

The Frequencies of Hepatitis B Antigen Subtypes in Various Parts of Thailand

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OBJECTIVE : To determine the relative frequency of hepatitis B surface antigen (HB_sAg) subtypes in the different regions of Thailand.

BACKGROUND : On the surface of the hepatitis B antigen particle there are at least five different antigenic determinants; the common determinant a, and two pairs of usually mutually exclusive determinants d/y and w/r. In Asia the y determinant is uncommon and the majority of antigens are subtypes adr (HB_sAg/adr).

A gradient of increasing frequency from north to south of the r subtype has been reported in Japan (1). This observation suggested that similar geographic gradients might be found in other Asian nations and an investigation was undertaken in Thailand of the prevalence of HB_sAg subtypes in different regions.

DESCRIPTION : Available information on the HB_sAg subtypes in Thailand indicates some differences in subtype frequency between samples collected from Bangkok, the northern part of the country (Chiangmai) and Khao Yai National Park (Figure 1). Additional information on the subtypes of HB_sAg may or may not support the preliminary findings.

This study was done in collaboration with the Thai Red Cross Center, Bangkok. Blood donors presenting to the blood collection centers in the central and eastern regions of Thailand were sampled by the National Blood Bank Service of the Thai Red Cross Center. Sera was tested for the presence of HB_sAg by counterimmunoelectrophoresis (CIEP) at the Thai Red Cross Laboratory for subtype determination.

All HB_sAg positive blood donors provided the following information:—

- | | |
|--|--|
| a. Name | b. Age |
| c. Sex | d. Present residence |
| e. Previous blood donation and transfusion | f. History of clinical hepatitis and jaundice. |

Antigen subtypes were determined by immunodiffusion (ID) (2), using specific rabbit antisera.

PROGRESS : Six hundred and fifty-four sera containing HB_sAg were tested. All of them were found to have the d determinant. Eighty-six percent of 311 HB_sAg positive sera collected from blood donors residing in Bangkok were HB_sAg/adr (Table 1). Seventy-six percent of 252 HB_sAg positive sera from the central region of Thailand, collected in Nontaburi, Phatumdhani, Ayudhaya,

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Lopburi, Samutprakarn, Kanchanaburi, Samutsakorn, Samutsongkram, Rajburi, Nakorn Pathom, Petchaburi and Prachuab Kirikan were HB_sAg/adr. Eighty-four percent of 91 sera collected in the eastern region from Choburi, Trat, Chanthaburi, Chacherngsoa and Prachinburi were HB_sAg/adr. The combination of all of the HB_sAg positive sera collected from Bangkok and other provinces in the central region show 81% HB_sAg/adr. So far we have detected no statistical differences in the prevalence of HB_sAg/adr in the central part of Thailand.

Table 1. The Relative Frequency of HB_sAg Subtypes in Blood Donors from Various Parts of Thailand

Region	HB _s Ag Positive Sera	Subtype Frequency (%)		
		adr	adw	ad (?)
Bangkok	311	86	12	2
Central	252	76	17	7
East	91	84	13	3

DISCUSSION : The data on the frequency of HB_sAg subtypes collected from the central districts of Thailand have not revealed any regional differences in subtype prevalences; however, HB_sAg positive blood donors from the north and the south of Thailand remain to be tested.

All of the 654 blood donors tested in this study have had the d determinant. However, a HB_sAg obtained from the serum of a 15 year old Karen girl, living in Sangkhlaburi, Kanchanaburi, a remote section of Thailand, has been identified in our laboratory as HB_sAg/ayw. This antigen showed lines of identity in immunodiffusion to a reference HB_sAg/ayw antigen (WRAIR-DI-387, JF 019) and to D2-2 antigen (confirmed in Paris, France, April 1975 as HB_sAg/ayw). This is the first serum of an indigenous Southeast Asian in which the y determinant has been detected. Further information is being sought on the contacts of this Karen woman, in an attempt to determine the source of this anomalous subtype.

SUMMARY : Sera from 654 HB_sAg positive blood donors collected in the central and eastern regions of Thailand were tested for HB_sAg subtypes. Eighty-one percent of the sera contained HB_sAg/adr. There were no statistical differences in the prevalences of subtypes in different regions. Subtype prevalence in the northern and southern regions of Thailand are being examined.

REFERENCES :

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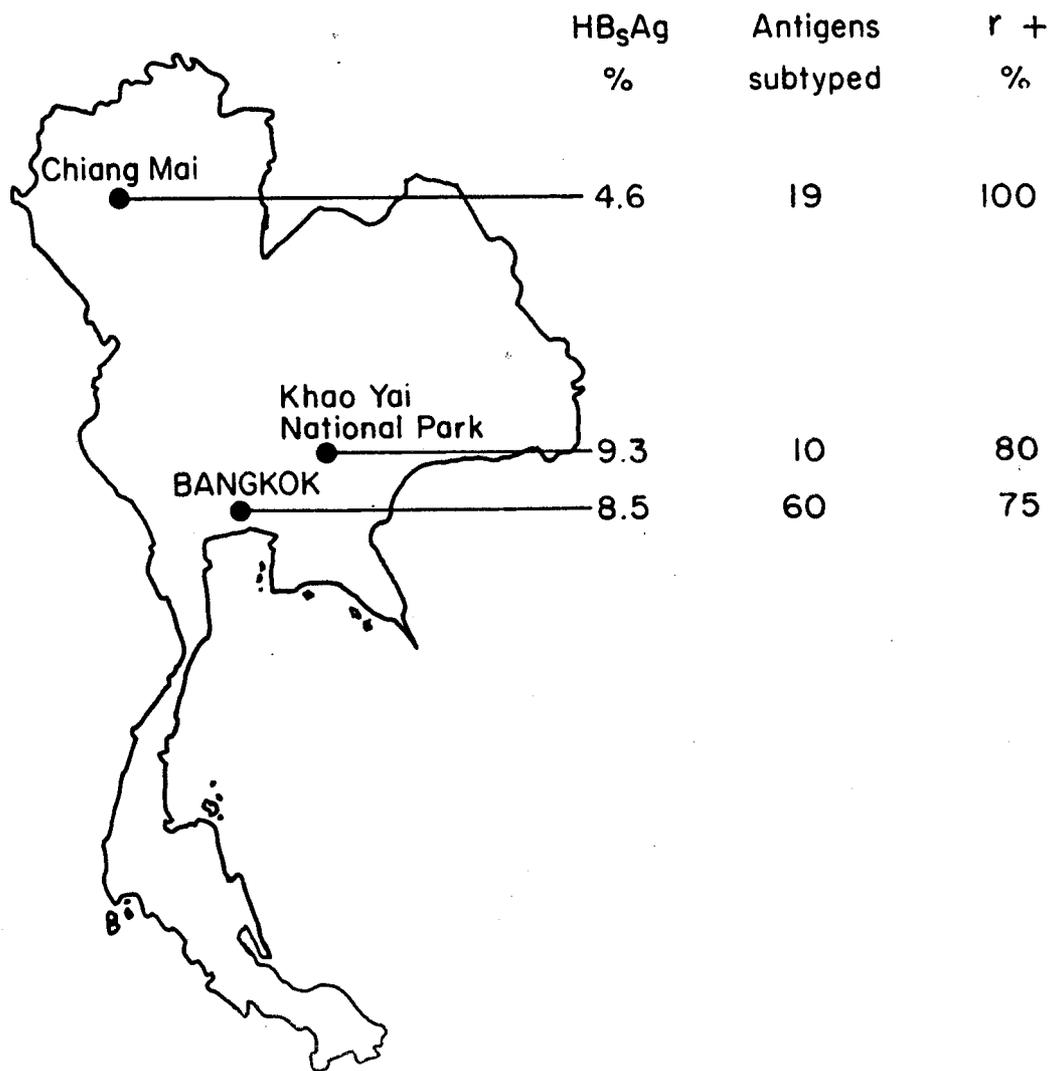


Figure 1. Frequency of Detection of the r Determinant in Thailand