

Spectrum of Alcoholic Liver Disease in Tribal Alcoholics of Chittagong Hill Tracts of Bangladesh

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Abstract:

Background: Alcohol is one of the most important causes of liver disease. In Bangladesh, alcoholism is not a usual practice among the general population as there are social and religious barriers against it. But in the Hill tracts, there is no social stigma in taking alcohol. Relatively little is known about this aspect in Bangladesh. This small-scale study was done to identify the spectrum of liver disease among tribal people.

Material and Methods: A descriptive, observational clinical study was conducted for a period of six months (1st July, 2007 to 31st December, 2007) on a series of 50 tribal alcoholic people, collected from General Hospital and the tribal community of Rangamati Hill District. Subjects were included from both the urban and rural area of different socioeconomic classes. History, meticulous clinical examination and investigations were done to detect the pattern of alcohol induced liver injury.

Results: Among the 50 cases, 47 patients were male and 3 were female cases. Both regular and irregular drinkers were included. The common symptoms of liver disease among tribal alcoholics were yellow coloration of sclera (24%), nausea & vomiting (20%) and weight loss (14%). The common findings were jaundice (24%), anemia (20%), ascites (10%), edema (10%) and hepatosplenomegaly (20%). Liver function tests revealed only 17 patients had mild to severe form of hepatocellular damage. Hyperbilirubinemia was found in 34% participants. AST/ALT ratio more than 2 was found in 32% subjects. Ultrasonography was done in 46 out of 50 subjects: 29 cases reported as normal (63.04%), fatty liver in 5 (10.87%), acute hepatitis in 5 (10.87%) and chronic liver disease in 7 (15.22%) cases. Liver biopsy was possible in 4 suspected cases (clinically and biochemically) of alcoholic liver cirrhosis and histology supported the clinical diagnosis in these cases. So, alcohol induced liver damage was noticed only in 17 cases. Nearly two-thirds of the participants were free from any form of liver disease.

Conclusion: Despite the presence of risk factors for developing alcoholic liver disease, the prevalence was found to be low among the tribal alcoholic participants in this study.

Keyword: Alcoholic liver disease, alcoholic fatty liver, alcoholic hepatitis, alcoholic liver cirrhosis, tribal population, Bangladesh

Introduction:

Alcoholic liver injury occurs after prolonged heavy drinking, typically for at least 10 years and particularly among those who are physically dependent on alcohol. However, not everyone who drinks excess alcohol develops serious forms of alcoholic liver disease. It is likely that genetic factors determine this.^{1, 2} The threshold for developing severe alcoholic liver disease in men is an intake of more than 60-80 gm/day of alcohol for 10 years, while women are at increased

risk for developing similar degree of liver injury by consuming 20-40 gm/day.² In men, ingestion of 40-80gm/day of ethanol produces fatty liver; 80-160gm/day for 10-20 years causes hepatitis or cirrhosis. Only 15% of alcoholics develop alcoholic liver disease.²

In Bangladesh, alcoholism is not a usual practice among the general population as there are social and religious barriers. But in the Hill tracts, the picture is different where there is no social stigma to take alcohol. Moreover, alcoholic drink is

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encouraged in their social, familial and religious festivals. Most of the tribal people take alcohol- some are regular while others are irregular in this habit. Locally used alcoholic drinks in Chittagong Hill Tracts were named as 'Ekchuani' and 'Dochuani'. These contain 30-40% alcohol in each 100ml. If one takes one glass (250ml) of raw alcohol daily, (s)he consumes more than 60 gm alcohol; that means he/she crosses the safety bar of alcohol consumption. So anyone who takes at least one glass of the locally made alcohol for at least 10 years, he/she is at risk of developing alcoholic liver disease. From the Hospital record of Rangamati General Hospital, it was found that from February 2004 to February 2007, total 8123 patients were admitted in Medicine ward. Among them, 123, 45 and 11 were cases of acute hepatitis, chronic liver diseases and hepatocellular carcinoma respectively and tribal patients with acute hepatitis, chronic liver disease and hepatocellular carcinoma were only 42, 45 and 5 respectively. It is interesting that although most of the tribal people were alcoholic, hepatic involvement was much less than expected. Despite the increased risk of liver disease in alcoholic tribal people, no study regarding this aspect has been done in Bangladesh. Rangamati Hill Tracts was an ideal field to work on the tribal alcoholics to obtain valuable data on the spectrum of liver disease among these people.

Materials and Methods:

It was an observational study done in Rangamati General Hospital (110 bed) and tribal community of Rangamati Hill District during the period of 6 months (from 1st July 2007 to 31st December, 2007). Fifty (50) tribal alcoholics were enrolled. The participants were followed up by using a specified protocol and evaluated under the following headings: history, clinical examination, laboratory investigations.

Inclusion criteria:

- Tribal people of ≥ 18 years, having history of alcohol intake for at least 10 years
- Regular drinker, taking at least 60 grams of alcohol per day in male and 20 grams per day in case of female.
- Irregular drinker with drinking habit of at least 3 times per week and amount is 60 grams or more.

Exclusion criteria:

- Patients with known causes of hepatitis other than alcoholism (e.g. hepatitis B, hepatitis C)
- Intravenous drug users and

- Alcoholism with other co morbid disease like diabetes mellitus, Ischemic heart disease and COPD.

Informed consent was taken from all persons. Ethical approval for the study was provided by Ethical Research Committee.

Results:

A total of 50 tribal chronic alcoholics were included in this study. Out of 50 people, 47 were male and only 03 were female. Among the participants, majority (38 patients) were 40 years and above (Figure 1). Peoples belonging to high income group (>15000 taka/month) was 26%, average income group 50% and poor income group (<5000 taka/month) was 24%. Out of 50 alcoholic subjects, 27 peoples were from urban area, rest from rural areas of Rangamati Hill Tracts. Among the urban people, 20 were regular drinker and 07 took alcohol irregularly. The number of regular and irregular drinker in the rural people is 14 and 9 respectively. Among the regular ones (34), 20 had no evidence of hepatic injury, rest 14 showed mild to severe forms of liver damage. Among the irregular drinkers 13 revealed no hepatic insult. Rest three showed signs of chronic liver damage. Common symptoms among tribal alcoholics who developed liver disease were

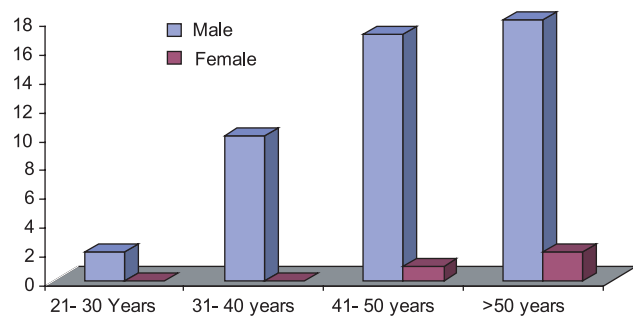


Fig-1: Age and sex distribution (n= 50)

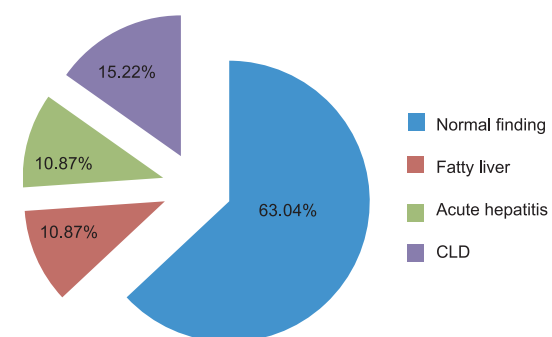


Fig-2: Ultrasonographic findings in tribal alcoholics (n=46)

jaundice (24%), nausea, vomiting (20%), weight loss (14%) and the common signs were jaundice (24%), anemia (20%), hepatosplenomegaly (either or both) (20%), edema (10%), ascites (10%) (Table-I). Hyperbilirubinaemia was found in 34% of cases and AST/ALT ratio was more than 2 in 32 % of cases. GGT was done in 2 cases and value was raised in both them (Table-II). Ultrasonography was normal in 29 cases (63.04%), fatty liver found in 05 (10.87 %), acute hepatitis in 05 (10.87%), and CLD in 7 (15.22%) (Figure-2). Sixty six percents of study population showed no evidence of hepatocellular injury; alcoholic fatty liver and acute hepatitis accounted in 10% for each and cirrhosis of liver was found in 14% (Table-III).

Table-I
Symptoms & signs of liver disease among tribal alcoholics (n= 50)

Symptoms	Number	(%)
Yellow coloration of sclera	12	24
Nausea, vomiting	10	20
Weight loss	07	14
Abdominal lump	06	12
Abdominal swelling	05	10
Loss of body hair	04	08
Ankle swelling	05	10
Haematemesis and Malena	04	08
Signs		
Anemia	10	20
Jaundice	12	24
Leuconychia	01	02
Clubbing	04	08
Palmar erythema	04	08
Wasting of thenar and hypothenar muscles	06	12
Collateral vessels	01	02
Gynaecomastia	01	02
Testicular atrophy	04	08
Bilateral parotid gland enlargement	03	06
Ankle edema	05	10
Ascites	05	10

Table-II
Values of Liver function tests

Tests	(n=50)	(%)
Serum bilirubin (mg/dl) (R- 0.3 -10)		
0.12-1	33	66
>1 -4	10	20
>4 – 10	07	14
AST (IU/L) (R-25-387)		
10-45	20	40
46-150	18	36
>150	12	24
Serum total protein (n=14)		
Less than 3 (gm/dl)	00	00
3-5.9 (gm/dl)	03	21.40
6 and above	11	78.60
ALT (IU/L)		
10-50	30	60
51-100	07	14
>100-150	07	14
>150	06	12
AST/ALT Ratio		
<1	04	08
1-2	30	60
>2	16	32
Prothombin time (n=08)		
Within 3 seconds of control	5	62.5
(12-15 seconds) More than 3 seconds)	02	25

Table-III
Hepatic findings among tribal alcoholics (n= 50)

Diagnosis	Number	Percentage
No hepatic abnormality	33	66%
Alcoholic fatty liver	05	10%
Acute hepatitis	05	10%
Cirrhosis	07	14%

Discussion

This study was conducted on tribal alcoholics in a community setting and first of its kind in Bangladesh. The study found that although women were predominantly involved with the preparation of the famous tribal liquor 'Ekchuani' and 'Dochuani', very few consumed it. The amount consumed by the female was also much less than male. This is consistent with the observation found by Alexander Monto et al., S. Bellentini et al. and Stokkeland K et al.³⁻⁵

In the present series, the most common symptom of alcoholic liver disease was jaundice (24%) along with nausea, vomiting, loss of body hair, abdominal lump. It is well known that alcoholic fatty liver usually remain asymptomatic.^{1,2,6,7} In acute alcoholic hepatitis, jaundice may be the only symptom and cirrhosis remain asymptomatic for prolonged period during which no sign and symptom appear.^{1,2} Physiologists have called the liver 'servant of the body' because unlike other organs, it reveals its sufferings only when injuries are far advanced. Even in alcoholic cirrhosis, many cases (10-40%) are discovered at laparotomy or autopsy.^{1,7-9}

Physical examination of the participants revealed that most of the alcoholics had no physical abnormality. In this series, commonest finding was jaundice (24%). In alcoholic hepatitis, many patients may show no sign of liver damage. But it may be associated with wide range of clinical features like jaundice, abdominal tenderness, spider naevi etc.² The reported incidence of clinical jaundice in chronic liver disease patients in Bangladesh ranges from 20- 68.7%^{1, 5,10} These variable incidence indicates that the variable percentage of decompensated patients belonging to the particular study. Jaundice in cirrhosis implies that liver cell destruction exceeds the capacity for regeneration and is always serious^{1,2,7,9} The deeper the jaundice, the greater the inadequacy of liver cell function.^{1,7} Anemia was detected in 20% cases. Anemia is possible in alcoholism due to malnutrition.^{2,6} Anemia in alcoholic cirrhosis is multifactorial and possible causes include nutritional deficiency, bleeding from gastrointestinal tract and increased splenic sequestration.^{1, 2, 6}

Other important signs demonstrated in this study were hepatomegaly, splenomegaly, hepatosplenomegaly, leuconychia, clubbing, palmar erythema and spider naevi. The incidence of these classic peripheral stigmata of cirrhosis is consistent with the findings of some other studies.¹¹⁻¹³

In the present study, among the 50 tribal alcoholics, 5 had cirrhosis (10%). Ascites along with jaundice were present in them. When ascites develops in a patient with chronic liver disease, the prognosis is always grave.¹⁴ Presence of ascites and jaundice together is also a poor prognostic sign.^{7,15}

Liver function tests are the mirror on which hepatocellular functional status such as capacity, reserve, damage etc is reflected. In the present study, 33 cases had normal bilirubin level, 17 cases had hyperbilirubinaemia. Serum bilirubin can be normal in alcoholic fatty liver.^{1,2,5} The wide range of ALT (10- 303) U/L and AST (25- 387) U/L indicates the variable spectrum of tribal alcoholic patients with different hepatocellular functional status. Serum AST is disproportionately elevated relative to ALT, which is a good

indicator of alcoholic liver disease. Serum AST/ALT ratio is more than 1 in 60% cases and more than 2 in 32% in the present study.

Serum albumin level was found below normal (30 gm/L) in 18.18% of tribal alcoholic people. It is another indicator of hepatic dysfunction.^{1, 2, 5} Prothrombin time was done in eight indoor patients who showed signs of hepatocellular damage. Of them, 6 patients showed normal prothrombin time (within 15 seconds). It was prolonged in 2 patients. However, some authors like Dutta A.K, Rahman MS and Sabur MA found a higher percentage of patients having prolonged prothrombin time.¹⁶⁻¹⁸ As the investigation was done in few individuals, it may have underestimated the real extent of the abnormality.

Ultrasonography is an important noninvasive investigation in the evaluation of alcoholic liver disease.^{12,15} In cirrhosis, the edge of the liver may be irregular and the hepatic echo pattern may be coarse (increased irregular echogenicity).^{1,2} Fatty liver and hepatitis can also be suggested by ultrasonography. In the present study, ultrasonography was done in 46 persons. Of them, two thirds (29/46) revealed no evidence of liver injury. Fatty liver and acute hepatitis were found in 5 cases each. Cirrhosis was found in 7 participants. Liver biopsy was carried out only in 4 suspected patients and histology confirmed those as cirrhosis.

Finally, the physical signs, biochemical tests, ultrasonography and even liver biopsy report revealed that though all 50 subjects had the history of alcohol intake that crosses the safety bar to develop alcoholic liver disease two thirds of them were found asymptomatic. This finding is consistent with study done by Lelbech WK, Stokkeland K. and S. Bellentini etc.^{4,5,19} Rest of the 17 cases had different types of liver injury. It is really surprising that despite a high degree of alcohol consumption by the indigenous people which could lead to the development of cirrhosis of liver, the clinical findings and investigations revealed that most of them were not suffering from any type of liver damage.

In conclusion, it can be said that, the prevalence of alcoholic liver disease is not high in this study population. Rather the incidence is low. Further study in large scale of tribal alcoholics in three hill districts could shed clear light on this proposition and this will clearly define the actual situation.

Conflict of Interest: None

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