

Continuing Studies of Hepatitis B Antigen Carriers
in Residents of Khao Yai National Park

Principal Investigators : Rapin Snitbhan, M.D.
William H. Bancroft, LTC, MC
Robert McNair Scott, LTC, MC

Associate Investigators : Jerome J. Karwacki, Jr., SP 5
Choompun Manomuth, B.Sc.
Sumitda Narupiti, B.Sc.
Nathada Plavuth, R.N.

OBJECTIVE : To determine the frequency of exposure to Hepatitis B virus (HBV) in residents of Khao Yai National Park (KYNP).

BACKGROUND : This is a continuation of work which was previously reported (1). The presence of Hepatitis B surface antigen (HB_sAg) and antibody (anti-HB_s) serves as evidence of prior exposure to hepatitis B virus (HBV). This study reports the frequency of both HB_sAg and anti-HB_s in a rural Thai population.

DESCRIPTION : HB_sAg carriers were identified using the counterimmunoelectrophoresis test (IEP) and radioimmune assay (RIA). Anti-HB_s was identified using a radioimmune assay inhibition test (RIAI) described previously (2).

PROGRESS : Four hundred and eighty four sera from KYNP residents were studied for the presence of HB_sAg and anti-HB_s. The age specific prevalence of HB_sAg (Table 1) was previously reported (1). Additional data on the prevalence of anti-HB_s in this population was illustrated in Table 2. There were no statistically significant differences in the prevalence of anti-HB_s between males and females ($p > 0.317$). When the prevalence of HB_sAg and anti-HB_s carriers were combined (Table 3), however, evidence for HBV infection in males was more frequent than that found in females in almost every age group. This was due to higher prevalence of HB_sAg carriers in males. The differences in the frequency of prior exposure to HBV infection between males and females was statistically significant for the total population ($p < .001$). The prevalence of prior infection by HBV was low in children and higher in the older age groups. The age specific prevalence of HBV infections reached a plateau of about 44% over the age of 20 years.

Subtypes were determined on six families in which more than one member was found to carry HB_sAg. There were five families, each with two HB_sAg positive members, in which only HB_sAg/adr was identified.

In one family HB_sAg/adw was detected in two antigen positive boys. Anti-HB_s was detected in the parents of these boys. There were no families in which more than one HB_sAg subtype could be detected.

SUMMARY : A well defined rural Thai population of 484 people, representing approximately 80% of the inhabitants of the KYNP have shown age specific prevalences of prior HBV infections which are similar to those seen in an urban Bangkok population (3) and in an urban Cambodian population (4). This suggests similar transmission of HBV in all three groups.

REFERENCES :

1. Snitbhan, R., Bancroft, W.H., Scott, R.M., and Chiewsilp, D.: Continuing Studies of Hepatitis B Antigen Carriers in Thailand. SEATO Medical Research Laboratory Annual Report, March, 1975.

2. Scott, R.M., Karwacki, J.J., Bancroft, W.H., and Snitbhan, R.: Radioimmune Assay Inhibition Tests for the Detection of Antibody to Hepatitis B Surface Antigen. SEATO Medical Research Laboratory Annual Report, March, 1975,
3. Grossman, R.A., Benenson, M.W., Scott, R.M., Snitbhan, R., Top, F.H., Jr., and Pantuwatana, S.: An Epidemiological Study of Hepatitis B Virus in Bangkok, Thailand. Am. J. Epidemiol 101 : 144, 1975
4. Scott, R.M., Snitbhan, R., and Bancroft, W.H.: Prevalence of Hepatitis B Virus Infections in Residents of Phnom Penh.: SEATO Medical Research Laboratory Annual Report, March 1976.

Table 1. Age Specific Prevalence of HB_sAg in Khao Yai National Park Residents

Age (years)	Male			Female			Total		
	No. tested	+ ve Ag	%	No. tested	+ ve Ag	%	No. tested	+ ve Ag	%
0-4	27	1	3.7	35	0	0	62	1	1.6
5-9	24	4	16.6	25	0	0	49	4	8.1
10-14	14	5	35.7	12	0	0	26	5	19.2
15-19	33	4	12.1	18	0	0	51	4	7.8
20-29	129	20	15.5	57	4	7.0	186	24	12.9
30-39	57	7	12.2	18	1	5.6	75	8	10.6
40+	28	3	10.7	7	0	0	35	3	8.6
Total	312	44	14.1	172	5	2.9	484	49	10.1

Table 2. Age Specific Prevalence of Anti - HB_s in Khao Yai National Park Residents

Age (years)	Male			Female			Total		
	No. tested	Positive		No. tested	Positive		No. tested	Positive	
		No.	%		No.	%		No.	%
0-4	27	7	25.9	35	4	11.4	62	11	17.8
5-9	24	3	12.5	25	4	16.0	49	7	14.3
10-14	14	2	14.3	12	3	25.0	26	5	19.2
15-19	33	8	24.2	18	4	22.2	51	12	23.5
20-29	129	39	30.2	57	19	33.3	186	58	31.2
30-39	57	17	29.8	18	8	44.4	75	25	33.3
40 +	28	11	39.3	7	2	28.6	35	13	37.1
Total	312	87	27.9	172	44	25.6	484	131	27.1

Table 3. Frequency of Prior Exposure to HBV in Khao Yai National Park Residents
(Combined HB_sAg and Anti - HB_s)

Age (years)	Male			Female			Total		
	No. tested	Positive		No. tested	Positive		No. tested	Positive	
		No.	%		No.	%		No.	%
0-4	27	8	29.6	35	4	11.4	62	12	19.3
5-9	24	7	29.1	25	4	16.0	49	11	22.4
10-14	14	7	50.0	12	3	25.0	26	10	38.4
15-19	33	12	36.4	18	4	22.2	51	16	31.4
20-29	129	59	45.7	57	23	40.3	186	82	44.0
30-39	57	24	42.1	18	9	50.0	75	33	44.0
40 +	28	14	50.0	7	2	28.5	35	16	45.7
Total	312	131	41.9	172	49	28.5	484	180	37.1