

Isolation and Characterization of Influenza A Viruses from Korat

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BACKGROUND: In late February 1972, members of the School of Public Health noted an excess in febrile respiratory disease among Thai Nationals seen in their health clinic in Korat, Thailand. Although no increase in URI rates were reported in U.S. military personnel in Thailand in February–March 1972, attempts were made to determine whether the civilian outbreak was associated with influenza virus.

METHODS: Throat washing (TWS) in Hank's balanced salt solution with 0.4% bovine plasma albumin and acute serum were obtained from 11 patients with febrile URIs. TWS were frozen and transported to Bangkok on dry ice. Two week convalescent sera were obtained on 4 of the 11 patients originally sampled. Aliquots of TWS were inoculated into the amniotic and allantoic cavities of embryonated eggs; fluids were harvested 3 days after inoculation and tested for hemagglutination. Aliquots of TWS were also inoculated into the tube cultures of primary Rhesus monkey kidney cells (MKR) which were observed for cytopathic effect (CPE) every other day and tested for hemadsorption at 7 and 14 days. Isolates were characterized in hemagglutination–inhibition (HI) tests using hyperimmune antisera to reference Influenza strains. Acute and convalescent sera from patients were treated with receptor–destroying enzyme (RDE) prior to use in HI tests with 4 units of A₂/HK/68 antigen.

PROGRESS: Influenza A strains were isolated from TWS of 10 of the 11 patients sampled; 9 strains were isolated in embryonated eggs and 8 in MKR cell cultures. Strains isolated in MKR cultures showed CPE similar to that found with the 1968 Influenza A strains. Table 1 shows results of antigenic analysis of one of the isolates, A₂/Korat 305/72, against hyperimmune antisera to reference Influenza strains. The 1972 isolate is obviously closely related by HI test to the 1968 A influenza strains isolated in Hong Kong and Korat. All 4 patients tested had ≥ 4 fold rises in HI antibody to A₂/HK/1/68 between acute and convalescent sera.

We conclude that the Influenza A strains isolated from Korat in 1972 have similar HA antigens to 1968 strains. One isolate (A₂/Korat 305/22) was shipped through WRAIR to the WHO Influenza Reference Laboratory, National Center for Disease Control, for more detailed antigenic analysis including characterization of its neuraminidase antigen.

Table 1.
Antigenic analysis of Korat Influenza Isolate by HI Tests

Antiserum of Reference Strain	Homologous Titer	Titer to A ₂ /Korat 305/72
A ₂ /Japan 305/57	160	10
A ₂ /Puerto Rico/64	160	10
A ₂ /Korat 1/68	320	320
A ₂ /Hong Kong 1/68	320	320