CLINICO-EPIDEMIOLOGY OF HEPATITIS B VIRAL INFECTION IN NORTHEASTERN THAILAND

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Abstract. Hepatitis B viral (HBV) infection is a common disease world wide. A study of clinico-epidemiology of HBV infection was conducted in 381 patients who seropositive for hepatitis B surface antigen (HBsAg) in Srinagarind Hospital, Khon Kaen University, Northeastern Thailand, during August 1997 to December 1998. 293 males, 88 females and their mean age was 30.96 ±12.78 years with a range from 15 to 77 years. The clinical features of acute hepatitis, chronic hepatitis, liver cirrhosis, hepatocellular carcinoma (HCC) and asymptomatic carrier were 2.36, 34.12, 4.99, 1.05 and 57.48% of cases. Possible routes for HBV transmission were family history of hepatitis, tattooing, intravenous drug addict and blood transfusion in 20.3, 11.3, 8.2 and 6.9% of cases, respectively. Signs of chronic liver disease were common in liver cirrhosis and HCC. Acute fulminating hepatitis was not found in this study.

INTRODUCTION

Viral hepatitis is a major public health problem (Alter *et al*, 1994). Hepatitis B viral (HBV) infection is one of major viral hepatitis in developing countries in Southeast Asia, including Thailand, where there is a high prevalence of chronic HBV infection of approximately 5-10% (Pramoolsinsap *et al*, 1986). The epidemiology of HBV is a parenterally transmitted virus acquired via blood or blood products, sexual contact, tattooing or perinatal exposure (Limentani *et al*, 1979; Beasley *et al*, 1983; Alter *et al*, 1994). The clinical features of HBV infection are acute hepatitis, chronic hepatitis and asymptomatic carrier. The most severe form is acute fulminating hepatitis (Losowsky, 1980). Patients with chronic HBV infection are at risk for developing long term complication such as liver cirrhosis and hepatocellular carcinoma (HCC), which may ultimately result in death. The risk of developing HCC is increased 10 to 390 fold in patients with chronic HBV infection (Beasley, 1988; Hyams, 1995). Treatment of acute infection is largely supportive and antiviral therapy is not indicated. The antiviral agent that is approved by the Food and Drug Administration (FDA) in the United States for treatment of chronic HBV infection is IFN-α but the rate of response is only about 35% (Wong *et al*, 1993). This study aimed to examine the clinico-epidemiology of HBV infection in Srinagarind Hospital, Khon Kaen Province which is situated in the center of northeastern Thailand.

MATERIALS AND METHODS

Definition of terms

HBV infection is defined as present of hepatitis B surface antigen (HBsAg) in the serum (Tiollais *et al*, 1985).

Acute hepatitis is defined as present with prodromal symptoms and increased of serum alanine aminotransferase (ALT).

Chronic hepatitis is defined as sustained increase of ALT and seropositive for HBsAg more than 6 months (Hyams, 1995).

Asymptomatic carrier is defined as asymptomatic and normal ALT but seropositive for HBsAg.

Cirrhosis is defined as present with sign and symptom of cirrhosis and impairment of synthetic function of the liver.

HCC is defined as seropositive for HBsAg and proved with histology or alphafetoprotein.

Patient selection

During August 1997 to December 1998, adult patients with seropositive for HBsAg at the Out-Patient Department of Medicine, Srinagarind Hospital were included in this study.

Data collection

These patients had their history taken and

Table 1
Age distribution of each clinical feature.

Age	AH		CH		LC		HCC		Carrier		Total	
(year)	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
15-25	2	0.52	66	17.32	-	-	-	-	108	28.35	176	46.19
26-35	4	1.05	20	5.25	2	0.52	-	-	39	10.24	65	17.06
36-45	1	0.26	27	7.09	2	0.52	2	0.52	47	12.34	79	20.73
46-55	1	0.26	15	3.94	10	2.62	-	-	21	5.51	47	12.34
56-65	-	-	2	0.52	2	0.52	2	0.52	4	1.05	10	2.62
66-75	1	0.26	-	-	2	0.52	-	-	-	-	3	0.79
76-85	-	-	-	-	1	0.26	-	-	-	-	1	0.26
Total	9	2.36	130	34.12	19	4.99	4	1.05	219	57.48	381	100

AH = acute hepatitis, CH = chronic hepatitis, LC = liver cirrhosis, HCC = hepatocellular carcinoma

Table 2
The clinical features of HBV infection.

	AH	CH	LC	HCC	Carrier	Total
No. of case	9	130	19	4	219	381
% of case	2.36	34.12	4.99	1.05	57.48	100
Male:Female	7:2	108:22	14:5	4:0	160:59	293:88
Mean age	35.33±15.22	29.82±11.43	50.63±11.52	52.50±12.48	29.31±11.80	30.96+12.78

Table 3
Possible routes for HBV transmission.

	AH %	CH %	LC %	HCC %	Carrier %	Total %
Intravenous drug addict	0	12.40	15.79	0	5.50	8.2
Tattooing	11.11	13.08	15.79	0	10.04	11.3
Blood transfusion	0	6.15	21.05	0	4.57	6.9
Hepatitis in family	11.11	21.54	26.32	0	19.82	20.3

physical examination for data collection according to the protocol by the doctor, blood for liver function tests were taken. Ultrasonography and other investigations were done if there was an indication.

RESULTS

Three hundred and eighty-one cases of seropositive for HBsAg were note, including 293 males and 88 females. Their age ranged from 15 to 77 years old and the mean age was 30.96 ± 12.78 years. The age distribution is presented in Table 1. The clinical features of acute hepatitis, chronic hepatitis, liver cirrhosis, HCC and asymptomatic carrier were 9, 130, 19, 4 and 219 cases with the mean age in each clinical features were 35.33 ± 15.22, 29.82 ± 11.43, 50.63 ± 11.52, 52.50 ± 12.48 and 29.31 ± 11.80 years, respectively (Table 2).

The possible routes for HBV transmission such as intravenous drug use tattooing, blood transfusion and hepatitis in the family in relation to each clinical feature are presented in Table 3.

The physical findings related to each clinical feature are presented in Table 4.

DISCUSSION

Presence of HBsAg in the serum is an indicator of HBV infection. The clinical features of

Table 4
The physical findings for each clinical feature.

	AH %	CH %	LC %	HCC %
Spider nevi	0	7.75	68.42	50
Gynecomastia	0	0	52.63	50
Palmar erythema	11.11	2.33	84.21	50
Ascites	11.11	0	63.15	50
Hepatomegaly	55.55	14.73	36.84	75
Splenomegaly	11.11	0.78	73.68	75
Pitting edema	22.22	0	68.42	25

HBV infection vary from asymptomatic to severe fulminant hepatitis and death. Chronic HBV infection is a clinical feature which presents difficulty in management because the response rate of treatment with IFN-α is only about 35% (Korenman *et al*, l991; Wong *et al*, 1993; Niederau *et al*, 1996; Hoofnagle *et al*, 1997). Patients with chronic HBV infection are at risk for developing long term complications such as liver cirrhosis and HCC (Weissberg *et al*, 1984; Beasle, 1988).

This study shows that HBV infection was found in all age groups but varied in clinical features, was common in 15-25 year olds, and that the male:female ratio was about 3 times. The most common clinical feature was asymptomatic carrier status which was found in 57.48% of cases. Chronic hepatitis, liver cirrhosis, acute hepatitis and HCC were 34.12, 4.99, 2.36 and 1.05% of cases, respectively. The mean age of HCC and liver cirrhosis patients was older than the other groups because these two clinical features were consequence of chronic HBV infection.

The possible routes for HBV transmission as judged from the history identified family history of hepatitis as the most common (20.3% of cases). The other possible routes such as tattooing, intravenous drug use and blood transfusion were 11.3, 8.2 and 6.9% of cases, respectively. These possible routes for transmission were common in chronic hepatitis, liver cirrhosis and asymptomatic carriers.

The signs of chronic liver disease such as spider nevi, gynecomastia, palmar erythema, ascites, splenomegaly and pitting edema were common in liver cirrhosis and HCC but unusual in the other groups. Hepatomegaly was common in almost groups.

This study shows that asymptomatic carrier status and chronic hepatitis were the major clinical features of HBV infection, so in the future liver cirrhosis and HCC may be common problems. Prevention is a good way of controlling HBV infection (Alter *et al*, l990; Margolis *et al*, 1991; Alter *et al*, 1994). Active immunization of hepatitis B has been introduced as a national-wide immunization program for new borns since 1992. This might have impact on reduction of hepatitis B infection in the future.

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