

Demographic and Clinical Profile in Patients with Liver Cirrhosis in a Tertiary Care Hospital in Central Nepal

Subash Bhattarai,¹ Merina Gyawali,² Khus Raj Dewan,¹ Gaurav Shrestha¹

¹Department of Medical Gastroenterology, College of Medical Sciences, Chitwan, Nepal, ²Department of Radiodiagnosis and Imaging, Manipal College of Medical Sciences, Pokhara, Nepal.

ABSTRACT

Introduction: Liver cirrhosis is an important health problem worldwide and is a common disease in Nepal. The profile of cirrhosis may vary due to different factors. This study was undertaken to see the demographic and clinical profiles of patients with cirrhosis of liver attending a tertiary care hospital in Central Nepal.

Methods: Six hundred patients with clinical features, laboratory and sonological findings suggestive of chronic liver dysfunction and endoscopic evidence of portal hypertension were included in the study. Their demographic and clinical profile, endoscopic findings, outcomes during hospitalization were studied. Ethical approval was taken from Institutional Review Committee of College of Medical Sciences. SPSS 20 was used for statistical analysis.

Results: The mean age of subjects was 54±11.84 years with 435 males (72.5%) and 165 (27.5%) females. Majority of 203 (33.8%) patients were from Mongol ethnicity followed by 127 (21.2%) Khas. Two hundred and twenty (36.6%) were farmers followed by 169 (28.2%) retired personnel. A total of 338 (56.4 %) patients were from rural areas. The commonest aetiology of cirrhosis was chronic alcohol consumption and seen in 552 (92%) patients. Abdominal distension was commonest presenting sign and observed in 561 (93.5%) patients. Ascites seen in 555 (92.5%) patients was the commonest complication followed by UGI bleed in 326 (54.3%) patients. Gastro-oesophageal varices observed in 345 (57.5%) patients, was the most common endoscopic finding followed by portal gastropathy, peptic ulcer and erosive mucosal diseases. In patient mortality was noted in 92 (15.3 %) patients.

Conclusions: This study highlights the burden of cirrhosis, usually caused by chronic alcohol consumption in Central Nepal. Majority of subjects were male, middle aged, farmers, from rural areas and predominantly observed in some ethnicity like Mongols. Cirrhotic patients usually present late with varied complications and have high mortality.

Keywords: cirrhosis of liver; complications; endoscopy.

INTRODUCTION

Cirrhosis of liver refers to a progressive, diffuse, fibrosing, nodular condition that disrupts the entire normal architecture of the liver. The majority of cases are attributed to excessive alcohol consumption, viral hepatitis, or nonalcoholic fatty liver disease worldwide.¹ The clinical presentation of cirrhosis varies depending

on the aetiology and whether portal hypertension or hepatocellular injury predominates. However, severe liver injury may be present even without any obvious clinical signs.²

Correspondence: Dr. Subash Bhattarai, Department of Medicine, Manipal College of Medical Sciences, Pokhara, Nepal. Email: kiwisubash@yahoo.com, Phone: +977-9855011960.

Liver cirrhosis is an important health problem worldwide and is a common disease in Nepal. Patients usually present late in decompensated state with varied complications. However, national data on the exact burden of the disease is lacking. The profile of cirrhosis may vary due to different factors like etiology, age groups, ethnicity, geographical and social factors.

This study was undertaken to see the demographic and clinical profiles of patients with cirrhosis of liver attending College of Medical Sciences Teaching Hospital, a tertiary care hospital in Central Nepal.

METHODS

This observational, descriptive, cross-sectional, prospective hospital based study was carried out in the Department of Medical Gastroenterology at College of Medical Sciences Teaching Hospital, Chitwan, Nepal from January 2015 to December 2016. Informed consent was taken from patients or/and patient relatives. Ethical approval was taken from Institutional Review Committee of College of Medical Sciences. All 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 along with sonological and/ or endoscopic evidence of portal hypertension were included in the study. On the other hand, those with cirrhosis with hepatic encephalopathy III / IV, critically ill patients and those who fail to give consent were excluded from the study.

Total 600 patients were included in the study which is more than the minimum required sample.

Sample size was collected using formula,
Sample size: $Z^2 \times \frac{p \times (1-p)}{e^2}$

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)

e: standard 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, $\alpha=0.05$, and assumed p=0.5, q=0.5) was 384.

Detailed history with data regarding demographic variables, clinical features, symptomatology, modes of presentation, complications, etc. were collected and alongside 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 (TOSHIBA XARIO model SSA -660 A) was done for liver and spleen size, parenchymal echogenicity, portal vein diameter, and ascites after an overnight fasting. Each patient underwent UGI endoscopy usually within 24 hours of presentation by standard flexible gastro-duodenal endoscope (PENTAX EPK 700, PENTAX JAPAN Inc) and diagnostic findings were documented. Patients with acute variceal hemorrhage were treated with injection terlipressin or vasopressin and variceal band ligation. Clinical outcomes during hospitalization including rebleeding and mortality were assessed.

Data were collected on a structured proforma. All categorical data were expressed in percentage and absolute number. All numerical continuous data were expressed in mean \pm SD. The data analysis was done using SPSS version 20. All tests were analyzed with a 95% confidence interval and a P value of <0.05 was considered significant.

RESULTS

A total of 600 patients that comprised of 435 (72.5%) male and 165 (27.5%) female cirrhotic subjects were eligible for the study. The mean age of subjects was 54 ± 11.84 years with a range of 24 – 85 years of age. Patients were further classified as per sex and age groups with maximum cases in 50-64 years of age group (Table 1).

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

Sex	Age				Total
	< 35 yrs	35-49 yrs	50-64 yrs	\geq 65 yrs	
M	40	140	194	61	435
F	25	45	70	25	165
Total	65	185	264	86	600

These subjects were classified according to their ethnicity/caste. The study group comprised of 203 (33.8%) Mongols followed by 127 (21.2%) Khas, 77(12.8%) Newar, 62(10.4%) Madheshi and 19 (3.2%) Tharus. Others ethnicity/caste included 112 (18.6 %) of patients. These cirrhotic patients were classified as per their occupation. The study group comprised of 220 (36.6%) farmers followed by 169 (28.2%) retired personnel, 110 (18.4%) government job holders and 101 (16.8%) housewives. Majority of 338 (56.4 %) were from rural areas whereas rest 262(43.6%) belonged to urban regions. Total of 240(40%) patients were from middle socioeconomic status, 210(35%) from lower and only 150 (25%) were from the higher socioeconomic status. Three quarters of participants

i.e., 450 were Hindus, while 144(24%) were Buddhists and rest 6 (1%) followed other religions.

The commonest etiology of cirrhosis was chronic alcohol consumption and seen in 552 (92%) patients. Chronic viral hepatitis leading to cirrhosis was seen in 32(5.4%) cases (Chronic Hepatitis B in 3.7% and chronic Hepatitis C in 1.7%). Rest 16 (2.6%) cases was classified as cryptogenic. Three hundred and forty (56.7%) patients were documented smokers.

Cirrhotic subjects were classified according to CTP classes. Child grade C had majority 379 (63.1%) of cirrhotic patients. This was followed by 209 (34.9%) patients in child class B and 12 (2%) patients in child class A. These subjects presented with varied symptoms and signs (Table 2). The most common presentation was abdominal distension and seen in 561 (93.5%) followed by anorexia, fatigue, vomiting. Clinically ascites was seen in 555 (92.5%) patients. Total 226 (54.3%) subjects presented with upper gastrointestinal bleed. Icterus followed by pallor, pedal edema and loss of body hair were the other common signs.

Table 2. Symptomatology of cirrhotic subjects at presentation.

	Sym	n (%)
Symptoms	Abdominal distension	561 (93.5)
	Anorexia	423 (70.5)
	Fatigue	363 (60.5)
	Vomiting	313 (52.2)
	Fever	150 (25)
	Dizziness	197 (32.8)
	Altered sensorium	111 (18.5)
	Oliguria	37 (6.2)
	Ascites	555 (92.5)
	UGI Bleed	326 (54.3)
Signs	Icterus	445 (74.2)
	Pallor	434 (72.3)
	Pedal edema	363 (60.5)
	Loss of body hair	356 (59.3)
	Spider naevi	262 (43.7)
	Palmer erythema	146 (24.3)
	Parotid enlargement	156 (26.0)
	Dyspnoea	120 (20)

Many of the subjects presented with varied complications of liver cirrhosis. Ascites was commonest

and seen in 555 (92.5%) of patients. Total 226 (54.3%) patients presented with UGI bleed. Rebleeding was seen in 98 (16.3%) patients. This was followed by hepatic encephalopathy (HE) seen in 96 (16%), spontaneous bacterial peritonitis (SBP) in 80 (13.3%) and hepatorenal syndrome (HRS) in 67 (11.2%) of total cirrhotic subjects.

All the subjects irrespective of UGI bleeding underwent UGI endoscopy. Gastro-esophageal varices were the most common endoscopic finding and was seen in 345 (57.5%) patients followed by portal gastropathy in 135 (22.5%), peptic ulcer in 46 (7.7%), gastro-duodenitis in 36 (6%), Mallory Weiss tear in 12 (2%) and GI malignancies in 6 (1%). Total 226 (54.3%) patients had presented with UGI bleed. Variceal bleed was the most common cause of UGI bleed and seen in 227 out of 326 (69.7%) cirrhotic patients followed by peptic ulcer in 32 (9.8%), portal gastropathy bleed in 25 (7.7%), erosive gastroduodenitis in 20 (6.1%), Mallory Weiss tear in 17 (5.2%) and GI malignancies in 5 (1.5%). Almost two-third patients with varices (i.e., 227 out of 345; 65.8%) presented with UGI bleed secondary to variceal rupture.

Three hundred and three out of 379 (79.9%) subjects with CTP - C had varices. This difference in detection of varices in different CTP grades was statistically significant ($P < 0.05$) (Table 3).

Table 3. Varices presentation in various CTP class.

CTP Class	Esophageal Varices	Gastric Varices	Total varices	Absent Varices	n	P value
A	2	0	2	10	12	0.02
B	34	6	40	169	209	
C	289	14	303	76	379	
Total	325	20	345	255	600	

Total 92 (15.3%) had inpatient mortality within 7 days. Rebleeding was the most common cause seen in 32 out of 92 (34.8%) mortalities followed by HE in 30 (32.6%) and HRS in 20 (21.7%) mortalities. Sepsis, SBP and aspiration pneumonia were less common causes and seen in a total of 10(10.9%) mortalities.

DISCUSSION

Total 640 patients were screened for study eligibility. However, 22 patients were taken away to home or elsewhere by patient relatives against medical advice despite initial management and few days of admission and further 18 were excluded because of inadequate data. Finally, total 600 patients were enrolled in the

study. The mean age of subjects was 54 ± 11.84 years with a range of 24 – 85 years of age with maximum cases in age group of 50 to 64 years and male dominance comprising of 435(72.5%) patients. Bhattacharyya et al.³ studied 1000 patients with 88.3% males with mean age of 45.8 ± 10.45 years, which was lower compared to the present study. Maskey et al.⁴ did a study in 105 patients with 68.6% male predominance with mean age of 49.06 ± 11.27 years (range: 23 to 73 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. This difference in age of presentation may be due to difference in various factors such as etiology, ethnicity, geographical and social factors. The male predominance over female in all studies is most probably due to high incidence of ethanol intake among men compared to women. Additionally, this may be due to differences in the medical care seeking practice among both sexes.

The current study detected 65(10.8 %) of young cirrhotics aged <35 years. Maskey et al.⁴ observed 14.28% of cirrhotics aged <35 yrs of age. Bhattacharyya et al.³ detected that 13.4% had cirrhosis < 35 yrs of age whereas, a higher incidence of 37% was detected by Sarin et al.⁸ Cirrhosis among younger population is rising which may be due to prevailing habit of alcohol use, abuse and dependence.

Total 338 (56.4%) patients were from rural areas in the current study. Similarly, a higher prevalence of cirrhotics (70.1%) were from rural background in the study by Bhattacharyya et al.³ In the current study, 40% patients were from middle socioeconomic status, 35 % from lower and only 25% were from the 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. Furthermore, our study revealed that 450(75%) of participants were Hindus followed by 144 (24%) Buddhists which is similar to the study by Bhattacharyya et al. where majority were Hindus (90.2%) followed by Muslims (7.7 %).

Alcoholic cirrhosis was the most common aetiology of cirrhosis in the present study and was observed among 552 (92%) patients. 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 cirrhosis in the Islamic state of Pakistan in the study by Khan et al.⁵ Similar were the findings from Iran and Malaysia according to Hajiani et al.⁶ and Qua et al.⁷ respectively. The study conducted by Maskey et al.⁴ in Eastern Nepal highlighted that Alcoholic cirrhosis was common. Chronic alcohol consumption

remains the commonest etiology of Cirrhosis in entire Nepal. Cirrhosis cases are therefore increasingly being observed in young as was seen in present study which can be due to earlier use and dependence of alcohol.

Cirrhotic patients were maximum in Child grade C with 379 (63.1%) subjects followed by 209(34.9%) patients in child class B and 12(2%) patients in child class A in the current study. Bhattacharyya et al.³ and Hajiani et al.⁶ in their studies reported 50 % and 51% of patients with Child C respectively. Patients presenting to hospital lately could be the cause of more patients with Child grade C.

The most common presentation was with abdominal distension and seen in 561 (93.5%) followed by anorexia in 423 (70.5%), fatigue in 363 (60.5%) and vomiting in 313 (52.2%) in the current study. Clinically ascites was seen in 555(92.5%) patients. Icterus was seen in 445(74.2%) followed by pallor in 434 (72.3%) and pedal edema in 363 (60.5%). Total 326 (54.3%) patients presented with upper gastrointestinal bleed 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 manifestations 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 clinical presentation of cirrhotics 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 our study were ascites which was found in 555(92.5%) followed by UGI bleed in 326(54.3%) patients. Rebleeding was seen in 98(16.3%) patients. This was followed by hepatic encephalopathy in 96(16%), SBP in 80(13.3%) and HRS in 67(11.2%). The common complications identified in study by Bhattacharyya et al.³ were ascites in 78.6%, variceal bleeding in 43.4%, hepatic encephalopathy in 21.6%, SBP in 4.2%, HRS in 2.7% HCC in 1.3%, hypersplenism in 0.4% and sepsis in 12.8% of patients which was similar to findings elicited in our study. Higher incidences of SBP compared to ours have been documented in various studies ranging between 10% to 30 %.⁹ Syed et al.¹⁰ and Jain et al.¹¹ reported the prevalence of SBP was 24.7% and 34.9 % in hospitalized patients respectively.

Gastro-oesophageal varices were the most common finding in UGI endoscopy in the present study and

seen in 345(57.5%) followed by portal gastropathy in 135(22.5%), peptic ulcer in 46(7.7%), gastro-duodenitis in 36(6%), Mallory Weiss tear in 12(2%) and GI malignancies in 6(1%) patients. 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.

The current study had 92(15.3%) inpatient mortality within 7 days. Rebleeding was the most common cause seen in 32 out of 92 (34.8%) mortalities followed by HE in 30 (32.6%) and HRS in 20 (21.7%) mortalities. Sepsis, SBP and aspiration pneumonia were less common causes and seen in a total of 10(10.9%) mortalities. According to Bhattacharyya et al.³, the most common cause of mortality was rebleeding in 44 (47.8%) followed by hepatic encephalopathy in 36 (39.1%) and hepatorenal syndrome in 12 (13.1%). Complications associated with mortality were HE in 63.5%, variceal haemorrhage in 58.1% in the study by Bhattacharyya et al.³ HRS and SBP was seen in 21.6% and 6.8% patients respectively. In a study by Pathak et al,¹² death occurred in 19.1% of the patients, the most common cause being hepatic encephalopathy (72.2%) followed by variceal bleeding and hepatorenal syndrome in patients with alcoholic cirrhosis. Hence, various factors play role in morbidities and mortalities in these patients.

The current study had some limitations. Liver biopsy was not performed which is the gold standard for establishing the diagnosis of cirrhosis of liver. Liver biopsy has now become obsolete since the introduction of fibroscan and other markers of fibrosis. But these

are expensive and indirect markers and they have their own limitations. So, patients were diagnosed as cirrhosis clinically with stigmata of chronic liver disease and clinical evidence of portal hypertension and these findings were further supported with ultrasonological and UGI endoscopic findings. Patients had no long follow ups. Case controlled studies and randomized controlled trials with long follow ups would be more beneficial.

CONCLUSIONS

This study highlights the burden of cirrhosis in Central Nepal. Chronic alcohol consumption leading to chronic liver disease was the most common aetiology of cirrhosis. Majority of subjects were male, middle aged, farmers, from rural areas and predominantly observed in some ethnicity like Mongols. Cirrhosis due to chronic viral hepatitis B and C are also rising. Cirrhotic patients usually present late with various complications and they have high inpatient mortality. People should be taught about the ill 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, needful management and treatment, prevention of complications and regular surveillance and follow ups may reduce morbidity and mortality.

Conflict of Interest: None.

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