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Demographic and Clinical Profile in Patients with Cirrhosis of Liver

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ABSTRACT

Background

Liver cirrhosis is a common problem in Nepal. Different causes and factors are responsible for cirrhosis and its progression. This study was undertaken to study the demographic and clinical profiles of patients with liver cirrhosis attending a tertiary care hospital in Gandaki province of Nepal.

Methods

Four hundred patients with liver cirrhosis attended to the hospital. Their demographic, clinical profile and endoscopic findings were studied. Ethical approval was taken from Institutional Review Committee of Manipal College of Medical Sciences. SPSS version 16 was used for statistical analysis.

Results

The mean age of patients was 57±10.72 years ranging from 29-75 years of age with male predominance (M: F=2:1). The study found farmers to be most commonly affected followed by retired personnels and those living in rural areas. All castes and ethnicity were affected but the most common were Mongols (37.5%), Dalit (33.5%) Chhetri/Brahmins (22.5%), followed by Newars (10.6%). Alcohol was the most common aetiology of cirrhosis occurring in 360(90%) patients. Low socioeconomic status highly contributed to chronic alcohol consumption. The most common presentation was abdominal distension followed by anorexia, fatigue, vomiting. Ascites was present in 256(64%) patients and 146(36.5%) patients had upper gastrointestinal bleed as their presentation to the hospital. The most common cause of mortality was rebleeding occurring in 13(40%) followed by hepatic encephalopathy in 7(22%) and hepatorenal syndrome in 6(19%) patients.

Conclusions

Patients present in hospital with varied signs, symptoms and complications of liver cirrhosis. Educating about the adverse effects of alcohol and tight regulations may help in early detection and management of alcoholic liver diseases which might reduce morbidity and mortality of liver cirrhosis in Nepal especially in rural areas.

Keywords: cirrhosis of liver; demographic profile; endoscopy; symptomatology.

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INTRODUCTION

Liver cirrhosis refers to a progressive, diffuse, fibrosing, nodular condition of the liver. The common causes are excessive alcohol consumption, viral hepatitis, nonalcoholic fatty liver disease and obesity worldwide.[1] The clinical presentation of cirrhosis depends on the aetiology and stage of the disease. Liver injury may be present even vague symptoms or at times, without any obvious clinical signs.[2] Cirrhosis of liver is an important health issue worldwide and is a common disease in Nepal. Patients usually present late in hospitals with varied complications. National data on the exact burden of the disease from this part of country is lacking. Different demographic factors like etiology, age groups, ethnicity, geographical and social factors can affect the clinical presentation of these patients with cirrhosis. This study was undertaken to see the demographic and clinical profiles of patients with cirrhosis of liver attending Manipal Teaching Hospital, a tertiary care hospital in Gandaki Province Nepal.

METHODS

This observational, descriptive, retrospective hospital-based study was carried out in the Department of Gastro-medicine at Manipal Teaching Hospital, Nepal from January 2021 to June 2025. Ethical approval was taken from Institutional Review Committee (MCOMS/IRC/588/GA). Files of patients and relevant medical records were obtained from the medical record section of the hospital. All cirrhotic cases attending the department of medical gastroenterology as outdoor and/or admitted in ward with clinical features, laboratory and sonological findings suggestive of chronic liver dysfunction were included in the study. On the other hand, those with incomplete records and patients who went against medical advice were excluded from the study. Sample size was collected using formula, sample size (n) = $[Z^2*p*(1-p)]/\alpha^2$, where, Z: 1.96 (critical value of the normal distribution for 95% confidence interval), p: sample proportion (prevalence of the disease or 0.5 if no prevalence is known), α: margin of error (0.05) or when prevalence is given, 20% of prevalence. The minimum sample size required and calculated as per the equation with no known prevalence of cirrhosis; 95% CI (Z=1.96, α=0.05, and assumed p=0.5, q=0.5) was 384. Data regarding demographic variables, clinical features, symptomatology, modes of presentation, complications, etc. were studied. Blood investigations like complete blood count, platelets count, blood grouping, liver function test, prothrombin time / international normalized ratio (PT / INR), coagulation profile and viral serologies were collected. Abdominal ultrasound and UGI endoscopy findings of these patients were also collected. Data of clinical outcomes during hospitalization including rebleeding and mortality were also collected. Data was collected on a structured proforma. All categorical data were expressed in percentage and absolute number. All numerical continuous data were expressed in mean ±SD. The data analysis was done using SPSS version 16. All tests were analyzed with a 95% confidence interval and a p-value of <0.05 was considered significant.

RESULTS

Total 434 patients were screened for study eligibility. 19 patients who got discharged against medical advice despite initial management were excluded. Further 15 were excluded because of insufficient data. A total of 400 patients that comprised of 272(68%) male and 128(32%) female cirrhotic subjects comprised the study (M: F = 2:1). The mean age was 57±10.72 years with a range of 29-75 years of age. Patients when further classified as per sex and age groups maximum cases in 50-64 years of age group (Table 1).

Table 1. Age groups and sex distribution of cirrhotic under study.

Variables	Sex		Total
	Male n(%)	Female n(%)	
Age group (years)			
<35	33(8.25)	16(4)	49(12.25)
35-49	57(14.25)	22(5.5)	79(19.75)
50-64	123(30.75)	72(18)	195(48.75)
≥65	59(14.75)	18(4.5)	77(19.25)
Total	272(68.0)	128(32.0)	400(100)

These subjects were classified according to their ethnicity/caste. Majority of subjects were found to be Mongols (37.5%) followed by Dalit (33.5%) Chhetri/ Brahmins (22.5%), Newar (10.6%) and Madhesi (7.7%), others caste included 15.7 % of patients. These cirrhotic patients were classified as per their occupation. Majority of these patients were farmers (32.3%) followed by retired personnel (27.5%), government job holders (16.4%), businessmen (14.8%) and housewives (9%). Majority (57.5 %) were from rural areas whereas rest 42.5% belonged to urban regions. Total 41% patients were from middle socioeconomic status, 37% from lower and only 22% were from the higher socioeconomic status. The majority of study population followed Hinduism (71%), while 14% were Buddhists, 8% followed Christianity and rest 7% followed various other religions. Alcoholic liver disease observed in 360 (90%) patients was the most common aetiology of cirrhosis. Chronic viral hepatitis accounted 5.5% of total cases (Chronic Hep B 3.5% and chronic Hep C 2%). Rest 4.5% of cirrhotic were of MAFLD and/ or likely cryptogenic. One hundred and forty (35%) patients were documented smokers.

Table 2. Symptomatology of cirrhotic subjects at presentation.

Variables	Frequency (%)
Symptoms	
Abdominal distension	340(85)
Anorexia	328(82)
Fatigue	316(79)
Vomiting	236(59)
UGI Bleed	146(36.5)
Fever	128(32)
Dizziness	96(24)
Altered sensorium	76(19)
Dyspnea	68(17)
Oliguria	36(9)
Signs	
Ascites	256(64)
Icterus	233(58)
Pallor	224(56)
Pedal edema	190(47.5)
Loss of body hair	158(39.5)

A total of 232 (58%) cirrhotic subjects belonged to Child grade C. This was followed by 144 (36%) patients in child class B and 24 (6%) patients in child class A. These subjects presented with varied symptoms and signs. The most common presentation was abdominal distension followed by anorexia, fatigue, vomiting. One hundred forty-six (36.5%) patients had upper gastrointestinal bleed at presentation. Clinically, ascites was seen in 256 (64%) patients. The other common signs were icterus followed by pallor, pedal edema and loss of body hair (Table 2).

One hundred and forty-six (36.5%) patients presented with UGI bleed. Rebleeding was seen in 104 (21%) patients. This was followed by hepatic encephalopathy in 76 (19%), spontaneous bacterial peritonitis (SBP) in 74 (18.5%) and hepatorenal syndrome (HRS) in 30 (7.5%). Upper GI endoscopy was done in all patients. Gastro-oesophageal varices were the most common endoscopic finding and was seen in 210 (52.5%) patients followed by peptic ulcer in 62 (15.5%). Majority of patients with varices were of CTP-C grade. This difference in detection of varices in different CTP grades was statistically significant (p-value<0.05) (Table 3).

Table 3. Varices presentation in various CTP class.

CTP GRADES	VARICES n(%)	p-value
Class A	10(4.7)	0.01
Class B	52(24.8)	
Class C	148(70.5)	
Total	210(100)	

In patient mortality was observed in 32 (8%) patients. The most common causes of mortality were rebleeding in 13 (40%) followed by hepatic encephalopathy in 7 (22%) and hepatorenal syndrome in 6 (19%) patients. Sepsis, spontaneous bacterial peritonitis and aspiration pneumonia comprised rest six (19%) mortalities.

DISCUSSION

A total of 400 patients that comprised of 272 (68%) male and 128 (32%) female patients (M: F = 2:1). The mean age was 57±10.72 years with a range of 29 – 75 years of age. In the study by Bhattacharyya et

al.[3] mean age of 45.8±10.45 years, which was lower compared to the present study. Maskey et al.[4] also had 68.6% male predominance with mean age of 49.06 ± 11.27 years. Khan et al.,[5] Hajiani et al.[6] and Qua et al.[7] in their studies also had male predominance with mean ages of the cirrhotic patients being 57.5, 47 and 58.8 years respectively. Mean age of presentation in all these studies is between 50-60 years. The male predominance may be due to high incidence of ethanol intake among men compared to women. Additionally, this may be due to differences in medical care seeking practice. The current study detected 12.3% of young cirrhotic aged < 35 years. Bhattacharyya et al.[3] presented that 13.4% of cirrhotic were young. Maskey et al[4] observed 14.28% of cirrhotic aged <35 yrs of age, whereas a higher incidence of 37% was revealed by Sarin et al.[8] Cirrhosis among younger population is rising which may be due to alcohol use at earlier ages.

Majority (57.5%) of patients were from rural areas in the current study. Similarly, a higher prevalence of cirrhotic (70.1%) were from rural background in the study by Bhattacharyya et al.[3] In this study, 41% patients were from middle socioeconomic status, 37 % from lower and only 22% were from higher socioeconomic status. However, Bhattacharyya et al.[3] found that 72.7% patients were from middle socioeconomic status, 23.4% from lower and only 3.9% were from the higher socioeconomic status in their study. This study showed that 71% of cirrhotic patients were Hindus. Similar were the findings in the study by Bhattacharyya et al.[3] where majority were Hindus (90.2%) followed by Muslims (7.7 %).

Alcoholic liver disease was the most common (90%) aetiology of cirrhosis in our study. The findings were similar to the studies by Bhattacharyya et al. [3] and Maskey et al.[4] Contrary, chronic hepatitis C, chronic hepatitis B, chronic hepatitis B and C co-infection were the commonest aetiologies of in the study by Khan et al[5] in the Islamic state of Pakistan. Similar were the findings from Iran and Malaysia according to Hajiani et al.[6] and Qua et al.[7] respectively. Alcohol consumption is not common in Muslim countries whereas, chronic alcohol consumption remains the commonest etiology of liver cirrhosis in Nepal. A total of 232 (58%) cirrhotic subjects belonged to Child grade C. This was followed by 144 (36%) patients in child class B and 24 (6%) patients in child class A. Bhattacharyya et al.[3] and Hajiani et al.[6] in their studies reported 50 % and 51% of patients with Child C respectively. Patients usually present to hospital when disease gets advanced. This could be the cause of more patients with Child grade C.

The most common symptoms at presentation was abdominal distension (85%) followed by anorexia (82%), fatigue (9%) and vomiting (59%). Icterus was seen in 58% followed by pallor in 56% and pedal edema in 47.5%. Clinically ascites was seen in 64% of patients. One hundred forty-six (36.5%) patients had upper gastrointestinal bleed at presentation in this study. Common symptoms and signs at presentation were leg swelling (80.5%), abdominal swelling (74.3%), gastro intestinal bleed (43.4%), jaundice (36.3%), low urine output (31%) and altered sensorium (23%) in the study by Bhattacharyya et al.[3] Other non-specific clinical presentation were fatigability (49.1%), anorexia (40%), fever (14%), vomiting (13.4%) and pain abdomen in 22.7% patients in that study. The most common presenting signs were ascites and icterus, which were followed by loss of body hair and spider naevi in the study by Maskey et al.[4] The various clinical presentations in different studies may vary due to different factors like etiology, age groups, ethnicity, geographical and social factors.

The most common complications of cirrhosis at presentation in the present study were ascites which was found in 64% followed by UGI bleed in 36.5% patients. Rebleeding was seen in 21% patients. This was followed by hepatic encephalopathy in 19%, SBP in 18.5% and HRS in 7.5% in our study. Almost similar were the findings identified by Bhattacharyya et al.[3] with ascites in 78.6%, variceal bleeding in 43.4%, hepatic encephalopathy in 21.6%, SBP in 4.2%, HRS in 2.7%, and sepsis in 12.8% of patients. Higher incidences of SBP compared to ours have been documented by Rimo la et al.,[9] Syed et al.[10] and Jain et al.[11] the prevalence of SBP was 22.5%, 24.7% and

34.9 % in hospitalized patients respectively.[9-11] 58% of the patients presented with CTP C in our study. Bhusal, M et al.[12] in their study also documented that 60% of their patients belonged to CTP C and only 15 percent that is the least percent with CTP A. Similarly, Kaur et al.[13] also found 51.3 percent of the patients had CTP C,38 % in CTP B and 10.67% in CTP A. This similar finding implies that patients usually present late in the disease course suggesting educating about disease in community might incite people to seek early medical attention.

Gastro-oesophageal varices were the most common finding in UGI endoscopy and seen in 52.5%. Most common UGI endoscopy findings were oesophageal varices followed by portal hypertensive gastropathy in the study by Bhattacharyya et al.[3] Peptic ulcer was seen in less number (3.1%) compared to the present study of [15].5%. This study showed 70.5 % of CTP C, 24.7% of CTP B and 4.8% of patients with CTP A had esophageal varices while Tiwari et al[14] documented 100 % with CTP C, 94.2% with CTP B and 48.3 % with CTP A had varices. Though Tiwari et al demonstrated higher number of varices CTP C both studies show that the chances of having varices increases with increment in CTP score.

In patient mortality was observed in 32 (8%) patients. The most common causes of mortality were rebleeding in 13 (40%) followed by hepatic encephalopathy in 7 (22%) and hepatorenal syndrome in 6 (19%) patients. Mortality was related with HE in 63.5%, variceal haemorrhage in 58.1%, HRS and SBP in 21.6% and 6.8% patients respectively in the study by Bhattacharyya et al.[3]. Bhattrai et al [15] found 15.3% in patient mortality with 34.8% 32.6% accounting to rebleeding and hepatic encephalopathy respectively. There was 19.1% mortality in the study by Pathak et al.[16] and the most common cause was hepatic encephalopathy (72.2%) followed by variceal bleeding and hepatorenal syndrome. All these studies suggest UGI bleed and HE were the major contributors for mortality in Liver cirrhosis.

Limitations

The current study has some limitations. Liver biopsy was not performed, which is the gold standard for establishing the diagnosis of cirrhosis of liver. This is a retrospective study. Follow up data were not studied. Prospective and multicentered studies with follow-up would be more beneficial.

CONCLUSIONS

Alcoholic cirrhosis is common in Nepal. Chronic viral hepatitis B and C cases are also rising. Patients with liver cirrhosis usually present late with varied complications. People should be taught about the bad effects of regular use of alcohol. Early detection of alcoholic liver diseases and viral hepatitis has survival benefits, and their management may reduce the burden of cirrhosis. In established cases of cirrhosis, regular medical follow-up and sticking to treatment protocols can reduce morbidity and mortality.

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