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A Virological Study of Enterovirus Infections in Peninsular Malaysia

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Background: Hand, foot, and mouth disease (HFMD) is a common illness in infants and children. It can be caused by many different human enteroviruses. Of these human enteroviruses, human enterovirus 71 (EV71) infection is more frequently associated with serious neurological complications and fatalities. The emergence of this virus emphasized the need for surveillance study and identification of EV71 to provide early warning of potential EV71 encephalitis outbreaks and assist in directing public health interventions as well as inform clinical decisions. This surveillance study was aimed to examine the prevalence of enteroviruses and EV71 in suspected clinical specimens.

Methods: Samples preparation: Specimens with the clinical and epidemiological data were received from various hospitals in West Malaysia from January to December 2007. The samples were analyzed immediately upon arrival in our laboratory otherwise stored at -80°C . RNA extraction: The RNA from the specimens were extracted using High Pure Viral Nucleic Acid Kit. PCR analysis and primer sequences: One step RT-PCR was employed with primers EVPCR1 (5'-ACA-CGG-ACA-CCC-AAA-GTA-GTC-GGT-TCC-3') and EVPCR2 (5'-TCC-GGC-CCC-TGA-ATG-CGG-CTA-ATC-C-3') for enteroviruses and MAS01S (5'-ATA-ATA-GCA-YTR-GCG-GCA-GCC-CA-3') and MAS02A (5'-AGA-GGG-AGR-TCT-ATC-TCY-CC-3') for EV 71.

Results: A total number of 2,381 clinical specimens were analyzed for the presence of enteroviruses and EV71 by RT-PCR analysis. Out of all of the specimens analyzed, 531 (22.3%) were positive for enteroviruses and 21 (0.04%) of these were positive for EV71. These results showed that EV71 is less prevalent than other enteroviruses in the clinical specimens analyzed.

Conclusion: The outcomes of the present surveillance study suggested that the EV71 which is more frequently associated with serious neurological and complications and fatalities is less prevalent than other enteroviruses. The results obtained also confirmed the usefulness of the PCR as a simple and rapid method for the detection of enteroviruses and discrimination of EV71 from other enteroviruses in clinical specimens.

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Neurologic Manifestation of Influenza Virus Infection in Taiwan, 2002–2007

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Background: Neurological manifestation of influenza infection is often associated with serious sequelae or death. Severe influenza infection has been a notifiable disease in Taiwan since 2002. The incidence and clinical presentation of neurological involvement associated with influenza infection in Taiwan was reviewed.

Methods: During January 1, 2002 to December 31, 2007, medical records of all confirmed severe influenza infection cases were collected and reviewed. The demographics, clinical characteristics, laboratory results, and imaging studies of those with neurological manifestation were analyzed.

Results: A total of 123 cases of severe influenza infection cases were reported and confirmed. Of these, 25 (11%) cases presented with neurological manifestation. The mean age was 6.15 years (range 1.6–12.7 years). The average annual incidences were 0.1 per 100,000 person-years for children aged < 15 years. Thirteen patients presented with drowsiness and lethargy; 5 with abnormal behavior; 5 with seizure; 3 had perceptual abnormality including hallucination; and 2 presented with motor deficit. Overall, 10 cases were caused by influenza A and 13 by influenza B. No one had pleocytosis in cerebrospinal fluid (CSF) examination. Of the 9 persons who had brain image studies, three showed brain edema and one showed uncal herniation. Nine (36%) patients died. Among the 16 survivors, one was diagnosed with attention deficit hyperactivity disorder three years after influenza infection, another one have persistent left arm weakness, and was diagnosed with Asperger syndrome one year later.

Conclusion: Neurological manifestation was a rare complication of influenza infection in Taiwan, and occurred exclusively in children. The clinical presentation of influenza-associated neurological manifestation is diverse, from mild perceptual abnormality to lethal illness. Continued surveillance of neurological manifestation of influenza infection is essential.

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Surveillance of Influenza B Virus Strains Circulating in Malaysia (2002–2006)

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Background: The Virology Unit, Institute for Medical Research (IMR), Kuala Lumpur has been designated as the National Influenza Centre since 1968, carrying out influenza surveillance activities for the Ministry of Health Malaysia.