Extended Abstract Journal of Biological and Medical Sciences 2019
Vol.3 No.2

Albumin Bilirubin (ALBI) Score: A New and Simple Model to Predict Mortality in Patients of Acute on Chronic Liver Failure.

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INTRODUCTION:

Acute chronic liver failure (ACLF) is an acute hepatic insult manifested by jaundice (serum bilirubin ≥ 5 mg / dl) and coagulopathy (INR ≥ 1.5 or prothrombin activity) complicated in 4 weeks by clinical ascites and / or encephalopathy in a patient with diagnosed or undiagnosed chronic liver disease / cirrhosis, and is associated with 28-day high mortality. The acute event in ACLF may be of infectious etiology including hepatotropic and non-hepatotropic viruses, reactivation of hepatitis B or hepatitis C or other infectious agents affecting the liver or it may be of non-infectious etiology like alcohol: active consumption during the last 4 years weeks, use of hepatotoxic drugs, herbs, autoimmune hepatitis flare-up or Wilson's disease, surgical intervention, varicose haemorrhage A characteristic of ACLF is its rapid progression, the need for multiple organ supports and a high incidence of mortality. Attempts to abrogate, improve or reverse the current injury would allow the return of liver synthesis functions and the reversal of liver damage. In survival ACLF being the main endpoint, the main objective of the prognostic scores is to estimate the probability of death in a given time interval and to represent a quantitative estimate of the hepatic reserve to resist surgical or therapeutic interventions. Currently, Child Pugh and MELD scores are in vogue for predicting mortality in ACLF patients, but they have certain limitations. The ALBI score is a new model to assess the severity of liver dysfunction and to predict the outcome of patients with acute or chronic liver failure. The score concerns only 2 common laboratory parameters, albumin and total bilirubin, which are easily obtained by an easily accessible blood test and objectively evaluated. Therefore, high levels of bilirubin combined with low levels of albumin can be used to predict the severity and progression of liver damage in ACLF patients. The ALBI score is simpler and easier to calculate than the MELD and Child-Pugh scores eliminates the need for subjective variables and thus avoid inter-observer variation. Though there have been few studies on association of ALBI score with a subset of patients of ACLF, studies to look for its association with ACLF as a whole lacked. Therefore, we conducted this study to look for the association of Albumin-Bilirubin score with mortality in patients of Acute on Chronic Liver Failure and also compared it with CTP and MELD scores which are in vogue and widely used as prognostic scores in ACLF.

MATERIALS AND METHODS

The study was a prospective observational study over an 18-month period that included 50 consecutive acute patients with chronic liver failure admitted to the medical departments of Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi. Written and informed consent was obtained from all subjects participating in the study and ethical authorization was obtained from the ethics committee before conducting the study. Patients over the age of 18 who met the ACLF APASL criteria were included. Known cases of malignancy, loss of protein / hypo-proteinemia (such as malnutrition, chronic diarrhea, nephrotic syndrome), dementia, pregnancy, chronic kidney disease were excluded. Patients were sought for the etiology of the underlying chronic liver disease; routine blood tests were done during the first 24 hours of admission. ALBI, CTP and MELD scores were calculated on admission. The Child-Pugh score was calculated from 5 variables, including bilirubin, albumin, prothrombin, ascites status and degree of encephalopathy [5]. MELD = 3.78 × logeserum bilirubin (mg / dl) + 11.20 × log INR + 9.57 × logeserum creatinine (mg / dl) + 6.43 (constant for the etiology of liver diseases) ALBI score = -0.085 × (albumin g / l) + 0.66 × lg (TBil μ mol / l) All patients were followed during the hospital stay. Short-term mortality was defined as the patient's death within 7 days of admission, while long-term mortality was assessed at 3 months by telephone conversation. The patients were divided into surviving (A) and non-surviving (B) groups. The non-surviving group was again subdivided into subgroups B1 (mortality on day 7) and B2 (mortality on day 90). The ALBI score was compared with the CTP and MELD scores for the prediction of mortality at the 7th and 90th days. Mortality was also predicted by combining the ALBI and MELD scores.

DATA COLLECTION Serum albumin was estimated in biochemistry lab of the hospital by the Bromocresol green (BCG) method while serum total bilirubin was estimated by the Diazo method. The estimation was done in an autoanalyzer by the name of Advia 2400. All routine investigations were done by the pathology and biochemistry department of the hospital. The observations were recorded in a proforma for detailed analysis. The data of the study for further research and analysis is available from the Guru Gobind Singh Indraprastha University or from the Medicine library, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi where the study has been submitted as thesis.

This work is partly presented at 2nd International Conference on Antimicrobial and Antibacterial Agents on November 11-12, 2019 at Istanbul, Turkey