The Prevalence of e-Antigen in Acute and Chronic Hepatitis in Thailand

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OBJECTIVE : To determine the prevalence of e-antigen (HB_eAg) in patients with acute and chronic liver disease and to compare this with that found in asymptomatic hepatitis B surface antigen (HB_sAg) carriers.

BACKGROUND : Three antigen-antibody systems have been associated with hepatitis B virus (HBV) infection : HB_sAg and its antibody (Anti-HB), hepatitis B core antigen (HB_cAg) and its antibody (anti-HB_c) and e-antigen (HB_eAg) and its antibody (anti-HB_e). HB_sAg and HB_cAg are both particulate viral antigens while HB_eAg is a soluble, probably non-viral, antigen which appears to be associated with the presence of Dane particles and DNA polymerase activity (1), (2). The presence of HB_eAg has been reported by several investigators to be useful as a prognostic indicator (3). It was often found in patients with chronic aggressive hepatitis (CAH) but was unusual in chronic persistent hepatitis (CPH); anti-HB_e has been reported more often in CPH and asymptomatic HB_sAg carriers than in patients with active disease (4). The prevalence of HB_sAg carriers (8-10%) and the incidence of cryptogenic cirrhosis are both high in Thailand.

This study was undertaken to investigate whether HB_eAg may be used to indicate severe or progressive liver disease.

METHODS : Blood was collected from patients seen in the hepatitis clinic at the Siriraj Hospital. A comparative group of asymptomatic carriers were obtained from the Blood Bank of the Royal Thai Army Hospital. Serum was tested for HB_sAg by immunoelectroosmophoresis (IEOP) and for HB_eAg and anti-HB_e by IEOP or Immunodiffusion (ID). These methods have been described in previous Annual Reports (1).

RESULTS : Serum was obtained from 16 patients with biopsy proved CAH and 34 patients with clinically diagnosed acute viral hepatitis. The results of serological tests on these patients were compared with those on 585 blood donors. As expected, HB_sAg was prevalent in the patients with chronic and active hepatitis than in the blood donors (Table 1). HB_eAg, however, was found with low and equal frequency among the CAH patients and blood donors (Table 2). Essentially similar findings were seen with anti-HB_e (Table 2). It is concluded that in our hands e-antigen cannot be used as an indicator of severe liver disease. Determination of HB_sAg, HB_eAg and anti-HB_e will be completed

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on a larger group of patients and an age and sex matched control group. Following this final analysis of the prevalence of e-antigen in chronic hepatitis will be completed.

Table 1. The Prevalence of HB_sAg, HB_eAg and anti-HB_e in People with Hepatitis and a Comparative Group of Blood Donors.

Diagnosis	Number Tested	HB_sAg (+) No.	HB_sAg (+) %	HB_eAg (+) No.	HB_eAg (+) %	Anti-HB_e (+) No.	Anti-HB_e (+) %
Hepatitis Patients							
CAH[a]	16	10	62.5	1	6.3	1	6.3
AH[b]	30	14	46.6	0	0	3	10
Blood Donors	585	47	8.0	4	0.7	14	2.4

[a] Chronic active hepatitis diagnosed by liver biopsy

[b] Acute viral hepatitis diagnosed clinically

Table 2. The Prevalence of HB_eAg and Anti-HB_e in HB_sAg Carriers.

Diagnosis	HB_sAg (+)	HB_eAg (+) No.	HB_eAg (+) %	Anti-HB_e (+) No.	Anti-HB_e (+) %
Hepatitis Patients					
CAH[a]	10	1	0	1	10.4
VH[b]	14	0	0	3	21.4
Blood Donors	47	4	8.5	14	29.7

[a] Chronic active hepatitis diagnosis by liver biopsy

[b] Acute viral hepatitis diagnosed clinically

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