

Pattern of Liver Diseases

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ABSTRACT

Background: The knowledge of distribution and pattern of liver disease in a tertiary care center provides an overview of disease pattern in a community. It also helps in planning and prioritizing strategies to treat the diseases and reduce their burden in the community.

Methods: A retrospective study was conducted among patients admitted to the Liver unit, Bir Hospital from April 13, 2008 to October 16, 2008. Demographic profile and disease pattern was studied. Descriptive analysis was used to calculate frequencies and percentage and their relations.

Results: Male to female ratio was 2.3:1. The mean age was 41.9 (SD 14.8). Median hospital stay was 8.0 days (Q25-75 6.0-12.0). The top three diseases were alcoholic liver disease 50 (38.5%), viral hepatitis 44 (33.8%), and liver abscess 11 (8.5%). Fifty (38.5%) patients had acute, 74 (56.9%) had chronic liver disease and 6 (4.6%) were malignancy. The main cause of acute disease were infections 41 (82.0%) especially Hepatitis E Virus (HEV). HEV was associated with acute liver failure and pregnancy which was 4 (18.2%) and 2 (12.5%) respectively. Chronic diseases were caused by alcohol 45 (60.8%) followed by infection of hepatitis B and C viruses 11 (14.8%). Cirrhosis was diagnosed in 37 (28.5%) with alcohol as the main cause.

Conclusions: Majority had chronic liver disease (CLD), mostly due to alcohol, HBV and HCV. Alcohol was the leading cause of cirrhosis. Prevalence of Hepatitis E was found to be high in acute illness. Therefore, an initiative needs to be taken to decrease alcohol consumption along with HEV, HBV and HCV transmission through community health program.

Key words: Alcohol, cirrhosis, hepatitis, liver disease

INTRODUCTION

Liver disease is a collection of conditions, diseases, and infections that affect the cells, tissues, structures, or functions of the liver.¹ It constitutes a significant number of patients in various countries around the world and presents serious health-related as well as economic problems.² The pattern of liver disease varies geographically, among various ethnic groups with

different practices and time period.³ The major causes of liver diseases are alcohol, infections, autoimmune, genetic, inflammatory, drug and malignancy.⁴

The purpose of this research is to study the pattern of liver diseases in patients admitted to the liver unit of Bir Hospital, Kathmandu, which is a tertiary care centre that will help us to prepare future strategies to reduce such disease burden in the community.

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METHODS

A retrospective study involving all consecutive patients admitted to the Liver Unit of Bir Hospital from April 13, 2008 to October 16, 2008 was conducted. After institutional approval data was entered and analyzed. Demographic profile and the pattern of liver diseases were studied in relation to acute or chronic based on duration and the presence of portal hypertension (PHTN) or cirrhosis; etiology viz. alcohol, infections, autoimmune, mixed in patients more than one agent capable of causing liver damage, malignancy, cholelithiasis and miscellaneous; geographical location based on district of residence; months of hospital stay; gender and age. Patients were grouped into Brahmins, Chhetris, Newars, Tibeto-mongoloids including Magar, Gurung, Sherpa, Rai, Limbu and Lama, and indigenous groups including Tharus. The duration of hospital stay was also calculated using date of admission and date of discharge. Descriptive analysis was used to calculate frequencies, percentage and relations. The data was analyzed using Microsoft office Excel 2007 and statistical packages for social sciences SPSS version 16.0 for windows.

RESULT

There were 130 patients admitted during the study period. Among them 91 (70%) were males and 39 (30%) females with the ratio of 2.3:1. The mean age of patients was 41.9 (Standard Deviation 14.8) with minimum and maximum being 18 and 89 respectively. In decreasing frequency patients fell in the following age groups: 33 (24.81%) in 41-50 years followed by 29 (22.30%) in age 31-40 years and 25 (19.23%) in age 21-30 years.

The median hospital stay was 8.0 days (Q25-75 6.0-12.0 days) with the maximum number of patient staying between 6-10 days. Most patients were Brahmin, Newar, Tibeto-mongoloid or Chhetri (Table 1). Total 30 (23.1%) patients were from Kathmandu district, 8 (6.2%) from Bhaktapur, 5 (3.8%) from Gorkha and others were from various 35 districts of Nepal and one from India.

Table 1. Patient distribution based on ethnicity

Ethnicity	Frequency (%)
Brahmin	42 (32.3%)
Newar	30 (23.1%)
Tibeto-mongoloids (Rai, Limbu, Lama, Sherpa, Gurung, Magar)	9 (30.0%)
Chhetri	4 (3.1%)
Indigenous	4 (3.1%)
Total	130 (100%)

The top three diseases in the study were alcoholic liver disease (ALD), viral hepatitis and liver abscess (Table 2).

Table 2. Diseases in decreasing order of frequency

Disease	Frequency (Percent)
Alcoholic liver disease (ALD)	50 (38.5%)
Viral hepatitis	44 (33.8%)
Liver abscess	11 (8.5%)
Chronic liver disease	10 (7.7%)
Malignancy	05 (3.8%)
ALD with viral hepatitis	03 (2.4%)
Cholelithiasis	02 (1.5%)
Autoimmune liver disease	01 (0.8%)
Wilson's disease with ALD	01 (0.8%)
ALD with anti-tubercular treatment induced hepatitis	01 (0.8%)
Cryptogenic cirrhosis with septicemia	01 (0.8%)
Acute viral hepatitis with herbal medicine	01 (0.8%)
Total	130 (100%)

Acute liver disease was found in 50 (38.5%) and chronic liver disease (CLD) in 74 (56.9%). Malignancy was present in 6 (4.6%) patients out of which 1 (16.7%) had hepatocellular carcinoma (Table 3).

The main cause of acute liver disease was infections (viral hepatitis and liver abscess) constituting 41 (82.0%) (Table 4). There was one (2.0%) patient with acute viral hepatitis complicated with herbal medicine (Table 5). There were two (4%) patients diagnosed as peptic ulcer disease with urinary tract infection and missed abortion with hepatic dysfunction (Table 4).

Among patients with chronic disease, the main etiological agents were alcohol 45 (60.8%), infections 11 (14.9%) including hepatitis B virus (HBV) 6 (54.5%) and hepatitis C virus (HCV) 5 (45.5%), unknown cause 10 (13.5%) and autoimmunity (1.4%). Seven (9.5%) patients had more than one or mixed etiology (Table 5).

Complications like spontaneous bacterial peritonitis (SBP) 15 (20.2%), hepatic encephalopathy (HE) 11 (14.9%) and acute renal failure (ARF) in 2 (2.7%) were found in patients with CLD. Portal hypertension (PHTN) was present in 24 (32.4%) patients. Out of them 6 (25.0%) had esophageal varices and 5 (20.8%) presented with upper gastrointestinal (UGI) bleed. There was 1 (1.4%) patient of CLD with inferior vena cava (IVC) obstruction which was also seen in one patient with malignancy.

Among the 37 cases with cirrhosis the main cause was alcohol (Table 6).

Primary hepatic malignancy	Frequency (Percent)	Non-hepatic malignancy	Frequency (Percent)
Hepatocellular carcinoma with alcoholic liver cirrhosis	1 (16.7%)	Cholangiocarcinoma	2 (32.5%)
		Pancreatic carcinoma	1 (16.7%)
		Ovarian carcinoma	1 (16.7%)
		Metastatic prostate carcinoma	1 (16.7%)

Etiology	Acute Liver Disease n (%)	Chronic Liver Disease (CLD) n (%)
Alcohol	4 (8.0%)	45 (60.8%)
Infections (Viral hepatitis and liver abscess)	41 (82.0%)	11 (14.9%)
Unknown etiology	0 (0%)	10 (13.5%)
Disease with multiple causes	1 (2.0%)	7 (9.5%)
Cholelithiasis	2 (4.0%)	0 (0%)
Miscellaneous (Peptic ulcer disease and missed abortion with hepatic dysfunction)	2 (4.0%)	0 (0%)
TOTAL	50 (100%)	74 (100%)

Acute liver Disease	Frequency (%)	Chronic liver disease	Frequency (%)
Acute viral hepatitis complicated by herbal medicine	1 (100%)	ALD with HEV infection	2 (28.6%)
		ALD with ATT* induced hepatitis	2 (28.6%)
		ALD with HCV infection	1 (14.3%)
		Wilson disease with exacerbation due to alcohol	1 (14.3%)
		Liver cirrhosis with septicemia	1 (14.3%)
TOTAL	1 (100%)		7 (100%)

* ATT = Anti Tubercular Therapy

Etiology of cirrhosis	Frequency (percent)
Alcohol	28 (75.7%)
Unknown cause	5 (13.5%)
Hepatitis B virus	3 (12.5%)
Alcoholic liver cirrhosis with HCV infection	1 (2.7%)
TOTAL	37 (100%)

HEV 24 (42.9%), liver abscess 11 (19.6%), HBV 7 (12.5%) and HCV 6 (85.7%) were the main causes in 56 patients with infection (Table 7).

In male main etiological agents were alcohol (41 cases, 45.1%) and infection (35, 38.5%). In females infection (17 cases, 43.6%), alcohol (9, 23.1%) and malignancy (4, 10.3%) were the main causes.

The predominant cause within different ethnicity was infection 21 (50.0%) followed by alcohol 14 (33.3%) in Brahmins, alcohol 18 (47.4%) followed by infection 11 (28.9%) in Newar, alcohol 9 (56.2%) followed by infection

6 (37.5%) in Chettri, infection 12 (40.0%) followed by alcohol 9 (30.0%) in Tibeto Mongoloids and infection 2 (50.0%) in indigenous and others population.

Table 7. Etiological agents and associations of Liver disease due to infections

Cause	Frequency (percent)
Hepatitis E virus (HEV)	24 (42.9%)
<ul style="list-style-type: none"> HEV associated with pregnancy HEV with acute liver failure 	<ul style="list-style-type: none"> 3 (12.5% out of 24) 4 (18.2% out of 24)
Liver abscess	11 (19.6%)
Hepatitis B virus (HBV)	7 (12.5%)
<ul style="list-style-type: none"> HBV associated with CLD 	<ul style="list-style-type: none"> 6 (85.7% out of 7)
Hepatitis C virus (HCV) (all associated with CLD)	5 (8.9%)
Unidentified viral hepatitis probable Hepatitis A virus	6 (10.7%)
Co-infections	
HBV and HEV	1 (1.8%)
Liver abscess and HCV	1 (1.8%)
CLD with Herpes simplex virus	1 (1.8%)

CLD = Chronic liver disease

DISCUSSION

To assess the pattern of Liver disease in Tertiary Care Centre of Nepal, we analyzed 130 cases of diagnosed liver disease admitted in the liver unit of Bir Hospital. Overall Male to Female ratio was (91/39) 2.3:1. Patient age ranged from 18 to 89 years with the maximum number of cases in the range of 41-50 years of age followed by 31-40 years of age and 21-30 years of age. This suggests that Liver diseases are more common in adults. It was surprising to find out that almost 50% accounted for alcoholic liver disease.

One study has reported that the most common cause of Acute liver diseases is Infection and Chronic Liver Diseases are Alcohol, HBV and HCV.³ However community prevalence of HBV and HCV infection in Nepal are low.³ With comparison to this fact our study shows similar result with 41 infectious liver diseases among 50 Acute cases and 45 Alcoholic liver diseases among 74 Chronic cases.

The most common cause of Cirrhosis in our study is Alcoholic Liver disease 28 (75.7%). In the United States, Alcohol accounts for 80% of Cirrhosis.⁵ Hepatitis B is predominant cause of Cirrhosis in China, Southeast Asia

and Africa.^{6,7} In contrast to this, our study shows that Hepatitis B is the third common cause for Cirrhosis. However HBV and HCV accounts for 40% and 14% of the Cirrhosis in Nepal respectively.⁸

Kathmandu valley is a hyper-endemic area for hepatitis E, where during last 30 years three large epidemics and many focal outbreaks have occurred.⁹ About 56% of the sporadic cases of acute hepatitis in Kathmandu valley are caused by hepatitis E.¹⁰ One of the study carried out by infectious Diseases Unit shows that majority (95.4%) of HEV patients were from developing countries which included 69.5% patients from Nepal, 52.7% from Bangladesh, 48.8% from India and 30.7% from Pakistan.¹¹ Among the 56 cases due to infection, hepatitis E virus (HEV) was most common cause followed by Liver abscess, hepatitis B virus (HBV) and Hepatitis C virus (HCV). It was found that all the cases of HCV were associated with CLD.

Almost all Nepalese get infected with Hepatitis A by the age of five years usually asymptotically and develops lifelong immunity.¹² In our study total 6 (10.7%) cases of acute viral hepatitis were unidentified, this may be probably due to hepatitis A. There was 1 (1.8%) co-infection of HBV and HEV and 1 (1.8%) of liver abscess and HCV. One (1.8%) of the CLD case was associated with Herpes simplex virus infection.

Among 130 cases, most of the patient, 30 (23.1%), came from Kathmandu district, 8 (6.2%) from Bhaktapur. The geographic pattern of liver disease is known to vary widely³ however this observed pattern in our study is probably due to proximity and easy accessibility to the centre. The presence of patients from far flung districts is probably due to the fact that Bir hospital is a well known tertiary care centre.

Total 2 (2.5%) cases were found to be of the inferior venecava (IVC) obstruction. Hepatic IVC disease is a common cause of liver disease in Nepal.¹³

The predominant cause within different ethnicities was infection 21 (50%) in Brahmins, 12 (40%) in Tibeto Mongoloids and 12 (50%) in Indigenous population; alcohol 18 (47.4%) in Newars and 9 (56.2%) in Chettris. Prevalence of HBsAg(+), HBsAb(+), HBcAb(+), and HBsAb(+) or HBcAb(+) are 1.9% 22.3%, 24.3%, and 28.2%, respectively in Sherpas.¹⁴ The predominance of Alcohol as a cause in Newars, Chettris and Tibeto Mongoloids might be due to cultural practices.

As the study design was retrospective, secondary data was taken from case files which were not always uniform and sometimes incomplete which had become one of the limiting factors of our study.

The study period is only six months and fails to include winter months which probably accounts for the lack of temporal difference in etiology of acute liver disease.

CONCLUSION

The liver disease has been seen more in male than too in early forties which indicates that there is large disease burden in the community. Average length of hospital stay was more than a week. The top three diseases observed in the study population were ALD, viral hepatitis, liver abscess. Majority of cases had CLD. The most common cause was alcohol, followed by HBV and HCV infection. Among acute cases there was a preponderance of infectious viral hepatitis especially HEV. Based on the study, the liver unit should plan priority programs to deal with alcoholic liver disease and acute viral hepatitis. There should also be educational programs to raise awareness about HEV, HBV and HCV and prevention of their transmission. An initiative needs to be taken to reduce alcohol at various levels through awareness campaigns, strict control and legislation to limit the further abuse.

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