

—Preliminary Notes—

Isolation of influenza viruses in Thailand during June ~ August 1981

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Influenza A virus can undergo radical changes (antigenic shift) in the properties of its surface antigens, resulting in the appearance of a new human influenza A subtype that is antigenically unrelated to previous strains in the surface glycoprotein (s), and the pandemics are associated with the antigenic shift. Within a particular subtype, the influenza A virus is subject to frequent minor antigenic changes (antigenic drift) that cause epidemic outbreaks every 1 to 2 years. Influenza B virus also undergoes antigenic changes in the antigens associated with hemagglutinin, although the antigenic changes are of a less fundamental nature than those of influenza A virus¹⁻⁴⁾. As for the epidemiology and ecology of the influenza virus regarding the antigenic drift, Japan and South-East (S-E) Asia correspond to the temperate epidemic zone and the tropical virus-reservoir zone, respectively^{5,6)}. Our studies on influenza in Thailand and in Manila since 1977 have presented some evidences to support the idea of the 2 zones⁷⁻¹³⁾. Thus, it will be needed to have continuous survey of influenza viruses in S-E Asia as well as in Japan so as to understand the factors which lead to the appearance of new epidemic strains and to improve vaccines used for their control. This paper describes the isolation of influenza viruses in Thailand in the rainy season of 1981.

Two hundreds and eighty-seven throat swab specimens were collected from suspected patients in 8 schools, a leprosy village, and Chiang Mai University Hospital in Chiang

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Table 1 Isolation of influenza viruses in Thailand, June~August 1981

collecting specimens			No. of viruses			
date	locations	No.	H1N1	H3N2	B	total
Aug. 14	Wat Pa Sa Toy	48	0	0	0	0
Aug. 17	Wat Kou Khum	12	4	0	0	4
Aug. 18, 19	Wat Sri Don Chai	23	1	0	1	2
Aug. 20	Wat Papanng	8	0	0	0	0
Aug. 20, 21	Wat Chiang Yuon	16	1	0	0	1
Aug. 24	Wat Dork Nguen	3	0	0	0	0
Aug. 25, 26	Wat Pong Chang	15	1	0	0	1
Aug. 27	Wat Sri Ping Wong	2	0	0	0	0
Aug. 22, 23	Leprosy village	7	0	0	0	0
	CM-STC	17	0	0	2	2
Aug. 18~20	CM-PED	47	4	0	2	6
	CM-IMC	17	4	0	0	4
Aug. 17~21	BK-SIR-PED	30	0	0	1	1
Aug. 19, 20	BK-PHC	42	0	1	0	1
June~Aug.	BK-VRI	—	11	0	0	11
total		287	26	1	6	33

Ages of patients from whom throat swabs were collected were 5~15 years at Wat (schools) and the leprosy village, 17~24 at STC, 0~14 at PED, 13~68 at IMC, 0~26 at PHC, and 1~11 at SIR. Abbreviations for locations are; CM, Chjang Mai. STC, students clinic. PED, pediatrics. IMC, internal medicine. BKK, Bangkok. SIR, Siriraj Hospital. PHC, Prachathipathai Public Health Center. VIR, Virus Research Institute.

Mai District; and Siriraj Hospital and Prachathipathai Public Health Center in Bangkok in August 1981 as described in Table 1. They were inoculated into the amniotic cavity of hen's developing eggs and 22 strains of influenza viruses were isolated in laboratories of Nippon Medical School and the National Institute of Health, Tokyo. Methods were described elsewhere¹²⁾. Besides these, 11 strains of the virus were isolated in Bangkok during June to August 1981 and were presented from the Virus Research Institute, Bangkok. The virus strains were identified with the hemagglutination inhibition (HI) tests using postinfection ferret antisera raised against 5 reference strains of USSR subtype (H1N1), 6 of Hong Kong subtype (H3N2), and 5 of type B virus.

Among 33 strains, 26 were H1N1 (USSR subtype), 1 was H3N2 (Hong Kong subtype), and 6 were type B as shown in Table 1. Detailed sources of the virus strains are described in Table 2. These results suggest that H1N1 was prevalent in Thailand during the rainy season of 1981. H3N2 was prevalent in Thailand and in Manila during the period of May to August in 1980¹¹⁻¹²⁾. Cocirculation of the 2 subtypes of type A influenza viruses has been experienced in the human population since 1977¹⁴⁾, and the prevailing subtype varied from area to area and from year to year¹⁵⁻¹⁷⁾. In Japan, the prevalence of a particular subtype or type was not so exclusive as in Thailand and the U.S.A., and the difference between Japan and the other countries concerning the extent of the exclusive prevalence of a particular subtype or type could be partially explained by the

Table 2 Influenza virus strains isolated in Thailand, June~August 1981

name of strains	patients	
	age of years	locations
A/Chiang Mai/11/81	1	Pediatrics of Chiang Mai Hospital
A/Chiang Mai/12/81	5	Pediatrics of Chiang Mai Hospital
A/Chiang Mai/13/81	4	Pediatrics of Chiang Mai Hospital
A/Chiang Mai/14/81	1	Pediatrics of Chiang Mai Hospital
A/Chiang Mai/21/81	20	Internal Medicine of CM Hospital
A/Chiang Mai/22/81	30	Internal Medicine of CM Hospital
A/Chiang Mai/23/81	26	Internal Medicine of CM Hospital
A/Chiang Mai/24/81	20	Internal Medicine of CM Hospital
A/Chiang Mai/41/81	5	Wat Kou Khum
A/Chiang Mai/42/81	7	Wat Kou Khum
A/Chiang Mai/43/81	7	Wat Kou Khum
A/Chiang Mai/44/81	10	Wat Kou Khum
A/Chiang Mai/41-1/81	12	Wat Sri Don Chai
A/Chiang Mai/51/81	7	Wat Chiang Yuon
A/Chiang Mai/52/81	—	Wat Pong Chang
A/Bangkok/212/81	5	Prachathipathai Publ. Health Center
A/Bangkok/2/81-12/81	—	Presented from Dr. Chatiyononda
B/Chiang Mai/1/81	21	Students Clinic of CM Hospital
B/Chiang Mai/2/81	19	Students Clinic of CM Hospital
B/Chiang Mai/11/81	—	Pediatrics of Chiang Mai Hospital
B/Chiang Mai/12/81	4	Pediatrics of Chiang Mai Hospital
B/Chiang Mai/41/81	8	Wat Sri Don Chai
B/Bangkok/101/81	9	Pediatrics of Siriraj Hospital

All of the type A strains were H1N1 except A/Bangkok/212/81 which was H3N2. CM, Chiang Mai.

difference of the vaccination programs. Many (54% or more) Japanese school children have been offered immunization against influenza in an annual vaccination program for more than 20 years, because it has been postulated that school children are the spreaders and introducers of influenza viruses to families (This idea is controversial in the U.S.A.^{11,12}). On the other hand, influenza vaccine has not been accepted in Thailand, and it is recommended only for the high risk-group in the U.S.A. A/Bangkok/212/81 was only one strain of H3N2 virus among 27 of type A virus isolates. It was different from A/Tokyo/1/77 or A/Bangkok/1/79 in the behavior of the HI reactions, and details will be described in a further report. These epidemiological features of type A influenza virus may reflect the evolution of the virus.

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