

Original Article

Etiological characterizations of sporadic viral hepatitis in north east part of Bangladesh

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Abstract

These retrospective study was done to see common viral etiology of sporadic acute viral hepatitis in North East Part of Bangladesh. Consecutive patients attending in private chambers with acute or recent onset of jaundice with biochemical evidence of hepatocellular injury from January 2011 to December 2013 were enrolled. Epidemiological features and reports of viral markers i.e. HBsAg, Anti-HBc IgM, anti-HAV-IgM, Anti-HEV IgM, and Anti-HCV were retrieved. Data of 256 cases (male 195 and female 61, age ranging from 6 years to 89 years with mean 29.44 years were analyzed. Both HBsAg and anti-HBc-IgM were found positive in 98 (38.67%) cases (male 77 and female 21). Of them 39 were in 16-25 years age group.

Anti-HAV IgM was found positive in 41 (16%) cases (male 30, female 11) and 27 of them were in the less than 16 years group. Anti HEV IgM was positive in 116 (45.31%) cases (male 87 and female 29). Majority (85 cases) of HEV infection was found in 16 to 40 years age group. In this study HEV is the most frequent agent for acute sporadic viral hepatitis among adults followed by HBV. HAV is more prevalent cause of sporadic acute viral hepatitis among children.

Keywords : Viral hepatitis, etiology, Bangladesh

Introduction

Viral hepatitis is a major public health problem globally.¹ The hepatotropic virus are the most important cause of viral hepatitis apart from other cause like excessive alcohol conception, use of certain hepatotoxic drugs and other types of infections and nutrition agent. Current serological assays allow the viruses that can cause human hepatitis to be separated into at least five main types.² Among the most important hepatotropic viruses, hepatitis B, hepatitis C, hepatitis A and hepatitis E virus are commonly prevalent in the world and also in Bangladesh. Overall HAV accounts for 25% or clinically evident acute hepatitis worldwide with a carries of 350 million.^{3,4} HEV accounts for about 50% of cases of sporadic acute hepatitis in India and epidemics have also been reported in Indian subcontinent, Sub Sahara Africa and Mexico.¹ Prevalence of HCV is 1.8% in general population in USA.¹ The exact etiological prevalence of sporadic viral hepatitis varies from country to country.

Diseases of gastrointestinal tract and hepatobiliary system are very common in Bangladesh accounting for approximately 25% of patients at Medical College Hospitals.⁴ Among them acute hepatitis is also common. But no exact data of etiological classification of acute viral hepatitis in Bangladesh is available. Limited resource and relatively high cost of appropriate serology make etiological analysis difficult in many hospitals. With limitations, this study was designed to classify etilogically acute sporadic viral hepatitis up to highest possible level.

Methods

This study was done from February 2011 to December 2013. All the consecutive cases of suspected acute hepatitis

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attending for consultation in chamber were enrolled in this study. All of them had prodromal symptoms followed by jaundice with biochemical evidence of hepatocellular necrosis or injury. Patients having jaundice more than 6 months, viral markers positive for > 6 months having clinical evidence of chronic liver disease, or developing encephalopathy, ascites or having sonological or endoscopic features of established chronic liver disease were excluded from the study.

Viral marker HBsAg (and anti-HBcIgM in HBs Ag positive cases), Anti HAV-IgM, Anti-HEV IgM and Anti HCV were done for etiological classification highest possible numbers of viral markers (as economic condition permits) were assayed in each of the patients. Although further investigations were not done in patients when one virus was detected.

Results

A total 294 patients of acute hepatitis attending for OPD consultation in a private chamber were enrolled. Of them 38 patients were excluded from analysis as viral marker screening reports were not available. Out of rest 256 patients 194 (76.2%) were male and 61 (23.8%) were female. And age of them varied from six to 89 years with mean 29.44 and SD 14.53). ALT of patients varied from 106 to 5800 u/dl (mean 954.4). HBs Ag and Anti HBc-IgM were seen in 242 patients. Total 98 patients (38.43%, male 77 and female 21) were found to have both HBsAg and Anti HBc-IgM positive (38.67%). Anti HEV-IgM was assayed in 170 patients. Among them 116 (45.49%, male 87 and female 29) were found to be positive. Anti HAV was screened in 72 patients and among them 41 (16%, male 30 and female 11) were found to be positive. HBV infection was more prevalent among males, but HAV and HEV infection were more among females but difference were not statistically significant.

One patient having HBsAg positive, had negative for anti-HBcIgM, anti-HEV IgM, Anti-HAV - IgM and anti-HCV were positive and was also excluded. from analysis. Four more cases having HBsAg positive but negative for ani HBcIgM were found to have anti HEV-IgM positive. Anti HCV was assayed in 27 (20 males and 07 females) patients and all were found to be negative. HAV infection was found more prevalent among patients age up to 15 years and HBV and HEV infection is more prevalent among patients age above 15 years. HBV, HAV and HEV infection were more common in rural population with (P values 0.077, 0.003 and 0.152 respectively).

Among students both HBV and HAV infection was more prevalent HBV (23, 23.46%) and HAV (35, 85.36%) while HEV infection was almost equally prevalent among students (26, 22.44%), service holder (26, 22.44%) and businessmen(27, 23.27%). In this series, people from middle class economic group were more infected significantly with all three viruses (Table-I).

Table-1: Distribution of acute viral hepatitis according to age sex, residence, occupation and economic status.

Variable	HBV infection (%)	HAV infection (%)	HEV infection (%)
Age			
0-10	4 (4.08)	17 (41.46)	2 (1.7)
11-15	3 (3.06)	10 (24.39)	3 (2.5)
16-25	39 (39.79)	9 (21.95)	36 (31.03)
26-35	20 (20.4)	3 (7.31)	38 (32.75)
36- 45	14 (14.28)	1 (2.4)	19 (16.37)
46-55	13 (13.26)	1 (2.4)	12 (10.34)
>55	5 (5.10)	0	6 (5.17)
Sex			
Male	77 (78.57)	30 (73.17)	87 (75)
Female	21 (21.42)	11 (26.82)	29 (25)
P value	0.582	0.833	0.890
Residence			
Rural	62 (63.26)	21 (51.21)	60 (51.72)
Urban	36 (36.73)	20 (48.78)	56 (48.27)
P value	0.152	0.003	0.077
Occupation			
Student	23 (23.46)	35 (85.26)	26 (22.41)
Service	12 (12.24)	1 (2.43)	26 (22.41)
Housewife	15 (15.30)	1 (2.43)	16 (13.79)
Farmer	11 (11.22)	0	1 (0.87)
Business	19 (19.38)	2 (4.87)	27 (23.27)
Others	18 (18.36)	2 (4.87)	20 (17.24)
P value	0.017	0.000	0.000
Economic status			
Poor	34 (34.69)	2 (4.87)	15 (12.93)
Middle	61 (62.24)	35 (85.31)	87 (72.41)
Rich	3 (3.06)	4 (9.75)	14 (12.06)
P value	0.000	0.001	0.02

Discussion

HEV and HBV infection were found 45.49% and 38.43% respectively constitute most of the etiological agents of sporadic viral hepatitis in North East part of Bangladesh. Acharya and Panda⁶ reported that HEV was the major aetiological agent for acute hepatitis and acute liver failure in

endemic region. Purcell and Emerson⁷ also reported hepatitis E to be the most important or the second most important cause of acute clinical hepatitis in adults throughout Asia, the Middle East and Africa. The prevalence of HEV infection is similar to the reports published by Sheikh et al⁸ and Mahtab et al⁹ regarding aetiology of fulminant hepatitis in Bangladeshi adults. It is also similar to reports from India⁶ and Nepal¹⁰. But it is a little lower than earlier report from Dhaka². This higher prevalence of HEV infection also reflects the inadequateness of overall sanitation and hygiene in this region.

Again HBV infection is found to be the second most common cause of sporadic viral hepatitis (38.43%). It is also a bit more prevalent in rural area and among males. This prevalence is higher than the reports by Mahtab et al⁹ where HBV accounted for 10-35% of acute hepatitis in Bangladesh. Low vaccine coverage, lack of education, lack of public awareness regarding HBV transmission might have played a role in this respect. It also to mention that females were less affected. Females in this area are less involved in outdoor activities thus less exposed to source of infection.

In this study HAV infection as a cause of sporadic viral hepatitis was found in 16% which is transmitted through fecal-oral route similar to HEV infection. Most of the cases of acute HAV infection were below the age 16 years. Sheikh et al⁸ found Anti HAV-IgG positive is 97% of children which reflects the endemicity of HAV in Bangladesh and most of cases go unnoticed. In case of HAV infection it gives life long immunity, so its role as etiology sporadic hepatitis in Bangladesh adult is less important. Both the prevalence of HAV and HEV are also found higher in rural areas which may reflect defect in sanitation and safe water supply of rural areas in this region of country.

In this study marker for HCV (anti HCV) was assayed in only 27 patients (male 20, female 7) and all were found negative. HCV Sero-prevalence in Bangladesh is about 5.4%¹, but absence of HCV infection as etiology of acute sporadic viral hepatitis or its co-infection in this series may be explained as all cases were not investigated for HCV.

Screening for all possible viruses causing acute hepatitis could not be done in all cases in this study. Again about 38 cases were excluded due to failure to investigate in them.

Acute viral hepatitis is a public health problem in Bangladesh. HEV and HBV are commonest aetiological agents of sporadic acute viral hepatitis in North East Part of Bangladesh. Poor sanitation, Low vaccine coverage, lack of

awareness regarding health and hygiene may be the important factors for this disease transmission.

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