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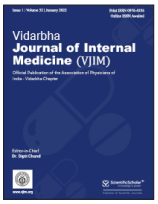

Original Article

A Clinical Study of Spectrum of Liver Diseases in Alcoholic with Respect to Predictors of Severity and Prognosis

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ABSTRACT

Objectives: Alcoholic liver disease (ALD) is the second most common cause of mortality in humans every year occurring due to overconsumption of alcohol. The spectrum of ALD includes fatty liver/steatosis, alcoholic hepatitis, steatohepatitis, chronic hepatitis with liver fibrosis or cirrhosis, and hepatocellular carcinoma. The diagnosis of ALD can generally be made based on clinical and laboratory features alone in patients with a history of significant alcohol consumption. Prognostic scores such as Child-Pugh classification, MELD, MELD-Na, and Maddrey's discriminant function (MDF) are used commonly to predict mortality in patients with ALD.The aim of the study is to evaluate the spectrum of liver diseases in alcoholic patients and factors predicting severity and prognosis in such patients.

Material and Methods: This was a prospective, longitudinal and observational study conducted on 83 patients with ALD admitted in medicine inpatient department from January 2019 to December 2020. Demographic data, biochemical parameters, and clinical features of the patients were evaluated. From the data obtained prognostic scores of Child-Pugh classification, MELD, MELD-Na, and MDF were calculated. Patients were clinically evaluated and all the biochemical parameters and scores were assessed on admission and after the 7th and 30th days.

Results: The majority of the patients were males (95.18%) with a mean age of 49.44 ± 7.67. The mean duration of hospital stay of the patients was 34.33 ± 12.98 and approximately 76% of the patients were still consuming alcohol at the time of hospitalisation. Jaundice and ascites were present in all 83 patients, and loss of appetite (85.5%) and nausea and vomiting (78.3%) were the most common clinical features. Complications such as hepatic encephalopathy (85.5%) and oesophageal varices (80.72%) were common on admission. MELD and MELD-Na score > 24 was found in 59 patients and discriminant function (DF) score was more than 32 in 81 patients. Mortality analysis showed that 6 (7.2%) patients died within 1 week of admission and MELD was found to be the best predictor of mortality compared to CTP, MELD-Na, and DF by 7 days. Thirty-two (38.5%) patients died within 30 days of admission. MELD-Na was found to be the best predictor of mortality compared to CTP, MELD, and DF by 30 days.

Conclusion: The presence of ascites, hepatic encephalopathy, high bilirubin, low albumin, high creatinine, high INR, and low sodium is found to be independent predictors of mortality. MELD and MELD-Na are good predictors of mortality over the short-term (7–30 days).

Keywords: Alcoholic liver disease, Mortality, Child-Pugh classification, Model for end-stage liver disease, Model for end-stage liver disease-sodium, Maddrey's discriminant function

INTRODUCTION

Alcoholic liver disease (ALD) is the second most common cause of mortality in humans every year occurring due to overconsumption of alcohol.[1] Worldwide, alcoholic cirrhosis deaths account for about 10% of all alcohol-attributable deaths and nearly 50% of those deaths are due to liver disease, resulting in the loss of 22.2 million disability-adjusted life years (DALYs) annually.[2] ALD accounts for 4% of mortality and 5% of DALYs and the worst affected region is Europe. Approximately 2% of the US general population has been affected with an estimated mortality of 5.5/100,000 in 2010.[3] Nearly 41% of liver-related mortality is attributable to alcohol in the European Union.[4] In India, alcohol is the most common cause of cirrhosis (34.3%) and almost 20% of all liver disease patients were found to be ongoing alcohol consumers.[5]

The spectrum of ALD include fatty liver/steatosis, alcoholic hepatitis (AH), steatohepatitis, chronic hepatitis with liver fibrosis or cirrhosis, and hepatocellular carcinoma. The pathophysiological process leading to ALD is extremely

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complex due to the involvement of immune cells, adipose tissues, and genetic diversity.[6] Chronic overconsumption of alcohol leads to oxidative stress due to the accumulation of reactive oxygen species produced from alcohol metabolism.[7] The inflammation in the liver occurs due to the toxicity of lipopolysaccharides and acetaldehyde. Other complications such as chronic viral hepatitis and non-alcoholic fatty liver increase the burden on the liver.[8] Other risk factors associated with the development of ALD include female gender, binge drinking, excessive consumption, obesity, and genetics (ALDH2, PNPLA3, TM6SF2, and HSD17B13).[9]

The early stage of ALD characterised by accumulation of fat is the only reversible stage achievable through abstinence-only. However, the clinical diagnosis of ALD is not well developed leading to an increase in the number of patients in advanced stages and failure of treatment.[10] AH causes a distinct clinical syndrome presenting with signs of hepatic decompensation such as jaundice, infection, bleeding from oesophageal varices, ascites, and hepatic encephalopathy. Patients continue to consume alcohol, and the risk of developing cirrhosis increases to about 30%.[11]

The diagnosis of ALD can generally be made based on clinical and laboratory features alone in patients with a history of significant alcohol consumption. Patients present with abnormal serum transaminases, particularly, if the level of aspartate aminotransferase (AST) is greater than that of alanine aminotransferase, elevated serum gamma-glutamyl-transpeptidase, hepatomegaly, clinical signs of chronic liver disease, radiographic evidence of hepatic steatosis or fibrosis/cirrhosis, or who have had a liver biopsy showing macrovesicular steatosis or cirrhosis.

All patients with ALD are advised to abstain completely from alcohol use, although harm reduction models, which favour alcohol reduction over total abstinence based on a patient's stated goals, may be appropriate in some contexts.[12] Patients with AH are typically malnourished and hence nutritional therapy has been studied for its management for decades.[13] The studies have found that daily calorie intake of fewer than 21.5 kcal/kg/day was associated with increased rates of infection and mortality at 6 months than those with higher intake (65.8% vs. 33.1%; $P < 0.0001$).[14] Though corticosteroids are the most extensively studied intervention in AH in numerous clinical trials over the past four decades, the reults from these trials are inconsistent when reporting the survival benefits. They show declining mortality of severe AH over time, ranging from 30 to 50% at 28 days in early trials compared with 14–18% more recently, while several meta-analyses have yielded conflicting conclusions.[15]

Public health resources are being profoundly affected by the burden of ALD yet the research in this field is insufficient. At present, conventional management of ALD includes abstinence and nutritional therapy. Therapies that target

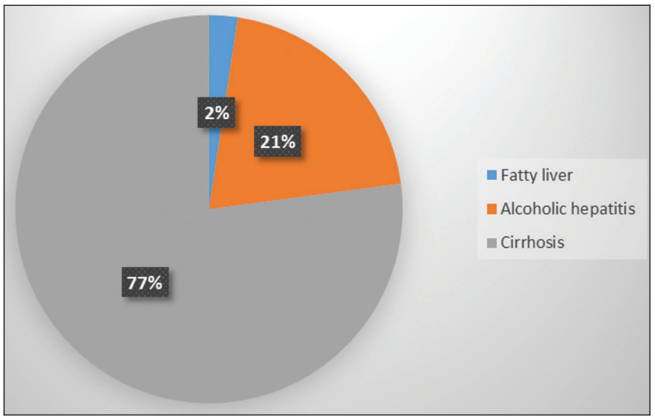

Figure 1: Distribution of liver disease in the study population.

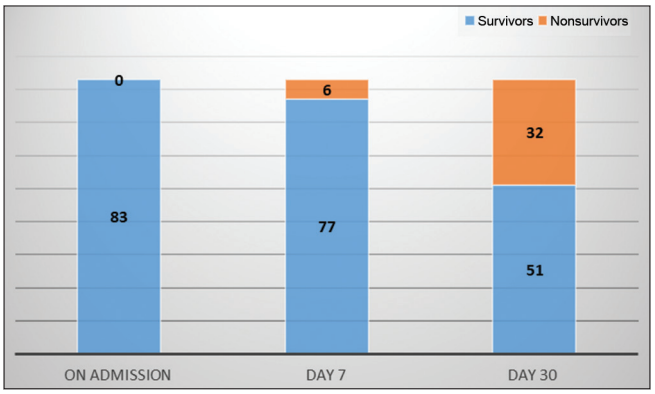

Figure 2: Distribution of survivors and non-survivors during the study period.

hormones, antioxidant signals, TNF receptor superfamily, and MicroRNAs are being used as treatments for ALD. The potential role of mesenchymal stem cells is also gaining attention in the management of ALD.[16,17]

The focus of the present research is strategies, such as improving patient survival and prognosis, prevention of ALD, and early diagnosis and management with targeted therapies. Various prognostic markers have been studied to predict the outcomes in ALD such as the Child-Pugh scoring (CPS) system, Model For End-Stage Liver Disease (MELD), Model For End-Stage Liver Disease-sodium (MELD-Na), and Maddrey's discriminant function (MDF) which are estimated by evaluating different clinical and biochemical parameters in the patients.[18] Patients with an MDF score of 32 or greater have been shown to have high short-term mortality with improved clinical outcomes after receiving corticosteroids.[19] The sensitivity and specificity of the MELD score (12 or greater) for predicting 30-day mortality in ASH are 86% and 81% as compared to the MDF score (32 or greater) which has a sensitivity of 86% and specificity of 48%.[20] Shrikureja *et al*. studied the MELD score, Child-Turcotte-Pugh (CTP) score, and modified MDF score

to predict in-hospital mortality of 202 patients with AH in a retrospective study. MELD score is a more valuable predictive model than CTP or DF score.[21] Another prospective study concluded that severe AH characterised by a median MELD score of 26 and had a 90-day mortality of 44%. The presence of Child C status and high serum creatinine value (≥1.35 mg/dL) was also able to accurately predict mortality.[22] A study evaluating readmission rates found that MELD and DF scores and complications such as hydrothorax, HRS, and PVT are the most predictive indicators of cirrhosis complications for the rate of readmission and mortality within 3 months.[23] The MELD/Na score is a scoring system for accessing the severity of chronic liver disease using values such as serum bilirubin, serum creatinine, and the international normalised ratio (INR) for prothrombin time (PT) and sodium, to predict survival.

A comprehensive understanding of prognostic markers and their comparison to ascertain the most accurate predictor may help in the early diagnosis of ALD in patients and thus improve their outcomes in them. Thus, this study aimed to identify the clinical and biochemical markers associated with the severity of illness in patients with ALD and compare the prognostic scores to identify appropriate methods.

MATERIAL AND METHODS

This was a prospective, longitudinal and observational study conducted on alcoholic patients presenting with liver disease admitted to the general ward and intensive care unit of the general medicine department in a tertiary care teaching hospital in central India from January 2019 to December 2020. The study was initiated after taking approval from Institutional Ethics Committee.

A total of 83 cases were included in the study who fulfilled the following inclusion and exclusion criteria set for the study.

Inclusion criteria

The following criteria were included in the study:

- Patients of either sex aged above 18 years
- Patients diagnosed with ALD based on history, liver function test, ultrasound studies, and clinical parameters
- Alcohol consumption exceeding 40 g/day for males and 20 g/day for females and AST/ALR ratio more than 1.5 with AST more than 45 u/l and total bilirubin more than 2 mg/dl
- Patients are willing to participate in the study by giving informed consent.

Exclusion criteria

The following criteria were excluded from the study:

- Patients with hepatocellular carcinoma
- Patients who have undergone transjugular Intrahepatic Portosystemic Shunt (TIPS)
- Patients with infective hepatitis (A/B/C/D/E)
- Patients with cirrhosis due to causes other than alcohol.

The data were obtained in a detailed case record form which included the following subset of information; demographic data (age, gender, BMI, and aetiology of liver cirrhosis) and biochemical parameters (complete blood count (CBC), liver and kidney function test, PT and INR. A detailed history of current illness and its complications (ascites, hepatic encephalopathy, gastroesophageal varices, hepatorenal syndrome, and infections) was noted. A complete physical examination supported by radiological investigations was conducted.

Prognostic scores calculated for these patients were Model for End-Stage Liver Disease score (MELD score), MELD model for end-stage liver disease sodium modified score (MELD-Na score), and MDF.

Patients were clinically evaluated and all the biochemical parameters and scores were assessed on admission and after the 7th and 30th days.

Standard treatment guidelines were followed for the management of the patients included in the study.[24] All patients were treated for alcohol abstinence; prevention and treatment of alcohol withdrawal were done with chlordiazepoxide; fluid and nutritional management were given with adequate calories, protein, vitamins, and minerals. All patients were observed for the presence of infection and those who presented with infection were treated with appropriate antibiotics. Acid suppression was advised for the prevention of mucosal bleeding. Hepatic encephalopathy was managed with lactulose and/or rifaximin for hepatic encephalopathy; and intravenous albumin (if indicated). Treatment-related factors such as using steroids and pentoxifylline were also noted. The response to therapy was assessed on day 7 of admission with early change in bilirubin level and percent change in bilirubin.

Statistical analysis

Descriptive statistics for continuous variables included mean with standard deviation or median and for categorical variables frequency distribution with percentage was calculated. Mean values of the individual variables and scores for both survivor and the non-survivor group were compared using Student's t-test or Mann–Whitney test. The independent association with mortality for the individual variables and scores was calculated using bivariate logistic regression analysis. To compare the prognostic value of the different scores, receiver-operating characteristic curves were graphed. Data were analysed using SPSS (version 16) for windows.

RESULTS

The study included 83 patients with ALD. The majority of the patients were males (95.18%) and the remaining four patients were females with a mean age of 49.44 ± 7.67. Baseline demographic and clinical characteristics of the admission of 83 patients are shown in [Table 1];

Duration of alcohol consumption was evaluated in the study population and it was found that 75.9% of the patients were still consuming alcohol at the time of study participation. Evaluation of the presence of clinical features of decompensated hepatic disease was done. Jaundice was present in all the patients; other common complaints included loss of appetite (85.5%), nausea and vomiting (78.3%), abdominal distension (59%), pain in the abdomen (50.6%), malena (49.4%), pedal oedema (45.7%), haematemesis (27.7%), daytime sleepiness (22.9%), fever (15.7%) and irrelevant talk (7.2%). On admission, patients also presented with infections (50.6%) of which such as pneumonia was seen in 40.4%, cellulitis in 33.3%, and SBP in 19% of the patients.

Baseline evaluation of biochemical parameters such as CBC, liver, and kidney function test, coagulation profile, and serum sodium, as mean values and prognostic scores, is shown in [Table 2];

ALD is a spectrum of diseases where presentation varies from steatosis and hepatitis to cirrhosis. The evaluation of the spectrum was done in the study population and it was found that nearly 77% of the patients presented with liver cirrhosis [Figure 1].

The complications of liver disease were also evaluated in the study population; the results are as shown in [Table 3].

Table 1: Baseline demographic and clinical characteristics of the study population.

	n (Total)-83	Mean±SD or %
Age (years)		49.44±7.67
Gender		
Male	79 (83)	95.18
Female	4 (83)	4.82
Height (cm)		165.6±6.72
Weight (kg)		60.54±8.27
BMI (kg/m^2)		21.83±3.11
Length of hospital stay		34.33±12.98
Presence of hepatic decompensation	71 (83)	85.54
Comorbid conditions		
Hypertension	18	47.3
Type 2 Diabetes mellitus	13	34.2
Ischemic heart disease	7	18.4
In hospital deaths	59 (83)	71.08

Table 2: Mean baseline parameters and prognostic indicators in the study population.

Characteristic	Mean±SD, mean (range)
Age	49.44±7.67
Haemoglobin	8.2±2.6
Total leucocyte count, per mm^3	15,800 (10,800–21,200)
Platelets (×10^3/mm^3)	112 (73–151)
Creatinine (mg/dL)	2.8 (1.1–3.9)
Sodium, (mEq/L)	134 (122–144)
Bilirubin (mg/dL)	18.3 (7.6–21.9)
Albumin (g/dL)	2.9 (1.9–3.2)
International normalised ratio	2.2 (2.0–3.4)
CTP	12 (6–14)
MELD	34.0 (11–50)
MELD-Na	35.9 (11–50)
Maddrey's discriminant function	94.2 (29–141.7)

Table 3: Complications of liver disease in the study population.

Complication	*N*	%
Ascites	83	100
Hepatic encephalopathy	71	85.54
Oesophageal variceal bleeding	67	80.72
Portal hypertension	53	63.85
Hepatic coagulopathy	32	38.5
Splenomegaly	23	27.71
Spontaneous bacterial peritonitis	8	19.1

Mortality assessment

A mortality assessment was done on day 7 and day 30. The mortality in patients was assessed at 2 -time points after hospitalisation; 7 and 30 days. The distribution of the patients is shown as follows.

Very early mortality (<7 days)

Six (7.2%) patients died within 1 week of admission. The cause of death in most of these patients was progressive liver failure [Figure 2]. One patient died due to a massive upper GI bleed, one died due to severe HE (one of the two patients who presented with coma) and one died of septic shock while three died due to aspiration pneumonia following a generalised tonic-clonic seizure. None of the patients who died had received specific treatment in the form of steroids as it was contraindicated due to recent GI bleed (n = 1), infection (n = 1), and acute kidney injury (n = 2). The other two did not receive steroids due to the physician's discretion. Pentoxifylline was given to 4 (66.6%) of the deceased. One of the deceased was female.

The risk of death was analysed by calculating the odds ratio for clinical presentations (ascites, variceal bleeding, renal insufficiency, and hepatic encephalopathy), biochemical (Bilirubin, sodium, and INR), and all the prognostic parameters (CPS, MELD, MELD Na and DF). The results showed among the clinical parameters evaluated ascites and

hepatic encephalopathy showed a significantly increased risk of death. In biochemical parameters, raised serum bilirubin was found to be significantly associated with mortality. Among the prognostic indicators, DF did not show any significant correlation to death in patients at the end of 7 days of admission. The results are shown in [Table 4];

The study showed that all the scores performed significantly in predicting 7-day mortality ($P < 0.05$) except DF. The highest AUC was obtained with MELD; however, statistically, there was no significant difference between all the AUCs.

Early mortality (<30 days)

Evaluation at the end of 30 days revealed that additional 26 patients had died, making a total mortality of 32/83 (38.5%) [Figure 2]. The risk of death was analysed by calculating the odds ratio for clinical presentations (ascites, variceal bleeding, renal insufficiency and hepatic encephalopathy), biochemical (Bilirubin, sodium and INR) and all the prognostic parameters (CPS, MELD, MELD Na and DF). The results showed that all the evaluated clinical, biochemical, and prognostic parameters significantly increase the risk when compared to the baseline values. The results are shown in [Table 5];

In the study, the optimum cutoff for MELD was 25.6 and for DF was 70.3. The study showed that all the scores performed significantly in predicting 30-day mortality ($P < 0.05$). The highest AUC was obtained with MELD-Na, statistically, there was no significant difference between all the AUCs.

DISCUSSION

The present study conducted over the duration of 2 years included 83 patients with ALD in the final analysis. The mean age of patients was found to be 49.44 ± 7.67 and 95.18% of these patients were males. The evaluation of the baseline demographic characteristics in the study population was compared to published studies. The comparison revealed that in the majority of the studies, the mean age and the most commonly affected age group were found to be 40–50 years. Male preponderance was also found in the common finding where as much as all included patients (100%) were males.

Most patients already had underlying cirrhosis with portal hypertension (83%) and presented with hepatic decomposition at the time of hospitalisation. Length of hospital stay was found to be longer (34.33 ± 12.98) when compared to other studies. Comorbid conditions such as hypertension, diabetes mellitus, and ischemic heart disease were reported in nearly 46% of the patients. Cirrhosis-related complications were found in 83% of the patients in the present study, similar results were reported by Monsanto *et al*. (2013).[25] Other studies showed a comparatively lesser percentage of cirrhosis-related complications. The probable reason behind the greater percentage of complications and the associated hospital stay could be that this tertiary care centre mostly caters to patients from either lower socio-economic strata or from a rural population in whom the awareness and access to early healthcare are lower.

The evaluation of the clinical features in the study population revealed that jaundice and ascites were present in all the patients (100%). Biochemical parameters of clinical importance that have been associated with predicting the prognosis of the patients include bilirubin, INR, creatinine, and sodium.[26] The mean total bilirubin level was found to be 18.3 (7.6–21.9) mg/dl in the study population, similar results were reported by Monsanto *et al*.[25] (16.8 ± 9.5) and Daswani *et al*.[22] (13.7 [3.1–39.0]). Mean creatinine was found to be 2.8 which was found to be higher compared to other studies which reported values ranging from 0.64 to 1.4. The study population was found to be suffering from comorbid conditions such as hypertension and diabetes which accounted for 37.3% of the patients. The presence of these comorbid conditions and more advanced levels of ALD in the study population could be the reason behind greater mean creatinine levels. Hepatic coagulopathy was seen in

Table 4: Factors predicting mortality at day 7 of admission.

Factors	Odds ratio with 95% CI	*P*-value
Ascites	1.51 (1.24–1.85)	0.05
Variceal bleeding	1.89 (1.36–2.64)	0.03
Renal insufficiency (serum creatinine≥1.5)	1.1 (1.02–1.07)	0.07
Hepatic encephalopathy	2.89 (1.36–2.64)	0.001
INR	0.9 (0.59–1.64)	0.06
Total Bilirubin	2.89 (1.46–3.64)	0.001
Serum Sodium	1.01 (0.9–1.44)	0.9
CTP	3.15 (1.36–2.64)	<0.001
MELD	2.84 (1.96–3.64)	<0.001
MELD-Na	2.12 (1.36–2.98)	<0.001
DF	1.01 (0.89–1.54)	0.08

Table 5: Factors predicting mortality at day 30 of admission.

Factors	Odds ratio with 95% CI	*P*-value
Ascites	3.52 (2.54–4.68)	0.001
Variceal bleeding	2.89 (1.78–3.84)	0.003
Renal insufficiency (serum creatinine≥1.5)	2.1 (1.45–3.07)	0.02
Hepatic encephalopathy	4.23 (3.21–5.67)	0.001
INR	1.9 (1.1–3.2)	0.05
Total Bilirubin	3.24 (2.41–4.67)	0.001
Serum Sodium	1.83 (1.3–2.41)	0.02
CTP	4.67 (3.45–5.12)	<0.001
MELD	4.84 (3.16–5.96)	<0.001
MELD-Na	5.12 (3.59–5.68)	<0.001
DF	4.13 (2.89–5.54)	0.05

38.5% of the study participants which is reflected in a higher mean INR of 2.2 (2–3.4); similar results were reported by Monsanto *et al*.[25] and Daswani *et al*.[22] Hyponatremia has been identified in various studies as an independent marker for prognosis in ALD patients.[27] Mean sodium concentration was found to be 134 (122–144) which was similar to other published studies.

The mean Child-Pugh score in the study population was found to be 12 (11–13) where the majority of the patients were found to be in class C (60.24%). Similar results were shown by Monsanto *et al*.[25] (62.2%). MELD-Na score had the best accuracy and higher scores (MELD-Na >31) were associated with the lower survival. The studies have found that incorporating serum sodium levels into the MELD formula (MELD-Na) provided a more accurate survival prediction than MELD alone.[28] The mean MELD was found to be 34.0 (11–42) which suggested that the risk of mortality in the study population was nearly 60% over the next 3 months. Mean MELD Na scores were also found to be higher; 35.9 (29.2–40.0). MDF score >32 is a predictor of >50% 1-month mortality and is currently used as a threshold to start either corticosteroid or pentoxifylline therapy.[29] The mean DF score in the study population was found to be 94.2 (29.3–131.7). Similar results were reported by Daswani *et al*.[22]

The prognostic superiority of sodium-based MELD variants over traditional scoring systems was because of the presence of serum creatinine (unlike CP) and serum sodium (unlike CP and MELD) as independent factors where hyponatraemia and raised creatinine were strong predictors of poor prognosis in liver cirrhosis.[30] Moreover, hyponatraemia, which is a common event in liver cirrhosis, is used to assess portal hypertension and its complications.[31] The study showed that MELD-Na had the best prognostic accuracy (in which serum sodium concentrations are numerically capped between 122 and 144 mmol/l. The majority of the study population, (90.7%) had a serum Na level >125 mmol/l. This may explain why MELD did poorly and why MELD-Na did better in predicting the outcome for these patients and should be reserved for patients with decompensated cirrhosis.

In this study, patients with severe AH were treated with corticosteroids, which are part of the standard of care for such patients even though the efficacy of their use is controversial.[32] The steroids or pentoxifylline for alcoholic hepatitis (STOPAH) trial revealed that prednisolone was not associated with a non-significant reduction in 28-day mortality, with no improvement in outcomes at 90 days or 1 year. The other limitation of the use of corticosteroids is the presence of relative contraindications. In the present study, also steroids were not given to the majority of patients due to the presence of contraindications such as infections (37%) and GI bleeds (83%). Thus, corticosteroids could be given to only 17% of patients.

Mortality assessment was done on day 7 and day 30 in this study which was 7.2% and 38.5%, respectively. The majority of the published studies evaluated mortality at 3 months as most of the prognostic scores are designed for the same. Daswani *et al*.[22] evaluated mortality at 7, 30, and 90 days and showed mortality of 7%, 31%, and 44%, respectively. They concluded that the majority of the deaths occurred within 1st month. Thus, the 1st month is the most crucial period for these sick patients and this is the period when severity assessment by various scores and intensive treatment of those at highest risk of dying have a major role to play.

The present study showed that all the scores performed significantly in predicting 30-day mortality ($P < 0.05$). Although the highest AUC was obtained with MELD-Na, statistically, there was no significant difference between all the AUCs. MELD and the DF score as predictors of short-term outcome were compared by Kadian *et al*. in AH and showed that there was no significant difference between the two scores ($P = 0.83$, 95%CI 0.07–0.09). In their study, for predicting 28-day mortality, sensitivity was 91.6% and specificity was 85.7% for MELD score where the cutoff for MELD was >19. These scores correspond to the mDF score of >52.8.[33] In the present study, the optimum cutoff for MELD was 25.6 and for DF was 70.3. AUC was found to be highest for MELD suggesting that for predicting mortality at 7 days MELD scores performed better than, MELD-Na, DF, or CTP.

There may be multiple reasons for the higher mortality rate in the present study. First, the patients had higher baseline severity scores, suggesting that these patients could represent a sicker cohort. Higher MELD and DF scores have been shown to correlate with higher short-term survival in the published study. Second, most patients in our study had underlying cirrhosis with portal hypertension, with almost 80.72% having oesophageal varices and HE in 85.54%, thus making them sicker. Third, the institute is a referral centre that caters to patients who are difficult to manage or those having a failure of initial therapy. This subset of patients generally has a high mortality. Finally, a higher prevalence of infection, GI bleeding, and HE in the study population led to increased mortality directly as well as by being a contraindication to corticosteroids. This study population had more severe AH with 90% having underlying cirrhosis, most having contraindications to corticosteroids and resulting in 38.5% mortality in 30 days. Meanwhile, Orthoptic Live Transplant (OLT) seems to be the only treatment option, which may offer survival benefits for these patients and can be offered to select patients with severe AH who are non-responsive to medical treatment.[34]

CONCLUSION

Severe AH is a serious disease in India with a very high mortality rate and limited treatment options. The presence of

ascites, hepatic encephalopathy, high bilirubin, low albumin, high creatinine, high INR, and low sodium is found to be independent predictors of mortality. MELD and MELD-Na are good predictors of mortality over the short-term (7–30 days) and should be used to identify patients at low risk of dying so that these patients can achieve optimum benefit from the treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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