VOLUME - 11, ISSUE - 08, AUGUST - 2022 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

General Medicine

"STUDY OF CLINICAL, ETIOLOGICAL AND LABORATORY PROFILE IN PATIENTS OF ACUTE ON CHRONIC LIVER FAILURE"

Dr. Bhagirath B Solanki	Professor And Head Of Unit, Dept. of Medicine, B.J. Medical college, Civil Hospital, Ahmedabad.
Dr. Savinay Dighiya	Senior Resident, Dept. of Medicine, B.J. Medical college, Civil Hospital, Ahmedabad.
Dr. Vraj Rathod	Senior Resident, Dept. of Medicine, B.J. Medical college, Civil Hospital, Ahmedabad.

ABSTRACT

Background: ACLF is a recently described syndrome that is characterized by abrupt deterioration in patients with CLD and has high short-term mortality.1 It has become pertinent to distinguish ALF from ACLF and simultaneously to understand that decompensated state of CLD and ACLF are different entities which will require different approaches. **Objectives:** To study etiology of patients with ACLF, clinical features & laboratory parameters of these patients. **Methods:** The present prospective study was an analytical study conducted at tertiary care centre, on 50 patients as per study protocol. **Results:** Majority of patients in the study group were in the age group of 31 – 40 yrs. The ratio between male: female was 4.5: 1. Majority of the patients belonged to urban residential areas. **Conclusion:** In the Biochemical parameters, it was found that many patients were suffering from anemia, Leukopenia, thrombocytopenia, renal dysfunction, liver dysfunction and cardiac dysfunction respectively. Alcohol was the most common precipitant 28(56%) followed by Cryptogenic. In the present study, it was found that MELD Score was more accurate compared to CTP Score for mortality prediction of ACLF.

KEYWORDS :

INTRODUCTION

The Asian Pacific association for study of liver disease (APASL) defines Acute on chronic liver failure as acute hepatic insult manifesting as jaundice (bilirubin >5 mg/dl) and coagulopathy (INR>1.5), complicated within 4 weeks by ascites and/or encephalopathy in a patient with previously diagnosed or undiagnosed CLD.[2] European association for the study of the liver and American association for the study of liver diseases (EASL-AASLD) defined ACLF as 'an acute deterioration of pre-existing CLD, usually related to a precipitating event and associated with increased mortality at three months due to multisystem organ failure.'

ACLF usually results following a precipitating event on the background of established cirrhosis. The 'event' may directly exaggerate liver injury such as alcoholic hepatitis, drug-induced liver injury, superimposed viral hepatitis, portal vein thrombosis and ischemic hepatitis or liver decompensation may be consequent upon extra-hepatic insults such as trauma, surgery, variceal bleeding or infection. In a proportion of patients, there may be no identifiable precipitating event.

The prognostic factors determining the outcome of patients with cirrhosis and multiorgan failure are currently under evaluation, but it seems that the scoring systems addressing the severity of liver disease, such as Child-Pugh score or Model of End Stage Liver Disease (MELD) perform less well than the scoring systems addressing organ dysfunction such as the Sequential Organ Failure Assessment (SOFA)[8] or the Acute Physiology, Age and Chronic Health Evaluation (APACHE) scores.[9] The available data describing the outcome of patients with cirrhosis who develop organ failure and are admitted to the ICU.[10-13] Critical examination of the data indicates two fundamentally important conclusions. First, the data suggest that the occurrence of an organ failure in patients with cirrhosis with a defined severity of liver disease indicates a poor prognosis with very wide survival figures, which is possibly related to criteria for ICU admission. This notion is supported by the second conclusion that it is not the severity of liver disease measured using conventional clinical and biochemical testing (Child-Pugh score) that is important, but the degree of end-organ failure that determines outcome. In these complex patients, a concept similar to the PIRO concept in sepsis (predisposition, infection/inflammation, response, organ failure) might be useful in describing pathophysiology and clinical categories.

METHOD

This is a Prospective Observational type of study conducted among indoor patients admitted in medicine department at B.J. Medical College and Civil Hospital, Asarwa; Ahmedabad during the defined study period enrolment of 50 cases, documented as per the proforma.

Inclusion Criteria:

- All cases of ACLF diagnosed as per APASL (Asian Pacific Association for the study of liver) criteria, who gave consent for the study with age more than 12 years.
- All patients presenting with previously diagnosed, undiagnosed or newly diagnosed chronic liver disease or acutely decompensated liver parenchymal disease within 4 weeks. Both compensated cirrhosis and non-cirrhotic chronic liver disease qualify as chronic liver disease.

Exclusion Criteria

- Critically ill patients.
- Patients who did not give consent for the study.
- Patients with cirrhosis and known prior decompensation who develop acute deterioration of their clinical status that is either related or unrelated to precipitating events are considered to have acute decompensation but not ACLF.
- Patients with HIV infections, those undergoing immunosuppressive treatment and those with disseminated malignancies.
- Those suffering from other medical illness like diabetes mellitus, hypertension, tuberculosis

Recorded information entered in Microsoft excels worksheet. Data was analysed and compared by using appropriate statistical test. All the patients fulfilling selection criteria were explained about the purpose of study and a written informed consent was obtained to participate in the study before enrolment.

According to pretested Proforma, each patient underwent detailed Generalized and Systemic examination. Hematological, Bio-chemical and Radiological investigations were carried out as per study protocol.

OBSERVATION AND RESULTS

Table 1 Distribution Of Population Based On Age

Age (years)	No. of patients (n=50)	Percentage
12-20	3	6%
21-30	9	18%
31-40	19	38%
41-50	10	20%
51-60	7	14%
>60	2	4%

Table 2 Distribution Of Population Based On Residence

Types of Residence	No. of patients (n=50)	Percentage
Urban	34	68
Rural	16	32

Table 3 Distribution Of Population According To Gender

Gender	No. of patients (n=50)	Percentage
Male	41	82
Female	9	18

In the present study, it was observed that the mean age with standard deviation in cases was 38.46 ± 11.42 years. Majority of patients in the study group were in the age group of 31 – 40 yrs. 19 (38%). Male patients were predominantly higher then female 9 (18%). The ratio between male: female was 4.5: 1.

Table 4 Distribution Of Population Based On Clinical Symptoms

Clinical Symptoms	No. of patients (n=50)	Percentage
Jaundice	50	100%
Anorexia	28	56%
Fatigue	21	42%
Fever	15	30%
Oliguria	12	24%
Abdominal Pain	6	12%
Weight loss	6	12%
Pruritus	5	10%
Bleeding Tendencies	3	7%
Altered Behaviour	3	5%

Table 5 Distribution Of Population Based On Clinical Signs

Clinical Signs	No. of patients (n=50)	Percentage
Icterus	43	86%
Pallor	28	56%
Pedal Edema	21	42%
Asterixis	6	12%
Splenomegaly	31	62%
Ascites	45	90%
Hepatic encephalopathy (>2 grade)	18	36%

In the present study, the most frequent symptom reported by the patients with ACLF was jaundice 50 (100%).

Table 6 Distribution Of Population Based On Type Of Insult Of Liver Diseases

	Chronic Insult (n=50)	Acute Insult (n=50)
Alcohol	32 (64%)	28(56%)
Autoimmune	3 (6%)	0
Cryptogenic	1(2%)	10(20%)
HCV	2 (4%)	0
HBV	9 (18%)	6 (12%)
Wilson	3 (6%)	0
HEV	0	4 (8%)
Drug Induced	0	2 (4%)
Total	50 (100%)	50 (100%)

In the present study, it was found that Alcohol was the most common precipitant 28(56%) followed by Cryptogenic 10 (20%), HBV 6 (12%), HEV 5(8%) and Drug Induced 2 (4%) respectively. Similarly, Alcohol 32 (64%) was found to be the most common etiological agent for CLD followed by HBV 9 (18%), Autoimmune 3 (6%), Wilson 3 (6%), HCV 2 (4%) and Cryptogenic 1(2%) respectively.

Table 7 Distribution Of Population Based On Biochemical Parameter

Biochemical Parameters	Mean+/-SD
HB (gm/dl)	8.81 ± 2.08
WBC (/mm^3)	14915.8 ± 5608.5
Platelet (/mm^3)	128020 ± 79587.8
RBS (mg/dl)	108 ±40.38
Urea (mg/dl)	47.38± 33.09
S. Creatinine (mg/dl)	1.31 ± 0.91
Na (mEq/L)	131.98 ± 6.56
K (mEq/L)	3.81 ± 0.70
Bilirubin(mg/dl)	18.69 ± 9.35
AST (IU/L)	155.12 ± 70.97
ALT (IU/L)	169.46 ± 233.61
Total protein (mg/dl)	5.60 ± 0.51
S. Albumin(mg/dl)	2.70 ±0.72
PT	24.75 ± 5.92
INR	2.17 ± 0.67
S. Ferritin (ng/ml)	347.82 ± 150.10
CRP (mg/dl)	53.16 ± 28.71

In the present study, all mean parameters were found abnormal according to universal standard range except RBS level. So as a result, it was found that many patients were suffering from anaemia, Leukocytopenias, thrombocytopenia, renal dysfunction, liver dysfunction and cardiac dysfunction.

Table 8 Correlation Of CTP And MELD Score With Mortality Rate

ROC Curve	AUC [95%CI]	P value
CPT Score	0.695 [0.548-0.842]	0.019
MELD Score	0.783 [0.658-0.909]	0.001

In the present study, it was found that MELD Score was more accurate in AUC as 0.783 [0.658-0.909] compared to CTP Score 0.695 [0.548-0.842] for mortality prediction of ACLF.

SUMMARY

Majority of patients in the study group were in the age group of 31 – 40 yrs. The ratio between male: female was 4.5: 1. Clinical symptom reported by the patients with ACLF was jaundice (100%) followed by anorexia (56%), fatigue (42%), fever (30%), oliguria (24%), weight loss (12%), pain abdomen (12%), and pruritus (10%) respectively. The clinical sign as (90%) patients had ascites followed by (86%) had Icterus then (62%) splenomegaly, (56%) pallor, (42%) Pedal Oedema and grade III-IV encephalopathy were noted in (36%) patients respectively.

Most common aetiology for underlying chronic liver disease in our centre is alcoholic liver disease followed by hepatitis B and other causes. The most common acute precipitant is superadded alcoholic hepatitis in alcoholic liver disease and reactivation of hepatitis B in chronic hepatitis B. Other causes of acute worsening include acute hepatitis E and drug induced liver injury.

REFERENCES

1. Jalan R, Gines P, Olson JC, Mookerjee RP, Moreau R, Garcia-Tsao G et al. Acute-on chronic liver failure. J Hepatol. 2012;57(6):1336-48.
2. Sarin SK, Kumar A, Almeida JA, Chawla YK, Fan ST, Garg H et al. Acute-on-chronic liver failure: consensus recommendations of the Asian Pacific Association for the study of the liver (APASL). Hepatol Int. 2009;3(1):269-82.
3. Jala NR, Yurdaydin C, Bajaj JS, Acharya SK, Arroyo V, Lin H-C et al. Toward an Improved Definition of Acute-on-Chronic Liver Failure. Gastroenterol. 2014;147(1):4-10.
4. Shalimar, Saraswat V, Singh SP, Duseja A, Shukla A, Eapen CE et al. Acute-on-chronic liver failure in India: The Indian National Association for Study of the Liver consortium experience: ACLF-Indian experience. J Gastroenterol Hepatol. 2016;31(10):1742-9.