Original Research Article

Etiological Profile of Chronic Liver Disease: An Experience from Northern India

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Abstract

Introduction: In present age of globalization, etiological differences in disease profiles are getting narrower between different regions of world. However there are still regions were etiological profile of diseases is quite different for given particular disease that demands scrutiny from time to time so as to develop and update clinical acumen's for correct clinical diagnosis and management of that public health problem. Chronic liver disease (CLD) is an emerging epidemic that is projected to pose enormous challenge to us in near future. So to study its various aspects from time to time is of utmost importance. **Aims and objective:** To study etiological profile in cases of chronic liver disease in our region.**Materials and Methods:** This observational prospective study was carried out in Department of Gastroenterology and Hepatology, Government Medical College; Srinagar: India over period of two years in 2018- 2020. Patients with documented CLD or diagnosed CLD on admission followed by complete etiological workup were included in study.**Results:** Over 2 year's period, 246 patients were enrolled. Mean age of patients was 57.09 ± 13.90 years. Hepatitis B virus is a major etiological contributor to the burden of CLD amounting to 28% in Kashmir with Non Alcoholic Fatty Liver Disease (NAFLD)not so far behind at 23%. Whereas Alcohol related CLD disease is almost non-existent.**Conclusion:** Our region has etiologic profile in CLD unique in a sense that chronichepatitis B is leading contributor of CLD burden whereas Alcohol related CLD is rare in this region. Most patients were presenting at advanced stages signifying need of sensitizing people for emerging epidemic of CLD.

Key words: Chronic liver disease, chronic hepatitis B, etiologic, NAFLD.

Introduction

Chronic liver disease (CLD) is an emerging epidemic that is projected to pose enormous challenge to us in near future. Liver disease accounts for approximately 2 million deaths per year worldwide, 1 million due to complications of cirrhosis and 1 million due to viral hepatitis and hepatocellular carcinoma.Given the population burden, India accounts for one-fifth (18.3%) of all cirrhosis deaths globally[1].There had been a 46% increase in CLD mortality in the world from 1980 to 2013, underscoring the emerging public health importance of CLD. Most of this increase in CLD mortality has been reported from the low and low-middle income countries of Asia and Africa. Cirrhosis have become common disease due to heavy intake of alcohol in most countries, high prevalence of chronic hepatitis B (CHB) and chronic hepatitis C (CHC) infections; and new epidemic of non-alcoholic fatty liver disease (NAFLD)[2].There is a trend towards increase in prevalence of cirrhosis and subsequent morbidity and mortality worldwide[1-3].Globally, CHB contributed to 30% and CHC to 27% of cirrhosis, as per recent estimate in 2006[4]. Previous estimates have suggested 51% for CHB and 17% for CHC[4,5].Previous small-scale estimates from North India for relative contribution of viral etiology to cirrhosis suggested that CHB was responsible for 25-31% and CHC for 14-28% of cirrhosis[6,7].Some studies reported lower estimates of 16% and 11% of CHB and CHC respectively.Rising prevalence of obesity and diabetes, adoption of western life styles, high calorie diet and sedentary habits are responsible for upcoming epidemic of NAFLD in our country. Prevalence of NAFLD is estimated around 5-28% of general population and 6-30% of all chronic liver disease in various series from this part of world[8-10].In present age of globalization, etiological differences in disease profiles are getting narrower between different regions of world. However there are still regions were etiological profile of diseases is quite different for given particular disease that demands scrutiny from time to time so as to develop and update clinical acumen's for correct clinical diagnosis and management of that public health problem.We studied etiologic profile in chronic liver disease presenting to Tertiary care hospital of Kashmir valley.

Materials and Methods

This observational prospective study was carried out in Department of Gastroenterology and Hepatology, Government Medical College; Srinagar: India over period of two years in 2018-2020. Patients with documented CLD or diagnosed CLD on

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admission with complete etiological workup were included in study.

Patients were recruited from Department of Gastroenterology and Hepatology, and Medical Emergency of Government Medical College;Srinagar.The diagnosis of CLD was assessed by combination of diagnostic modalities as deemed necessary:

1. Detailed history
2. Clinically by the presence of (jaundice, hepatic encephalopathy, edema, variceal bleed and ascites.
3. Biochemical features suggestive of CLD on liver function tests. Ascites with one or greater than one serum albumin ascites gradient.
4. Imaging by ultra-sonography, computed tomography, fibro-scan, magnetic resonance imaging with or without cholangiopanceticograph and other diagnostic algorithms.
5. Esophagogastroduodenoscopy
6. Etiological workup for CLD.

The severity of the liver disease was assessed by combined clinical and laboratory in each patient as below:

Child Turcotte Pugh (CTP) score: Depending of sum of these five variables patients are divided into three classes; A (score of 5-6), B (score of 7-9) and C (score of 10-15). Class A has 1 year survival of 100% and 2 year survival of 90%. Class B has 1 year survival of 81% and 2 year survival of 57%. Class C has 1 year survival of 45 % and 2 year survival of 35%.

Table 1:Parameters and ranges

Parameter	1	2	3
Encephalopathy	None	Stage 1-2	Stage 3-4
Ascites	None	controlled	Poor control
Serum Bilirubin (mg/dl)	< 2	2-3	≥ 3
Serum Albumin (gm/dl)	>3.5	3-3.5	< 3
Prothrombin time/ INR	0-4 / < 1.7	5-6 / 1.7-2.3	> 6 / > 2.3

Informed consent was obtained from all cases/their attendants.This study was cleared by ethical review committee of Government Medical College, Srinagar; India.

Statistical Analysis

Since this was prospective observational study, data was expressed in frequencies and percentages. Quantitative variables with a normal distribution were expressed as mean values ± standard deviation and those with a non-normal distribution as median values (range). Statistical analysis was conducted using SPSS version 16.0 for Windows (SPSS, Chicago, IL).

Results

Over 2 years period, 246 patient were enrolled known to have or diagnosed first time with CLD and evaluated for etiology in current interaction with institution if not done already. Mean age of patients was 57.09 ± 13.90 years with minimum of 39 and maximum of 89. Male were 141 (57.3%) and females were 105 (42.7%). Clinical presentation of patients is given in table 2;most common symptom bringing patient to hospital for evaluation was abdominal distension that turned out to be ascites in most cases.Our data shows etiological profile different from rest of India. On one hand Alcoholic Liver Disease (ALD) very rare while as on other hand Recurrent Pyogenic Cholangitis (RPC)appears to be important etiologic factor in 9%. CHB isa major etiological contributor to the burden of CLD amounting to 28% followed by NAFLD 23% in Kashmir as in table 3/ figure 1.Majority of patients were CTP-C class i.e. 35.56%. Other 39.83% and 24.79% were CTP-B class and CTP-A class respectively in our study.Around 70% of patients have decompensated CLD as in table 4

Table 2: Clinical presentations of patients with CLD

S. No.	Presentation	n	%
1	Abdominal distension	157	63.82
2	Ascites	138	56.09
3	Asymptomatic	93	37.8
4	Gastrointestinal bleed	39	15.85
5	Encephalopathy	37	15.04
6	Constipation	33	13.41
7	Fever	32	13
8	Upper abdominal Discomfort	32	13
9	Jaundice	29	11.78
10	Loss of appetite	24	9.75
11	Vomiting	18	7.31
12	Diarrhoea	8	3.25

Table 3: Etiological profile of CLD in Study Group

s. no	Etiology	n	%
1	Chronic Hepatitis B	69	28.04
2	Non Alcoholic Fatty Liver Disease	57	23.17
3	Chronic Hepatitis C	42	17.03
4	Cryptogenic Liver Disease	33	13.41
5	Recurrent Pyogenic Cholangitis	21	8.53
6	Non Cirrhotic Portal Fibrosis	12	4.87
7	Autoimmune Hepatitis	9	3.65
8	Alcoholic Liver Disease	3	1.21
	Total	246	100

Table 4: CTP class of cases with CLD

CTP-Class	Frequency	%
CTP-A	61	24.79
CTP-B	98	39.83
CTP-C	87	35.56
Total	246	100

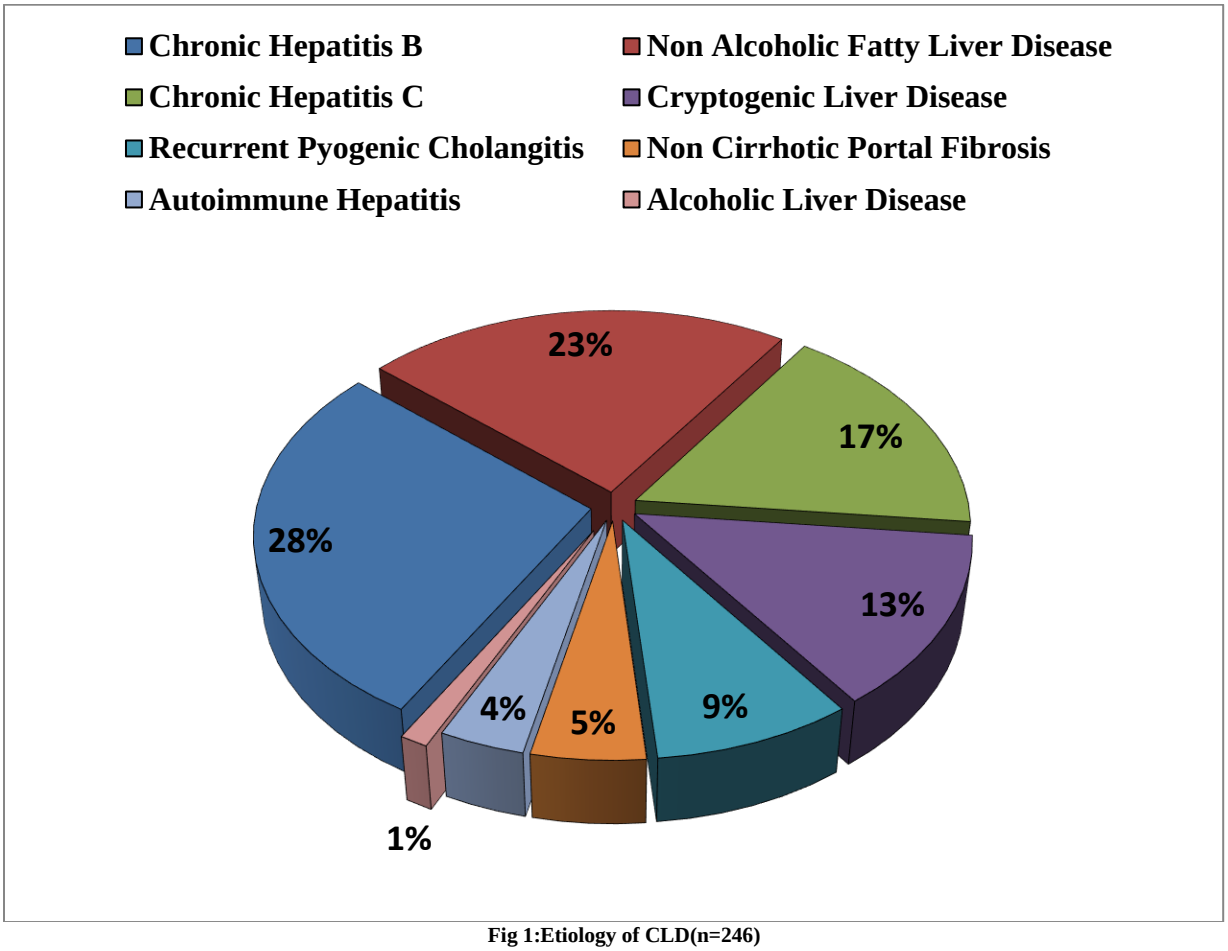

Fig 1:Etiology of CLD(n=246)

Discussion

Over 2 year's period, 246 cases were enrolled with diagnosis of CLD. Mean age of patients was 57.09 ± 13.90 years with minimum of 39 and maximum of 89. Male were 141 (57.3%) and females were 105 (42.7%) with ratio of 1.12:1.Pal et al[11]reported male predominance 79% in their study and most of the patients, 51% were between 31 to 60 years of age. Goyal P et al[12] studied 716 hospitalized patients with cirrhosis. The mean age of patients was 54 ± 9.3 years (18–82 years), and male: female ratio was 5.7:1, indicating that CLD is more common in males, suggesting high risk of exposure to main causative factors like alcohol. This gender difference is less obvious in our study possibly because alcohol contribute only around 1% to burden of liver diseases in this part of world. Most common symptom bringing patient to hospital for evaluation was abdominal distension 63% that turned out to be ascites 56.09% in most cases. Other frequent symptoms were gastrointestinal (GI) bleed (hematemesis/ melena) in 15.85%, encephalopathy in15.04%. Around 93 (37.80%) were detected incidentally. Pal et al[11]has reported ascites in 52% of patients followed by jaundice in 40% and GI bleeding in 24%.Our data shows etiological profile different from rest of India. On one hand ALDis rare only 1% while as RPC appears to be important etiologic factor in 9% in this region. CHB is a major etiological contributor to the burden of CLD amounting to 28% followed by NAFLD 23% in Kashmir. CHC, RPC, Non-cirrhotic portal fibrosis (NCPF), Auto-immune hepatitis (AIH) and ALD were found in 17.3%; 8.53%; 4.70%; 3.65% and 1.21% respectively. No etiologies were found in 13.41% of cases and were labelled as cryptogenic liver diseaseas in table 2/ figure 1.In a study of 44 patients by Acharya et al[13]at AIIMS, New Delhi found 50% of patients had CHB, CHC in 15%, non-A, non-B other than Hepatitis C virus in 13%. 2% patients had AIH.Velosa et al[14] from Portugal in a study of 988 patients of CLD,found viral etiology in 82%, metabolic in 2%, biliary in 2%,alcoholic in 11%, autoimmune in 1.5%, and idiopathic in 2%.Among viral group, CHB in 65%, CHC in 26% and hepatitis D was found in 8%. Stroffoline et al[15]studied 6210 patients for chronic viral hepatitis. They found CHC (62.6%) as most commonetiological

factor, CHB in 9.2% and history ofalcohol abuse was present in 19.2% of cases, but only 5.2%cases were without viral infection and had only alcohol abuse.Mishra D et al[16] in the analysis 4331 hospitalized patients, 2,742 (63.3%) had alcohol-related cirrhosis, 858 (19.8%) had viral hepatitis-related cirrhosis, and 731 (16.9%) had cirrhosis of liver due to non-alcohol and non-viral causes. The proportion of alcohol-related cirrhosis was increased by 26% from 2005 to 2017. Similarly, the proportion of cirrhosis due to non-alcohol and non-viral causes decreased by 26% (RR 0.74, *p* for trend <0.001) by 2017.Goyal P[12]studied 716 hospitalized patients with chronic liver disease. Most common etiologies of cirrhosis were alcohol in 49.2%, CHC in 29.4%, and NAFLD in 13.6%. CHB was identified in 3.9% of patients only. Other uncommon causes of cirrhosis were: autoimmune in 1.1%, Wilson's disease 0.7%, celiac disease in 0.4%, Budd–Chiari syndrome BCS in 0.1%, and cryptogenic in 1.4%.Mukherjee PS et al[17] in their study found, Alcoholism (34.3% of 4413) as the commonest cause of cirrhosis while Hepatitis B (33.3%) was predominant cause of chronic liver disease in general, and non-cirrhotic chronic liver disease (40.8% out of 8163). There was significant inter-regional differences (hepatitis C in North, hepatitis B in East and South, alcohol in North-east, Non-alcoholic Fatty Liver Disease in West) in the predominant cause of chronic liver disease. Hepatitis B (46.8% of 438 cases) was the commonest cause of hepatocellular Cancer.11.7% had diabetes. Around 0ne third of patients were CTP-C class i.e. 35.56%. Other 39.83% and 24.79% were CTP-B class and CTP-A class respectively in our study. Around 70% of patients have decompensated CLD as in table 4..Observations of our study will help guide a contextually relevant liver care policy for India and could serve as a framework for similar endeavour in other developing countries as well.

Conclusion

Our region has etiologic profile in CLD unique in a sense that chronic hepatitis B is leading contributor of CLD burden whereas Alcohol related CLD is rare in this region. Most patients were presenting at advanced stages signifying need of sensitizing people for emerging epidemic of CLD.

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