Epidemiology of Hepatitis B in a Well Defined Rural Thai Population

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OBJECTIVE : To determine the prevalence of hepatitis B surface antigen (HB_sAg) and antibody to hepatitis B surface antigen (anti-HB_s) in a well defined rural Thai village.

BACKGROUND : A study on a well defined urban Thai population (1) has shown an average prevalence of HB_sAg of 8.2% (determined by radioimmune assay) and anti-HB_s of 46.1% (determined by passive hemagglutination). In this population of 697 people aged from one year to 75 years, the prevalence of HB_sAg was relatively stable throughout all age groups. For anti-HB_s on the other hand, the prevalence rose from 15.4% in the 1-4 age group to a plateau level of 50 to 65% after the age of 20. A stable rural Thai population was sought to determine the prevalence of HB_sAg and anti-HB_s for comparison with that found in the Bangkok population.

METHODS : The village of Tablan was selected for study. This village was located in Prachinburi province in the Bhu Phram valley. Its population had been included in malaria drug prophylaxis studies for two years. Sera from a portion of the population had been collected for malaria studies at approximately yearly intervals in 1974 and 1975.

A census of the village conducted in early 1976 showed the total population to consist of 1,014 people, 503 males and 511 females. Sera were assayed for HB_sAg and anti-HB_s serology by radioimmune assay (AUSRIA II and AUSAB supplied by Abbott Laboratories, North Chicago, Ill.)

RESULTS : Blood was obtained from 73% of the village population in late 1976 (Table 1). The prevalence of HB_sAg carriers in the total population tested was 7.2% (Table 2). There was no HB_sAg detected among 70 tested children under the age of four. After that, the prevalence in males was significantly higher than for females in all but one age group (10-14 years of age). There was no significant difference in prevalence of HB_sAg by age group except in the children under four years of age.

Anti-HB_sAg was found in 31.25% of the population (Table 3). As in the Bangkok population, the prevalence of anti-HB_s rose from 11.4% in the one to four age group and reached a plateau level of about 50% by age 20. The time of rise was essentially the same in both populations but the rural population did not reach the levels seen in the urban population. This difference may be greater than it appears because of the increased sensitivity of the serological test used for the rural Thai population. Males after the age of 15 had a significantly higher prevalence of antibody than did the females of equivalent age.

Unlike the Bangkok population, however, this difference in prevalence was observed for all of the older age groups.

Further analysis of the prevalence data with the addition of family prevalence and longitudinal follow-up are required to complete this study.

REFERENCE :

1. Grossman, R.A., Benenson, M.W., Scott, R.M., Snitbhan, R., Top, F.H., Jr., and Pantuwatana, S., 1975. An Epidemiological Study of Hepatitis B Virus in Bangkok, Thailand. Am. J. Epidemiol., 101:144-159.

Table 1. Population of Ban Tablan that was Selected for Hepatitis B Virus Investigation.

Age (Year)	Male			Female			Total		
	Population in Village	Tested No.	Tested %	Population in Village	Tested No.	Tested %	Population in Village	Tested No.	Tested %
0-4	86	33	38.37	94	37	39.36	180	70	38.89
5-9	75	59	78.66	79	69	87.34	154	128	88.89
10-14	77	64	83.12	76	66	86.84	153	130	84.97
15-19	56	36	64.28	45	34	75.56	101	70	69.31
20-29	69	54	78.26	84	67	79.76	153	121	79.08
30-39	50	40	80.0	53	45	84.9	103	85	82.52
40-49	47	36	76.59	35	27	77.14	82	63	76.83
50-59	28	20	71.43	30	26	86.67	58	46	79.31
60^{+}	15	11	73.33	15	12	80.0	30	23	76.67
Total	503	353	70.3	511	383	75.0	1,014	739	72.9

Table 2. Prevalence of HB_sAg in Residents of Ban Tablan.

Age (Year)	Male			Female			Total		
	No. Tested	Positive		No. Tested	Positive		No. Tested	Positive	
		No.	%		No.	%		No.	%
0-4	33	0	0	37	0	0	70	0	0
5-9	59	7	11.86	69	4	5.79	128	11	8.59
10-14	64	3	4.68	66	7	10.6	130	10	7.69
15-19	36	4	11.11	34	3	8.82	70	7	10.0
20-29	54	8	14.8	67	3	4.48	121	11	9.09
30-39	40	5	12.5	45	0	0	85	5	5.88
40-49	36	3	8.3	27	0	0	63	3	4.76
50-59	20	2	10.0	26	2	7.7	46	4	8.69
60+	11	2	18.2	12	0	0	23	2	8.69
Total	353	34	9.63	383	19	4.96	736	53	7.2

Table 3. Prevalence of Anti-HB_s in Residents of Ban Tablan.

Age (Year)	Male			Female			Total		
	No. Tested	Positive		No. Tested	Positive		No. Tested	Positive	
		No.	%		No.	%		No.	%
0-4	33	2	6.06	37	6	16.2	70	8	11.42
5-9	59	11	18.64	69	15	21.74	128	26	20.3
10-14	64	24	37.5	66	23	34.84	130	47	36.15
15-19	36	19	52.78	34	9	26.47	70	28	40.0
20-29	54	27	50.0	67	26	38.80	121	53	43.8
30-39	40	19	47.5	45	22	48.89	85	41	48.2
40-49	36	22	61.1	27	12	44.4	63	34	53.97
50-59	20	12	60.0	26	14	53.8	46	26	56.52
60+	11	10	90.9	12	10	83.3	23	20	86.96
Total	353	146	41.36	383	137	35.8	736	230	31.25