ORIGINAL ARTICLE

Important Mortality Predictors in Patients of Decompensated Chronic Liver Disease Presenting to a Tertiary Care Hospital of Lahore

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ABSTRACT

Background: Decompensated chronic liver disease (DCLD) is one of the leading cause of mortality worldwide. There are various factors which predict mortality of patients in cirrhosis. We investigated different factors which affect patient prognosis in DCLD.
Aim: To assess important mortality predictor in patients of DCLD presenting to a tertiary care hospital of Lahore.
Study design: A cross sectional study.
Place of study: Medicine department, Services Hospital Lahore.
Methods: Sixty two patients with decompensated cirrhosis admitted in medicine department were included in our study. After detailed history and examination, laboratory investigations were sent and the patients were followed for a period of 30 days. Clinical bio-data and laboratory investigations of survivors and non-survivors were compared.
Results: According to the results of our study, mean age of patients was 54.06±7 years. It is evident from the study that prothrombin level and creatinine were associated with increased mortality of patients (p=0.0029 and 0.0001 respectively). Furthermore ascites, hepatic encephalopathy and CTP were also significantly correlated with mortality outcome of patients with DCLS (p=0.001,0.0001,0.001 respectively). It was also seen that total bilirubin and albumin did not show any significant correlation with mortality in patients of DCLS (p=0.6339 and 0.1462).
Conclusion: Serum prothrombin, creatinine, CTP, ascites and hepatic encephalopathy are important mortality predictors in DCLD patients.
Keywords: Chronic liver disease, mortality predictors, cirrthosis

INTRODUCTION

Decompensated chronic liver disease represents an advanced and progressive hepatic fibrosis. Characteristic feature of DCLD includes hepatic architecture distortion and replacement of normal hepatic parenchyma by regenerative nodules. This process is reversible at its initial stages until te time comes when it becomes irreversible and liver transplant is only curative at that stage. Cirrhosis of liver is caused by various etiological factors like hepatitis B, C, alcohol, autoimmune etc. in our population hepatitis C is major cause of cirrhosis. Liver fibrogenesis is major pathology behind liver fibrosis. Early diagnosis followed by treatment may halt disease progression. In his study, Schuppan et al concluded that early diagnosis is important for prompt treatment of patients with cirrhosis[1]. Severity of chronic liver disease is assessed by various scoring system and markers like Child Turcotte-Pugh (CTP), Model of End Stage Liver Disease (MELD) scoring system and serum ferritin levels etc. CTP and MELD scoring system are easy to perform. These scoring system and some other markers are being widely used for classification of severity of DCLD. These scoring systems also help to prioritize patients for liver transplant. As for example, patients with CTP class A patients have good prognosis in terms of long and term survival whereas patients with class B patients have variable prognosis[2]. Class B patients may survive for a few years or may deteriorate rapidly[3] whereas patients with CTP class C need urgent liver transplantation. Similarly CTP, MELD has been used for predicting 3 months mortality in patients with chronic liver disease[4]. Similarly, one study showed that serum ferritin levels > 500ng/ml is strongly associated with 15 days and 30 days mortality (p = 0.006, HR 1.42) [5].

As cirrhosis is one of the leading cause of morbidity and mortality worldwide, it important to investigate and validate these scoring systems and markers of early mortality so that it can be diagnosed at initial stages. This will enable physicians to start treatment at initial stages of disease and decrease its progression to cirrhosis.

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Purpose of this study was to assess various markers and scoring systems in patients of DCLD to diagnose it early and to predict outcome. This will lead to early treatment of patient and control of disease before it causes damage to liver and body.

METHODOLOGY

This was observational cross sectional study. Patients of DCLD, who presented to Medicine department of Services Hospital Lahore. Sampling technique was non-probability purposive sampling. Patients of DCLD who present to Services Hospital were included.Patients having serious comorbid conditions like steroid dependents, hepatocellular carcinoma, acute liver failure, heart failure, chronic obstructive pulmonary disease and oxygen dependent were excluded. Data was collected at Medicine department Services Hospital Lahore after taking prior IRB approval. Patients of DCLD were informed about the study and its outcome. Patients willing to participate and fulfilling criteria were included. Informed consent was taken. Patients detailed history and examination was done. All laboratory investigations were sent to Services Hospital laboratory. CTP score was calculated for all patients. All data was entered in performa. Patients were followed after a period of 30 days through follow up and telephone to enquire about outcome. Only those patients who gave follow up after 1 month were included in our study. Different prognostic markers and scoring system of survivors and non-survivors were compared. Data was analyzed by computer program SPSS 21.P value was calculated for important mortality predictor keeping $p = < 0.05$ considered as significant.

Table 1: Baseline Characteristics of Study Participants

	Mean(±SD)	**Survivor (Mean)**	**Non-survivor (Mean)**	**P-value**
Age(years)	54.06 (±7)	53(8)	57(10)	0.0951
Prothrombin Time	15.9 (±4.08)	14.9(3.3)	18.1(4.7)	0.0029
Total Bilirubin	1.59 (±1.62)	1.5(1.4)	1.7(1.8)	0.6339
Serum Albumin	2.28(±0.54)	2.3(0.5)	2.1(0.5)	0.1462
Creatinine	1.39(±0.71)	1(0.3)	2.2(0.6)	0.0001

Table 2: Important Mortality Predictors

Variables	**Outcome**			**P-value**
	Survivor	**Non survivor**	**Total**	
Gender				
Male	24	11	35	0.544
Female	18	9	27	
Cause of cirrhosis				
Hepatitis B	6	4	10	0.893
Hepatitis C	32	14	46	
Alcohol	1	1	2	
Autoimmune	2	1	3	
Wilson	1	0	1	
Cryptogenic	0	0	0	
Ascites				
Absent	11	1	12	0.001
Mild (+)	16	1	17	
Moderate(++)	10	7	17	
Severe (+++)	5	11	16	
Hepatic encephalopathy				
Absent	8	0	8	0.0001
Grade 1	21	0	21	
Grade 2	11	6	17	
Grade 3	2	6	8	
Grade 4	0	8	8	
Child Pugh Class				
Class A	11	0	11	0.001
Class B	21	3	24	
Class C	10	17	17	

RESULTS &DISCUSSION

According to the results of our study, mean age of patients was 54.06±7 years. Mean for Prothrombin level was 15.9 (±4.08). It is evident from the study that prothrombin level were different between survivor and non-survivors. From the results, it is concluded that high prothrombin level are associated with increased mortality of patients (p=0.0029). When we extended our results, it was also seen that creatinine level were also significantly associated with mortality in patients of DCLD (p=0.0001). Furthermore, total bilirubin had no significant association with mortality in patients of DCLD (p=0.6339). In addition to that, serum albumin also did not show any significant correlation with mortality in patients of DCLS (p=0.1462).

When we extended our results, it was seen that gender (p=0.544) and cause of DCLD had no significant correlation with outcome of patients (p=0.893). On the other hand ascites was significantly associated with mortality outcome of patients with DCLD (p=0.001). Similarly, hepatic encephalopathy also had significant correlation with mortality of patients (p=0.0001). Further analysis of showed that CTP was having significantly correlation with mortality outcome of patients with DCLS (p=0.001).

When we compared results of our study with other studies, it is evident that these results are comparable with the results of other studies. In our study high prothrombin level were associated with increased mortality. In his study, Leise et al showed that INR was significantly correlated with mortality in patients of end stage liver disease (ESLD)[6]. In other study, Kamath and his colleagues concluded that INR remains an important predictor of survival in patients with ESLD[7]. In our study increase in creatinine level was associated with a high mortality in patients of DCLS. In study conducted in UK, Robert showed that acute kidney injury was associated with high mortality in DCLS patients (p<0.001)[8].

In our study, CTP class and hepatic encephalopathy was associated with increased mortality of patients. Various studies showed that CTP was important predictor of mortality in patients with DCLD[9,10,11]. Other studies concluded that hepatic encephalopathy was associated with decreased survival in DCLD patients[12,13].

CONCLUSION

Serum prothrombin, creatinine, CTP, ascites and hepatic encephalopathy are important mortality predictors in DCLD patients presented with DCLD to Services Hospital Lahore.

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