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A PROSPECTIVE STUDY OF CLINICAL PROFILE, HOSPITAL STAY AND OUTCOME IN PATIENTS WITH ACUTE ON CHRONIC LIVER FAILURE

Gastroenterology

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ABSTRACT

The prospective study was conducted on 100 consecutive patients of acute on chronic liver failure for a period of 1 year. ACLF has a predominant male preponderance with a male: female ratio of 93:7. mean age of 40.88 with 45.39 Out of the 3subgroups, most of the patients belonged to sub group A i.e undiagnosed cirrhosis was already present in most of the patients with ACLF. All the patients had history of jaundice on presentation (100%) followed by abdominal distension and ascites (89%) and hepatic encephalopathy (45%).Ultrasonography was carried out in 100 patients in which all patients had ultra sonographic evidence of chronic liver disease followed by ascites (92%) and varices (53%). The hepatitis viruses were also one of the common acute insult in our study. Hospital stay and in hospital mortality of 14 days and 4 patients were found respectively. These findings were essential for the critical management of the disease.

KEYWORDS

Cirrhosis, Varices, Ultrasonography

INTRODUCTION

Acute on chronic liver failure (ACLF) was first expressed in 1995 as a clinical syndrome distinct to classic acute decompensation and commonly related with high rates of organ failure and noteworthy short-term mortality anticipated between 45% and 90% (Moreau R et al 2015). Recently, Acute-on-chronic liver failure (ACLF) has been outlined as acute deterioration of liver perform in cirrhotic patients over an amount of two to four weeks, generally precipitated by gastrointestinal bleeding, infection, binge drinking, or surgery, and is related to progressive jaundice, hepatic encephalopathy and or hepatorenal syndrome, and signs of multi-organ dysfunction (Sarin S K et al 2009). The liver failure in ACLF may be of varied severity and depending on the duration and extent of hepatic injury, the clinical manifestations, disease course and prevalence of multi-organ failure (M-OF) development. ACLF is especially characterised by hepatic encephalopathy, jaundice, coagulopathy and high mortality rates. Viral hepatitis, drugs or toxins can accelerate acute liver failure in patients without chronic liver disease. Of all infections, reactivation of hepatitis B virus infection is one of the major leading causes of ACLF in Asia (Chan A C 2009). Other frequent causes of acute episodes are variceal bleeding, sepsis, and surgery. The prinicipal elements of ACLF are its reversibility and a high rate of short-term mortality (50–90 %) which can be attributed to multiorgan failure (MOF) in the absence of liver support devices and/or liver transplantation (Krisper & strauber 2010; Mikolasevic I et al 2013) ACLF can have a promptly progressive course and an urgent need for consideration and referral for liver transplantation. The significance of diagnosing impending or early organ failure cannot be over emphasized in this specific group of patients, as timely intervention can prevent or reverse the progression and improve survival (laleman W et al 2006; Yu L W et al 2008; Acharya S K 2007). The natural history and clinical profile of patients with ACLF of varying degrees of severity are currently underway. The aims of this study were to assessed the clinical profile of patients satisfying the criteria of ACLF.

MATERIALS AND METHODS

The present prospective, observational, cross-sectional analytical study was conducted on patients admitted with acute on chronic liver failure for a period of 1 year in the Post graduate Department of Internal Medicine, Government Medical College and Associate Hospitals, Jammu, a tertiary care hospital w.e.f November 1st 2016 to October 31st, 2017. The patients admitted in wards, emergency as well as attending outpatient departments of the institution during the study period were selected after proper history, clinical examination and investigation. Informed consent was taken from the first degree relatives (FDRs) of the patient for enrollment in the trial. The study was presented for approval, to the Institutional Ethical Committee, prior to the enrollment of patients into the study.

SOURCE OF DATA:

All patients of Acute on chronic liver failure defined by Asian Pacific Association for the Study of the Liver (APASL GUIDELINES) 2014 Sarin SK *et al* (2014) admitted in medical wards, emergency wing and visiting OPD of Post Graduate Department of Internal Medicine, Government Medical College and Associate Hospitals, Jammu.

Chronic liver disease was based on clinical, radiologic and endoscopic criteria. The presence of any of the following was taken as evidence of underlying chronic liver disease: ascites with high serum-ascites albumin gradient, presence of esophageal varices, hepatic venous pressure gradient (HVPG) >10 mm Hg, stage >2 fibrosis on histological analysis, or portal vein >13 mm on ultrasonography. (Monga R et al.., 2004) Presence of irregular liver surface with altered attenuation and porta-systemic collaterals with or without ascites on dual phase contrast Enhanced tomographic scan (dual phase CECT) were also considered as criteria to diagnose cirrhosis of liver.

INCLUSION CRITERIA:

Every consecutive patient with previously diagnosed or undiagnosed chronic liver disease who presents with ACLF as defined below:

- Jaundice [serum bilirubin level >5mg/dL] and coagulopathy (international normalized ratio >1.5 or prothrombin activity < 40%) with onset of ascites and/or encephalopathy occurring within 4 weeks of the acute insult
- Sudden onset of acute liver disease on presentation with evidence of chronic liver disease confirmed after evaluation
- Age group older than 16 years

EXCLUSION CRITERIA:

- Age younger than 16 years
- Sudden onset of acute liver disease on presentation with no evidence of chronic liver disease
- Patients of decompensated chronic liver disease in whom the presence of acute hepatic insult cannot be defined
- Patients with sepsis
- Patients with Hepatorenal syndrome (HRS)

STATISTICAL ANALYSIS:

- All the data obtained from the patients of the study group were put in a tabulated form.
- Analysis was performed using SPSS software version 23 for Windows and Microsoft Excel for Windows.
- The quantitative variables were described as mean and standard deviation, while qualitative variables were reported as percentages.
- Chi square test was applied to see the association between the two attributes.

RESULTS AND DISCUSSIONS

The syndrome of ACLF is the consequence of acute event that escalates on going injury to the liver and to other organs which in turn produces a pro-inflammatory milieu and culminates in accentuation of circulatory disturbances and multi-organ failure. Acute on chronic liver failure (ACLF) is a serious condition and approximately two-thirds of patients may die in the absence of liver transplantation. Most patients already have multi-organ failure at presentation which has a

spiraling downhill effect leading to high mortality in these patients. The present study was conducted at Government Medical College and Associated Hospitals, Jammu and a total of 100 patients were included in the study.

The age of the patients in our study ranged from 22 years to 68 years. The mean age of the patients was 45.39 years Most of the patients belonged to age group of 40-49 and 51-60 years of age respectively (Fig 1). In the present study it was observed that 93% of patients were male while 3% were females (Fig 2). The male preponderance can be attributed to that major cause of chronic liver disease in our region is alcohol intake and use of alcohol is much more common in males than females.In a study from GB Pant hospital Delhi done by Hitendar Garg et al the median age of the patients was 36 years (range 15 to 80) years with a predominance of males (74% vs 24%) (Garg H et al 2012). Our results were coherent with (Moreau et al 2013) who demonstrated that the mean age of patients presenting with acute on chronic liver failure was 56 years. Male patients consisted of 74%, 86%, 86%, in studies by (Garg H et al 2012), (Khatun UF et al 2014), (Dhiman RK et al 2014) respectively.

In Fig 3 The study group patients were divided into 3 subgroups on basis of presentation viz subgroup A (Not a known CLD presenting with acute decompensation), sub group B (Known compensated CLD presenting with acute decompensation) and sub group C (Known decompensated CLD presenting with rapid deterioration of liver function). Most of the patients belonged to sub group A. Thus undiagnosed cirrhosis was already present in most of the patients with ACLF. Gupta M et al (2016) categorised 120 patients into three different subtypes: Type A ACLF- non cirrhotic CLD with an acute flare; often indistinguishable from acute or sub acute liver failure. Type B ACLF well compensated cirrhosis with an acute insult. Type C ACLF cirrhosis with previous hepatic decompensation. They reported that Type C ACLF constitutes 70% (84/120) of patients while remaining 30 % of patients were of Type A/B ACLF.

As the patients who were taken in the study was according to definition of national ACLF working group and APASL, all patients had bilirubin levels more than 5 mg/dl and PTI/INR more than 1.5. All the patients had history of jaundice on presentation (100%) and majority of the patients (89%) had history of abdominal distension and ascites and (45%) of patients had history of hepatic encephalopathy (table 1). Mikolasevic et al 2013 examined 1215 patients with chronic liver disease out of which 90 patients met the criteria for ACLF. The majority of patients had severe liver dysfunction at admission, with a median bilirubin level of 204.6 ± 144.2 µmol/L. Furthermore, 80 (88.9 %) patients had ascites, 45 (50 %) had encephalopathy, and 35 (38.9 %) had both. Jaundice (34 %) and ascites (32 %) were the most common presenting symptoms at admission.

Ultrasonography was carried out in 100 patients. All the patients had ultrasonographic evidence of chronic liver disease followed by 92 (92%) patients had presence of ascites on ultrasonography and (53%) patients had presence of varices (table 2). Our results were in accordance with Kumar et al (2016) reported that majority of the patients had a previous history of chronic liver disease whereas large varices were seen in 16%. Upper GI endoscopy was performed in 86 patients; 56 patients (65.1 %) had esophageal varices, although only 14 % of patients presented with GI bleeding on admission (Mikolasevic et al 2013). Acute variceal bleeding has been included as one of the events to define hepatic decompensation in the natural history of cirrhosis (Ripoll C et al 2007). Variceal bleeding has also been taken as an acute insult of ACLF in some western trials of ACLF. 11 (13.1%) patients presented with gastrointestinal bleed).

Acute superinfection with a hepatitis virus is a well-recognized cause of ACLF. .The hepatitis viruses were also one of the common acute insult identified at the time of admission in our study. Among all patients examined, 11 patients had presence of Hepatitis C, 10 were Hepatits E positive, 7 patients had presence of Hepatitis B, and 1 was Hepatitis A positive (table 3). Jha et al 2012 identified hepatitis in 24 (46.1 %) patients. Overall, the most common hepatitis virus was HEV followed by HAV and HBV in 12 (23.0 %), 8 (15.3 %), and 6 (11.5 %) patients, respectively. Their study showed that HEV and HAV superinfection as a source of decompensation of CLD was less frequent as compared to other reports from India. Further, Kumar et al 2008 have revealed that HEV superinfection in 44 % of 32 patients of CLD. However, patients with suspected sepsis and recent hepatotoxic drugs intake were excluded from the study. In the study conducted by Duseja et al 2010, the most common precipitating factor observed was infection, seen in up to 53% of cases; the most common infections were spontaneous bacterial peritonitis and sepsis in 47% of cases and viral hepatitis in the remaining 6%.

In table 4 Duration of the stay of patients in hospital was studied and average length of hospital stay was 14 days and the maximum stay of the patients was in 11-20 days group which showed that 14 days were essential for the management of the patients. Outcome of the patients during hospital stay was studied. Among the 100 patients of ACLF it was revealed that 78 patients were discharged, 18 patients were discharged against medical advice (DAMA) from the hospital and 4 patients had in-hospital mortality (table 5). Kumar et al 2016 reported that the mean time from hospital admission to death was 12.5 days (4-37). Nine (33.33%) patients died within first week and another 10 patients died (37.03%) in the second week. 19 of the 27 patients who died (70.37%) died within the initial two weeks. These findings resulted that initial two weeks was very critical in the management of these patients. Jha et al (2013) studied the clinical profile and etiology of patients with acute on chronic liver failure and further stated that mean (SD) hospital stay of all patients with ACLF was 11.6 (4.9) days. Twenty-eight (53.8 %) patients died during hospitalization. Four (7.6 %) patients were discharged against medical advice in very bad condition.

CONCLUSION

In conclusion, jaundice, upper GI endoscopy evidence of chronic liver disease and ascites were the common acute insults in ACLF in our series. The presence of more than one acute insult was not uncommon and created diagnostic problem. Hospital stay of 14 days was found to be critical in the management of ACLF. In accordance with our findings, accumulating data from observational studies indicate that ACLF is a serious condition with short-term mortality; however, new, prospective studies and trials are required to increase our understanding of this disease.

RESULTS

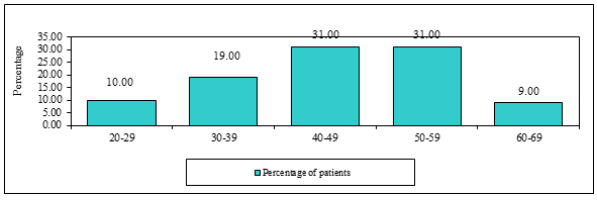

FIG 1: Bar diagram showing Age Group of the Patients (n=100)

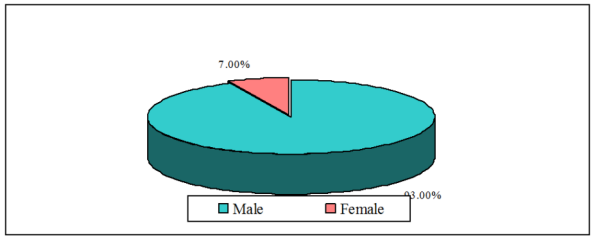

FIG 2: Pie chart showing Sex Distribution of patients (n=100)

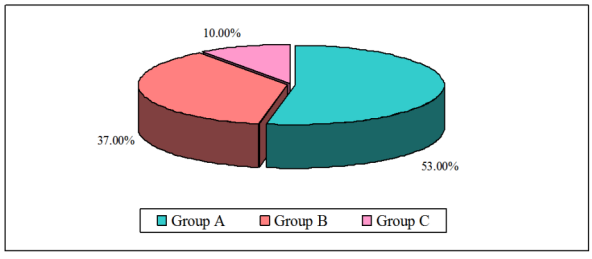

FIG.3: Pie chart showing Distribution of patients according to group (n=100)

TABLE 1: History of Symptoms (n=100)

	Jaundice		Ascites		Hepatic Encephalopathy	
	No	%	No	%	No	%
Present	100	100.00	89	89.00	45	45.00
Absent	0	0.00	11	11.00	55	55.00
Total	100	100.00	100	100.00	100	100.00

TABLE 2:Upper GI Endoscopy Evidence of Varices, Chronic Liver Disease and Ascites (n=100)

	Varices		Ultrasonography CLD		Ultrasonography ascites	
	No	%	No	%	No	%
Yes	53	53.00	100	100.00	92	92.00
No	47	47.00	0	0.00	8	8.00
Total	100	100.00	100	100.00	100	100.00

TABLE 3: Presence of Viral Hepatitis (n=100)

	HEP B		HEP C		HEP E		HEP A	
	No	%	No	%	No	%	No	%
Yes	7	7.00	11	11.00	10	10.00	1	1.00
No	93	93.00	89	89.00	90	90.00	99	99.00
Total	100	100.0	100	100.0	100	100.0	100	100.0

TABLE 4: Total Duration of Hospital Stay (n=100)

Total duration (days)	Number	Percentage
0-10	42	42.00
11-20	37	37.00
21-30	16	16.00
>30	5	5.00
TOTAL	100	100.00

TABLE 5: Outcome of the Patients during Hospital Stay (n=100)

Outcome	Number	Percentage
Discharged	78	78.00
Dama	18	18.00
Expired	4	4.00
Total	100	100.00

REFERENCES

1. Acharya, S. K., Sharma, P.K., Singh, R., (2007) Hepatitis E virus (HEV) infection in patients with cirrhosis is associated with rapid decompensation and death. Journal of Hepatology, 46, 387–94.
2. Chan, A.C., Fan, S.T., Lo, C.M., Liu, C.L., & Ng, K.K., (2009) Liver transplantation for acute-on-chronic liver failure. Hepatology, 3, 571–581.
3. Dhiman, R. K., Agrawal, S., Gupta, T., Duseja, A., & Chawla, Y., (2014). Chronic Liver Failure-Sequential Organ Failure Assessment is better than the Asia-Pacific Association for the Study of Liver criteria for defining acute-on-chronic liver failure and predicting outcome. World Journal of Gastroenterology 20, 14934-14941.
4. Duseja, A., Chawla, Y., Dhiman, R., Kumar, A., Choudhary, N., & Taneja, S., (2010)Non-hepatic insults are common acute precipitants in patients with acute on chronic liver failure (ACLF). Digestive Disease and Sciences. 2010, 55, 3188–3192.
5. Garg, H., Kumar, A., Garg, V., Sharma, P., Sharma, B.C., & Sarin, S. K.,(2012) .Clinical profile and predictors of mortality in patients of acute-on-chronic liver failure. Digestion and Liver Disease 44, 166-71.
6. Gupta, M., Dadhich, S., Bhargawa, N., Ranjan, P., & Vatsya S (2016) Clinical Profile of Patients with Acute-on-Chronic Liver Failure. Journal of Gastroenterology, 1, 1007-1010.
7. Jalan, R., & Williams, R. (2002) Acute-on-chronic liver failure: pathophysiological basis of therapeutic options. Blood Purification, 20, 252–261
8. Jha, A. K., Nijhawan, S., & Rai, R. R., Nepalia, S., Jain, P., & Suchismita, A. (2013). Etiology, clinical profile, and inhospital mortality of acute-on-chronic liver failure: a prospective study. Indian Journal of Gastroenterology,32, 108–114
9. Khatun, U. F., Sayeed, A., Hussain, S.M.B., Paul, S., Kawsar, N.M., &Al-Azad (2013). Etiological study of acute on chronic liver failure among patients admitted in medicine ward in Chittagong medical college hospital JAFMC Bangladesh,9, 77-82.
10. Krisper, P., & Stauber. R E. (2010) MARS and Prometheus in acuteon- chronic liver failure: toxin elimination and outcome. Transplant Medicine. 22, 333–338.
11. Kumar, B R., kumar ,R., & Prabhakar, B., (2016) A study of clinical profile in patients with acute on chronic liver failure in a tertiary hospital Asian Pacific Journal of Health Sciences 3, 47-57
12. Kumar, M., Sharma, B C., & Sarin, S.K. (2008). Hepatitis E virus as an etiology of acute exacerbation of previously unrecognized asymptomatic patients with hepatitis B virus-related chronic liver disease. Journal of Gastroenterology and Hepatology, 23, 883–887.
13. Laleman, W., Wilmer, A., & Evenepoel, P., (2006) Effect of the molecular adsorbent recirculating system and Prometheus devices on systemic haemodynamics and vasoactive agents in patients with acute-on chronic alcoholic liver failure. Critical Care. 10, 1-8
14. Mikolasevic, I., Milic, S., Radic, M., Orlic L & Bagic,Z. (2015) Clinical profile, natural history, and predictors of mortality in patients with acute-on-chronic liver failure (ACLF) DOI 10.1007/s00508-015-0707-9.
15. Mikolasevic, I., Radic, M., Milic. S., & Stimac, D., (2013) Acute-on chronic liver failure (ACLF)-a new entity in hepatology.Lijec Vjesn 135, 322–325.
16. Monga, R., Garg, S., Tyagi. P., & Kumar, N.,(2004) Superimposed acute hepatitis E infection in patients with chronic liver disease. Indian Journal of Gastroenterology 23, 50-52.
17. Moreau, R., Jalan, R., Gines, P., Pavesi, M., Angeli, P., & Cordoba, J., (2013) Acute-on-chronic liver failure is a distinct syndrome that develops in patients with acute decompensation of cirrhosis. Gastroenterology 144, :1426-1437.
18. Moreau, R., Jalan, R., & Arroyo, V (2015) Acute-on-Chronic Liver Failure: Recent Concepts journal of clinical and experimental hepatology, 5, 81–85.
19. Ripoll, C., Groszmann, R., Garcia-Tsao, G., Grace, N., Burroughs, A., & Planas, R., (2007) Hepatic venous pressure gradient predicts clinical decompensation in patients with compensated cirrhosis. Gastroenterology 133, 481-88.
20. Sarin, S.K., Kumar, A., & Almeida J.A., (2009) Acute-on-chronic liver failure: consensus recommendations of the Asian Pacific Association for the study of the liver (APASL). Hepatology 3, 269–282.
21. Sen, S., Williams, R., & Jalan, R., (2002) The pathophysiological basis of acuteon-chronic liver failure. Liver 2, 5-13.
22. Yu, J.W., Sun, L.J., Zhao, Y.H., &Li S. C., (2008) Prediction value of model for end-stage liver disease scoring system on prognosis in patients with acute-on-chronic hepatitis B liver failure after plasma exchange and lamivudine treatment. Journal of Gastroenterology and Hepatology. 23, 1242–1249.