

SEATO MEDICAL RESEARCH STUDY ON RESPIRATORY VIRUSES

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Period of Report: 1. April 1965-31 March 1966

OBJECTIVE: To determine the etiology of epidemic viral respiratory disease in military and civilian populations in Thailand.

DESCRIPTION:

Suspected epidemics of respiratory illness were investigated by teams consisting of a physician and public health nurses, specimens for virus isolation and serology were obtained from febrile patients in the early stages of a respiratory disease.

PROGRESS:

Influenza Epidemic. In the period from September through early December 1965, influenza cases were reported by provincial health officers in North, Northeast and South Thailand. The majority of reported cases occurred in mid-October. Table 1 gives the numbers of reported by provinces. Few cases were seen in the city of Bangkok. At the request of the Department of Public Health, a team of physicians and public health nurses was sent to investigate the outbreak in Srisaket to make clinical observations and obtain materials for virologic studies.

In the provincial prison at Srisaket, over 60 percent of 345 inmates had clinical influenza. In the prisoners, the disease varied from a mild illness of 2 or 3 days duration to severe disease lasting 10 days. Similar illnesses were seen in the villages near Srisaket. Prominent symptoms included fever, headache, myalgias, sore throat, and cough.

Throat swabs, and acute and convalescent serum specimens were collected from 41 patients. The specimens for virus isolation were collected on the first or second day of illness in febrile patients. Nineteen of the patients studied were prisoners and the remaining 22 were villagers.

Influenza hemagglutination inhibition tests revealed a 4 fold or greater rise in 31 of the 41 patients. The cases with negative serology were mostly younger children from the village (table 2).

Virus isolation using the amniotic sac of embryonated eggs was attempted with 10 throat washings. Influenza virus was isolated on second passage in 5 cases and on 3rd passage in one case.

The influenza agents recovered were identified as A-2 strains by hemagglutination inhibition with reference antiserum. Representative strains, now designated as Thai 394/65, Thai 385/65, and Thai 379/65 were sent to Dept. of Virus Diseases, WRAIR for antigenic analysis. Preliminary reports from WRAIR indicate a close serologic relationship to A-2 strains currently found in United States.

These strains were somewhat unusual in that they adapted very poorly to the allantoic sac of embryonated eggs. Table 3 shows the HA levels at various passage levels.

Primary monkey kidney (MK) tissue culture was equally as sensitive as embryonated eggs for primary isolation of these virus strains. Hemadsorption with guinea pig RBCs was positive on the twelfth day of the first passage and blind passage did not yield additional isolations

Table 1. Influenza Cases Reported to the Department of Health, September-December 1965 by Provinces

<u>Province</u>	<u>Cases</u>	<u>Deaths</u>
Srisaket	6,600	26
Surin	3,415	0
Burirum	2,000	6
Roiet	5,806	1
Sukothai	400	0
Nakornsritamarat	1,435	0
Totals	19,656	33

Table 2. Influenza HI Test Results* Srisaket Patients with Febrile URI

	Positive (4x rise)	Negative
Prison Inmates (over 18 years)	18	1
Villagers (over 12 years)	9	2
Villagers (under 12 years)	6	5

A diagnosis of influenza infection in 4 US soldiers with respiratory infections was made on the basis of HI tests.

Table 3

Hemagglutination Titers of 1965 Influenza A-2 Strains in Amniotic and Allantoic Fluids

Passage Level

Strain No.	Amniotic				Allantoic					
	E-1	E-2	E-3	E-4	E-4	E-5	E-6	E-7	E-8	E-9
21476	0	32	16		8	8	8	8	8	
21479	0	4	32	64		4	4	8	8	4
21485	0	4	64	16		4				
21494	0	4	64			16				
21535	0	0	16	16		4	16	8	4	4

* vs 8 units A-2 Jap 170/62 antigen

Table 4

Table 4 compares the results of parallel isolation attempts in MK cells and embryonated eggs. Comparison of Isolation Methods for 1965 Influenza Strains.

<u>Specimen No.</u>	<u>Primary MK Tissue Culture</u>	<u>Embryonated Eggs</u>
21476	+	+
21479	+	+
21485	+	+
21491	+	+
21494	+	+
21512	0	0
21515	0	0
21518	+	0
21535	0	+

The etiology of the non-influenza febrile URI's occurring concurrently with influenza cases in the villagers is presently being investigated. Adenovirus CF tests were negative in this group.

SUMMARY:

An outbreak of febrile respiratory illness in a rural area of Northeast Thailand was investigated. Virus isolation and serologic studies indicated the majority of cases were due to influenza A-2 infection. Representative A-2 strains were sent to WRAIR for antigenic studies.