

ISSN: 2231-3354  
 Received on: 02-08-2011  
 Revised on: 08-08-2011  
 Accepted on: 12-08-2011

## Hepatitis in Bangladesh: Pattern and treatment options

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### ABSTRACT

Hepatitis is common disease in Bangladesh. As a country of the Asia Pacific region Bangladesh is considered to be a high risk country for developing hepatitis A and B. This study represents the pattern and types of treatment of hepatitis in two tertiary care hospitals in Bangladesh; Bangabandhu Sheikh Mujib Medical University and Dhaka Medical College Hospital. 140 patients were selected among whom 80 were male and 60 female. The patients were asked to fill up a questioner. Prescriptions of all the patients were reviewed and the duty doctors were consulted for further clarification of the cases. From the data obtained over a 3 month long survey it was found that hepatitis A, B and C are most common in this country. Most of the patients develop classical sign and symptoms of hepatitis; most commonly jaundice and weight loss. About 50% hepatitis cases contributed a viral cause. 42.86% patients undergo preventive treatment whereas 57.14% patients are treated with drugs. Lamivudine, Adefovir and Ribavirin were the commonly used drugs in viral hepatitis. The prevalence of different forms of hepatitis in Bangladesh is high. Bangladesh is at the high risk region of hepatitis A and B. Routine immunizations and community education regarding the diseases are highly warranted here.

**Key words:** Anti-viral drug, Dhaka, HCV, Hepatitis B, Lamivudine, Liver cirrhosis.

### INTRODUCTION

Acute hepatitis is seen sporadically round the year in Bangladesh (Mahtab et al., 2009a). Hepatitis is an inflammation of the liver, most commonly caused by a viral infection. There are five main hepatitis viruses, referred to as types A, B, C, D and E. These five types are of greatest concern because of the burden of illness and death they cause and the potential for outbreaks and epidemic spread. In particular, types B and C lead to chronic disease in hundreds of millions of people and, together, are the most common cause of liver cirrhosis and cancer (WHO, 2011). Viral hepatitis is the leading cause of liver cancer and the most common reason for liver transplantation (CDC, 2011). Little data are available on hepatitis prevalence in Bangladesh (Gibney et al., 2011). But according to WHO, Bangladesh is one of the countries or areas with moderate to high risk of hepatitis A and hepatitis B (WHO-GAR, 2011). Bangladesh is considered to be a country where hepatitis A infection is hyperendemic with 100% of children  $\leq 6$  years of age exposed and immune to HAV (Saha, 2009). As a South East Asian country Bangladesh is considered endemic for hepatitis B virus (HBV) infection (Chowdhury, 2009). In the general population, HEV carries a low mortality of 0.5-4%. However, this figure approaches  $>75\%$  in developing countries, such as Bangladesh, in the second/third trimester of pregnancy, and in patients with fulminant hepatic failure (Mahtab et al., 2009a). Hepatitis E virus was called a leading cause of acute-on-chronic liver disease in a retrospective study conducted by Mahtab et al., (2009b). In Bangladesh, information about prevalence of HBV infection is scarce, and there is no available data on HDV infection (Zaki et al., 2003).

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## MATERIALS AND METHODS

### Participants

140 patients came to the Hepatology Department of Bangabandhu Sheikh Mujib Medical University and Dhaka Medical Collage Hospital from January 2010 to March 2010 was studied. Physicians at the said departments were also consulted. Any patient who developed some sign and symptoms of hepatitis were included in this study regardless of age and sex. Other than direct questioning no data were obtained over the telephone, e-mail, mail etc.

### Questionnaire Design

A questionnaire was devised which included information regarding the patient's identity, background history, biophysical characteristics, type of hepatitis the patient suffering from, underlying cause(s), sign and symptoms, types of treatment, drug treatment. The technical terms were explained in details for better understanding of the participants. The patients were informed about the purpose of the study by responsible interviewer before answering the questions and it was also made clear to the participants before question answering session that who did not want to participate in the study should feel free to withdraw. No multi-response answers for single-response questions were considered for data interpretation.

### Statistical Analysis

Statistical analysis was performed using Microsoft Office Excel 2007 software.

## RESULT AND DISCUSSION

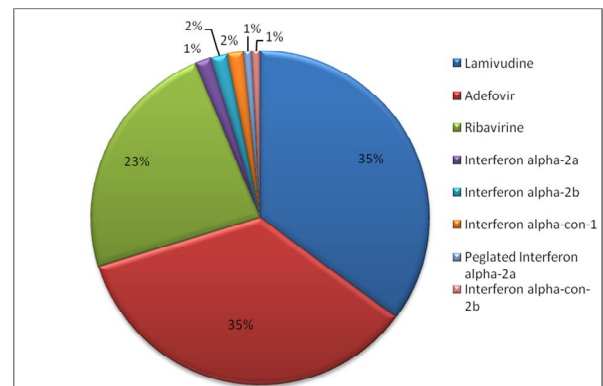
General characteristics of the patients with different forms of hepatitis are presented in Table 1. It was observed that 74.28% patients with hepatitis were of 20-50 years of age.

**Table 1:** General characteristics of the patients with hepatitis at two tertiary care hospitals in Bangladesh

Characteristics	Number (n=140)	Percentage
Sex		
Male	80	57.14
Female	60	42.86
Age (in years)		
Less than 20	10	7.14
20-30	36	25.71
31-40	36	25.71
41-50	32	22.86
51-60	17	12.14
61-80	9	6.43
Living area		
Rural	91	65
Urban	49	35
Marital status		
Married	112	80
Unmarried	28	20
Educational status		
Illiterate	47	33.57
Can read and write a letter	30	21.43
Minimum 16 years of schooling	42	30
Graduate or higher	21	15
Occupational status		
Unemployed	17	12.14
Student	23	16.43
House wife	10	7.14
Employed	90	64.29

**Table 2:** Biophysical characteristics of the patients' with hepatitis at two tertiary care hospitals in Bangladesh.

Characteristics	Number (n=140)	Percentage
Weight (kg)		
40-45	36	25.71
46-50	29	20.71
51-55	34	24.29
56-60	15	10.71
61-65	17	12.14
Others	9	6.43
Pulse rate		
Normal	117	83.57
Abnormal	23	16.43
Body temperature		
Normal	122	87.14
Abnormal	18	12.86
Blood pressure		
Low	24	17.14
High	40	28.57
Normal	76	54.29



**Fig 1:** Drugs used in the treatment of different forms of hepatitis at two tertiary care hospitals in Bangladesh

Among the 140 patients surveyed in the study most of them were found to have poor body weight. Pulse rate and body temperature were found to be normal in most of the patients whereas almost half of the patients reported blood pressure either low or high (Table 2).

Prevalence of hepatitis A, B and C was found to be most frequent. Hepatitis A virus has plagued mankind for centuries by causing acute hepatitis associated with significant morbidity and occasional mortality. Asia and Africa have previously been classified as areas of high endemicity for hepatitis B virus (HBV), but in some countries highly effective vaccination programmes have shifted this pattern towards intermediate or low endemicity. Bangladesh is considered as to be low endemic (André, 2000). Alcoholic hepatitis was reported in 3.57% of patients (Table 3). In Bangladesh due to socio-religious barriers alcohol consumption is not common among the general people. In a study conducted by Biswas et al., (2011) among the tribal people of Chittagong Hill Tracts, found low percentage of alcoholic liver diseases; acute hepatitis was reported in 5 patients (10%). Liver abnormalities are common in heart disease and typically seen in patients with a

**Table 3:** Hepatitis types, causes, and sign and symptoms observed during the survey at two tertiary care hospitals in Bangladesh.

Concerned area	Number (n=140)	Percentage
<b>Types</b>		
Hepatitis A	55	39.29
Hepatitis B	35	25
Hepatitis C	23	16.43
Hepatitis D	8	5.71
Hepatitis E	12	8.57
Alcoholic hepatitis	5	3.57
Ischemic hepatitis	2	1.43
<b>Causes</b>		
Viral hepatitis	80	50
Toxic chemical induced	8	5.71
Disorder of the gall bladder or pancreatic infection	7	5
Other infections	13	9.29
Blood transfusion	2	1.43
Pregnancy	5	3.57
Drug induced	20	14.29
Metabolic diseases	5	3.57
Sharing needle, syringe or other drug equipment	7	5
Alcohol induced	3	2.14
<b>Sign and symptoms</b>		
Jaundice	40	28.57
Weight loss	40	28.57
Loss of appetite	15	10.71
Diarrhea	7	5
Itchy skin	8	5.71
Nausea and vomiting	15	10.71
Abdominal pain and discomfort	5	3.57
Yellow discoloration of urine and stool	10	7.14

cardiac index of below 1.5l/min/m<sup>2</sup>. Chronic heart disease causes liver injury that may further progress to cardiac cirrhosis and cardiogenic ischemic hepatitis (Herzer et al., 2011). From Table 2 we found that 28.57% patients with hepatitis were of high blood pressure group who have greater chance of developing heart diseases. Patients with hepatitis D or Delta virus was only 5.71%. But it is to be considered that Bangladesh is of moderate endemicity for HBV infection, and has relatively high rates of co-infection with HDV (Zaki et al., 2003).

Most of the hepatitis cases contributed a viral cause (50%). Drug induced hepatitis and infection related hepatitis were also common (Table 3). Drug-induced immune-mediated liver injury is an adverse immune response against proteins within the liver that can lead to a syndrome of autoimmune hepatitis (Björnsson et al., 2011; Liu and Kaplowitz, 2002; Manns and Obermayer-Straub, 1997;). Many different drugs can cause drug-induced hepatitis. Painkillers and fever reducers that contain acetaminophen are a common cause of liver inflammation. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen and naproxen, may also cause drug-induced hepatitis (PubMed Health, 2010). 2 patients (1.43%) and 7 patients (5%) among 140 were found hepatitis caused via blood transfusion or

due to sharing needle, syringe or other drug equipments respectively. Several reports indicate that blood borne routes are one of the major moods of transmission of hepatitis B (Chaudhry et al., 2010; WHO, 2008), hepatitis C (Chaudhry et al., 2010; Oliveira-Filho et al., 2010), hepatitis E virus (Aggarwal, 2004; Anand et al., 2010; Arankalle and Chobe, 1999; Lee et al., 2005). The risk of hepatitis B virus infection through transfusion has been reduced subsequently introduction of hepatitis B surface antigen (HBsAg) screening in blood donors (Asim et al., 2010).

The sign and symptoms developed by the hepatitis affected patients were classical sign and symptoms. Jaundice (28.57%) and weight loss (28.57%) were most common with loss of appetite (10.71%). It was an interesting observation that 5.71 % of patients reported to have itchy skin. Itchiness is developed in particularly hepatitis A patients as a result of cholestasis (Batta, 2011).

Lamivudine, adefovir and ribavirine were the most commonly used drugs to treat different forms of hepatitis. Drugs used to treat hepatitis are presented in Figure 1.

42.86% patients were taking preventive treatment whereas 57.14% patients were under drug treatment. Among the 140 patients 50 (35.71%) patients had liver cirrhosis. Viral hepatitis remains the worldwide hepatological challenge (Sherlock and Dooley, 2007). Effective hepatitis A vaccination programs have helped to control the disease with proven social and economical benefits (Arankalle and Chadha, 2003). Vaccines against hepatitis A have been available since 2001 in the Bangladeshi private market, but are not widely used currently and are not a part of the universal expanded programme of immunization in Bangladesh (Saha et al., 2009). The present study indicates that in Bangladesh hepatitis A and B are most prevalent. Approximately 350 million people worldwide are living with chronic hepatitis B virus (HBV) infection, and an estimated 620,000 die annually from complications of HBV-related liver disease (Lo Re III, 2011). Among the affected 350 million 75% reside in the Asia Pacific region (Liaw and Chu, 2009).

## CONCLUSION

The prevalence of different forms of hepatitis in Bangladesh is high. Bangladesh is at the high risk region of hepatitis A and B. Routine immunizations, community education regarding the diseases are highly warranted here. Government should take necessary steps regarding this issue. As many of the forms of hepatitis are water borne, safe drinking water and proper sanitation system should be established throughout the country. Safe blood transfusion need to be ensured.

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