

Nipah Encephalitis Outbreak in Malaysia

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Abstract

Introduction: Between September 1998 and June 1999, there was a severe outbreak of viral encephalitis among the pig farm workers in Malaysia. **Methods:** This is a review of the published literature related to the outbreak with the focus on human diseases. **Results:** The encephalitis was caused by a newly discovered paramyxovirus related to Hendra virus, later named Nipah virus. There were 265 patients with acute encephalitis. The disease is thought to spread from pig to man through close contact. The risk of human-to-human spread is thought to be low. The disease affected mainly adult Chinese males, half of whom had affected family members. The disease presented mainly as acute encephalitis with a short incubation period of less than two weeks, with the main symptoms of fever, headache, and giddiness followed by coma. Distinctive clinical signs include segmental myoclonus, areflexia and hypotonia, hypertension, and tachycardia. Initial cerebrospinal fluid was abnormal in 75% of patients. Serology was helpful in confirming the diagnosis. Magnetic resonance imaging showed distinctive changes of multiple, discrete, and small high signal lesions, best seen with fluid-attenuated inversion recovery (FLAIR) sequences. Mortality was high at 40% and death was probably due to severe brainstem involvement. The main necropsy finding in acute encephalitis was that of disseminated microinfarction associated with vasculitis and direct neuronal involvement. Ribavirin was able to reduce the mortality by 36%. Relapse encephalitis was seen in 7.5% of those who recovered from acute encephalitis, and late-onset encephalitis in 3.4% of those with initial non-encephalitic or asymptomatic diseases. The mean interval between initial illness and the onset of the complication was 8.4 months. The relapse and late-onset encephalitis which manifested as focal encephalitis arose from recurrent infection. **Conclusion:** Nipah virus, a recently discovered paramyxovirus, causes a unique encephalitis with high mortality as well as relapse and late-onset encephalitis. The infection is mainly spread from pigs to man.

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