

Seroepidemiological Investigation of Hantavirus Hemorrhagic Fever Cases and Murine, Kaohsiung, 2016

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Abstract

Hantaviruses, the etiological agents of hemorrhagic fever with renal syndrome (HFRS) and hantavirus pulmonary syndrome (HPS), are transmitted worldwide primarily by rodent reservoirs. Four HFRS cases were confirmed in Kaohsiung City in 2016, of which, 2 cases lived at Linhua Li and 1 case at Guanghai Li of Lingya District and 1 case resided at Xingren Li of Fengshan District. To investigate the outbreak and assess the risk of disease, 35 small mammals collected from residence and nearby markets of cases were tested for hantavirus infection. The seropositive rate was 25.7% (9/35), and all seropositive rodents were *Rattus norvegicus*. In-house indirect hantavirus IgG ELISA demonstrated that 8 rats were infected with Seoul virus, while one rat was infected with Sin Nombre virus (SNV)-related hantavirus. In addition, 4 human cases were infected with Seoul virus. Serological surveillance of hantavirus in small mammals captured at national and international harbors indicated that hantavirus antibody-positive small mammals were found in several harbors in Taiwan including Kaohsiung Harbor. The results demonstrated that the positive rate was the highest (11.8%, n = 144) in *Rattus norvegicus*. In this study, we demonstrated that hantavirus infection is endemic in Taiwan. Results from a survey of major rodent-borne diseases in the five metropolitan areas of Taiwan in 2011 showed that all of the detected serum antibodies against Hantavirus were Seoul (SEOV). The number of positive rats in Kaohsiung Harbor in November and March was high, which coincided with the appearance of positive cases of HFRS over the years. Therefore, it is suggested that in addition to the regular implementation of harbor monitoring of rodents, the monitoring of rodents in metropolitan areas of Kaohsiung should be strengthened, to prevent possible outbreaks and expansion of epidemic.

Keywords: *Rattus norvegicus*, hantavirus hemorrhagic fever, serological monitoring

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