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ANTI-ARBOVIRUS HI ANTIBODIES IN SERA FROM SUSPECTED HEMORRHAGIC FEVER PATIENTS FOUND IN SURABAJA, INDONESIA, IN 1968-69.

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ISWARA, ATASIATI, SOEHARTO and BIROUM. *Anti-Arbovirus HI Antibodies in Sera from Suspected Hemorrhagic Fever Patients Found in Surabaya, Indonesia, in 1968-69.* Kobe J. Med. Sci. 16, 211-214, December 1970.—Using sera collected from suspected hemorrhagic fever patients found in Surabaya, Indonesia, in 1968-69, hemagglutination-inhibition antibodies against Japanese encephalitis and dengue viruses were measured. In some of the subjects from whom paired sera were taken, the antibody titers were elevated significantly during the acute and convalescent phases of illness. Sera from persons who had contact with the patients also showed high titers against the same viruses. The titers of sera from healthy residents, so far as tested in the present study, were generally low. It was considered very probable, at least from the serological point of view, that the arboviruses were involved in the "Surabaya hemorrhagic fever."

INTRODUCTION

In 1968-69, suspected hemorrhagic fever (HF) cases were found in Surabaya, Indonesia. Serum specimens were collected from the patients and measured for hemagglutination-inhibition (HI) antibodies against certain arboviruses. Similar tests were carried out with sera from persons who had contact with the patients, as well as those from healthy adults residing in Surabaya. The results obtained will be reported briefly in this communication.

MATERIALS AND METHODS

Serum samples (as listed in Table 1) were collected from patients diagnosed clinically as suspected HF cases by specialists of Dr. Soetomo Hospital, Surabaya.⁴⁾

HI antigens used were mouse brain antigens against Japanese encephalitis (JE, JaGAr # 01 strain), dengue type 1 (D1, Mochizuki strain), type 2 (D2, Trinidad-1751 strain), and type 3 (D3, H-87 strain). Microtiter technique using U-trays was applied. Detailed technical specifics of antigen preparation and HI test were the same as those described by Hotta et al.³⁾

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Authors' names in Japanese: イスワラ, アタシアテイ, スハルト, ビロウム

Table 1. Serum samples tested

Source	Paired or single	Tested against	No. of specimen	
			1968	1969
Patient	Paired	4 antigens	1	3
	Paired	2 antigens	1	3
	Single	4 antigens	4	5
	Single	2 antigens	12	2
Contact person		4 antigens	0	9
Healthy person		2 antigens	0	19

RESULTS

The results obtained are summarized in Table 2 (for the 1968 specimens) and in Table 3 (for the 1969 specimens). Among the subjects from whom paired sera were collected, the cases indicated in Table 4 showed significant elevation of the HI titers during the acute and convalescent phases of illness.

Of No. 1 of 1968 and No. 5 of 1969, anti-JE titers were high already in the acute phase and maintained the same level of antibody in the convalescent phase.

A tendency was noted that persons who had contact with the HF patients showed also high HI titers against JE and D2. Titers of the healthy adults were generally low, excepting No. 14 of 1969 who showed a high titer against JE.

Table 2. Anti-arbovirus HI titers of test sera collected from suspected HF patients in 1968.

Case*	JE	D1	D2	D3
1 a**	10,240	neg.***	80	320
b	10,240	neg.	5,120	2,560
2 a	640	640		
b	2,560	1,280		
3	20	neg.	40	20
4	20	neg.	10	neg.
5	5,120	neg.	80	320
6	40	neg.	10	neg.
7	80		80	160
8	10	10		
9	neg.	neg.		
10	40	40		
11	10,240	5,120		
12	40	40		
13	10	20		
14	1,280		320	
15	neg.		neg.	
16	neg.		40	
17	neg.		neg.	
18	neg.		20	

* All from suspected HF patients.

** a=serum collected during the acute phase.

b=serum collected during the convalescence

*** negative=less than 10.

ANTI-ARBOVIRUS HI ANTIBODY OF HF PATIENTS

Table 3. Anti-arbovirus HI titers of test sera collected from suspected HF patients, contact persons and healthy adults in 1969.

Case	JE	D1	D2	D3
<i>Patient</i>				
1 a*	neg.	neg.	neg.	neg.
1 b	10	20	20	20
2 a	2,560	neg.	320	neg.
2 b	10,240	neg.	10,240	40
3 a	80	neg.	80	10
3 b	5,120	neg.	2,560	neg.
4 a	640		neg.	
4 b	10,240		100	
5 a	10,240		640	
5 b	10,240		2,560	
6 a	640		neg.	
6 b	10,240		neg.	
<i>Contact person</i>				
1	neg.	neg.	neg.	neg.
2	320	neg.	160	neg.
3	5,120	neg.	1,280	320
4	320	neg.	2,560	neg.
5	160	neg.	80	neg.
6	neg.		neg.	
7	neg.		neg.	
<i>Healthy adult</i>				
1	10	neg.	10	neg.
2	10	neg.	neg.	neg.
3	80	neg.	80	10
4	10	neg.	10	neg.
5	80	neg.	80	neg.
6	neg.	neg.	neg.	neg.
7	10	neg.	neg.	neg.
8	10	neg.	neg.	neg.
9	neg.	neg.	neg.	neg.
10	neg.		neg.	
11	10		neg.	
12	10		10	
13	40		10	
14	1,280		10	
15	neg.		neg.	
16	neg.		neg.	
17	neg.		neg.	
18	320		neg.	
19	neg.		neg.	
20	neg.		neg.	
21	neg.		neg.	
22	neg.		neg.	
23	20		10	
24	neg.		neg.	
25	neg.		neg.	
26	neg.		neg.	
27	neg.		neg.	
28	neg.		neg.	

* a=serum collected during the acute phase.

b=serum collected during the convalescence.

Table 4. Cases showing significant elevation of HI titers during the acute and convalescent phases of illness

Year	Case no.	Significantly elevated against	
1968	1	D2 (64)*,	D3 (8)
	2	JE (4)	
1969	2	JE (4),	D2 (32)
	3	JE (64),	D2 (32)
	4	JE (16)	
	5	D2 (4)	
	6	JE (16)	

* Parentheses indicate magnitude of elevation based on 2-fold dilution of test serum

DISCUSSION AND SUMMARY

Sera collected from suspected HF patients found in Surabaya were measured for anti-arbovirus HI antibodies. In some cases from which paired sera were drawn, the antibody titers against JE and dengue viruses were elevated significantly during the acute and convalescent phases of illness. Sera from persons having contact with the patients also showed high titers against the same viruses whereas the titers of healthy residents were generally low. So far as the present serologic data are concerned, the involvement of certain arboviruses in "Surabaya HF" cases was very probable.

A hypothesis that the HF syndromes are caused by secondary or repeated infections of certain arboviruses has been proposed.^{1, 2)} The present results give no conclusive evidence for such concept. Further investigations are needed to clarify the pathogenesis of HF in Indonesia.

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