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An escalation of disease burden of hantavirus infection in a hospital setting among the leptospirosis suspected patients

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Background: Hantavirus infection is an emerging zoonotic disease which poses a major threat towards public health. Hantavirus cases can be misdiagnosed especially when occur during outbreaks of leptospirosis, as hantavirus infection mimics the clinical symptoms of leptospirosis. Hantaviruses are naturally maintained in rodent populations. Infection is transmitted to humans via inhalation of aerosols or dust particles contaminated with virus contained in infected rodent excreta.

Objective: To assess the burden of hantavirus infection in a cohort of acute leptospirosis-suspected patients admitted to Peradeniya Teaching hospital in 2017.

Methods: Blood samples were received from 284 febrile, leptospirosis-suspected patients in 2017. Following the completion of leptospirosis diagnosis, anti-hantavirus IgG were detected using an Indirect Immunofluorescent Antibody assay (IFA) based on Thailand orthohantavirus-infected Vero E6 cell antigens. Obtained serological results were descriptively analyzed and proportion comparison test was conducted using https://www.medcalc.org/calc/comparison_of_proportions.php, against published data generated from the same study in 2009.

Results: Out of the 284 leptospirosis suspected patients, 10 were diagnosed as acute leptospirosis with positive anti-leptospiral IgM. Out of the remaining 274 febrile patients, 77 (28.1%) were positive for anti-hantavirus IgG, indicating past infection of hantaviruses. Among the anti-hantavirus IgG-positive patients, three were positive for anti-leptospiral IgM. The difference of anti-hantavirus IgG-positive rates between 2009 (8 out of 105 suspected leptospirosis cases, 7.6%) and 2017 (77 out of 274 leptospirosis suspected cases, 28.1%) was statistically significant (difference: 20.7%, 95% CI: 12.4-27.5%, $p < 0.001$).

Conclusion: Nearly a decade later, serological evidences of past infection of hantavirus from the same study population suggests that the disease burden had escalated. Furthermore, the current study alarms the necessity of strengthening laboratory capacities to detect acute hantavirus infection in the study setting.

Acknowledgment: Experimental material and reagents were donated by Graduate School of infectious diseases, Hokkaido University, Japan.