

Molecular Detection of Viruses Causing Hemorrhagic Fevers in Rodents in the South-West of Korea

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Abstract : Background: Many pathogens causing hemorrhagic fevers of medical and veterinary importance have been identified and isolated from rodents in the Republic of Korea (ROK). Objective: We investigated the prevalence of emerging viruses causing hemorrhagic fevers, such as hemorrhagic fever with renal syndrome (HFRS), severe fever with thrombocytopenia syndrome (SFTS) and flaviviruses, from wild rodents. Methods: Striped field mice, *Apodemus agrarius*, (n=39) were captured during 2014-2015 in the south-west of ROK. Using molecular methods, lung samples were evaluated for SFTS virus, HFRS virus and flavivirus, and seropositivity was evaluated in the blood. Results: A high positive rate of Hantavirus (46.2%) was detected in *A. agrarius* lungs by reverse transcription-nested polymerase chain reaction (RT-N-PCR). The monthly prevalence of HFRS virus was 16.7% in October, 86.7% in November and 25% in August of the following year ($p < 0.001$). Moreover, 17.9% of blood samples were serologically positive for Hantavirus antibodies. The most prevalent strain in *A. agrarius* was Hantaan virus. All samples were positive for neither SFTS nor flavivirus. Conclusion: Hantaan virus was detected in 86.7% of *A. agrarius* in November (autumn), and thus, virus shedding from *A. agrarius* can increase the risk of humans contracting HFRS. These findings may help to predict and prevent disease outbreaks in ROK.

Keywords : hemorrhagic fever virus, molecular diagnostic technique, rodents, Korea

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