 24.2% respectively. A MELD score of 15.5 showed the most sensitivity for predicting mortality.
Increasing the score did not improve its predictive ability and that may explain the fall in mortality seen in categories of MELD > 20. The AUROC for the MELD and C-P scores as predictors of 3-month mortality showed good performance, although, the MELD score was slightly superior to the C-P score in all categories of patients except those with HCC. Cox regression analysis found hepatic encephalopathy, serum creatinine and MELD score to be independent predictors of mortality at 3 months.

**Conclusion:** It is concluded from this study that while both the C-P score and MELD score are predictors of mortality from CLD irrespective of aetiology, the MELD performed better than the C-P score generally. Hepatic encephalopathy, upper gastro-intestinal bleeding, elevated serum ALT and creatinine levels, hypoalbuminaemia and coagulopathy are significantly associated with mortality from CLD.

**Recommendations:** It is recommended that the C-P score be used routinely in the assessment of patients with CLD in daily clinical practice because of the inconveniences in calculating the MELD score. Clinical and biochemical features of decompensation should be sought for and treated aggressively in patients with CLD. Further studies involving a larger population should be done to validate these findings.