

Seoul Virus

Disease Vectors

Seoul virus is one of several hantaviruses that colonize Norway rats and causes Hemorrhagic Fever with Renal Syndrome (HFRS) in humans. Seoul virus is found worldwide; other viruses that cause this disease (Hantaan, Dobrava, Saaremaa, Puumala) are found in Asia and Europe. Wild and pet Norway rats (and black rats) may carry Seoul virus, which can be spread to other rats and humans through exposure to aerosolized urine, feces, or saliva of infected animals, as well as via dust from rat nests or bedding. Other infection routes are through a bite from an infected animal, or direct contact of urine, feces, or saliva into an open wound or human mucous membranes (eyes, nose, mouth).

Symptoms, Diagnosis & Treatment

Symptoms of Seoul virus/HFRS in humans usually develop 1 to 2 weeks after exposure (in rare cases, up to 8 weeks). Initial symptoms begin suddenly and include intense headaches, back and abdominal pain, fever, chills, nausea, and blurred vision. Facial flushing, inflammation or redness of the eyes, or a rash may occur. Severe cases may lead to acute kidney failure or bleeding disorders.

People with exposure to rats and symptoms of HFRS should seek health care. Commercial blood tests are available to detect antibodies to the virus. Local or state health departments may provide or facilitate testing for Seoul virus.

Treatment in humans involves management of fluid and electrolyte levels. Antiviral drugs may be effective in the early stages of the illness. No figures on deaths from Seoul virus are available, but the fatality rate for another virus with moderate symptoms (Puumala) is less than 1%.

Seoul virus is spread between rats through direct contact (e.g., during mating or fighting), or through exposure to soiled bedding and other contaminated materials. Infected rats do not become ill and can shed virus in their urine, feces, and saliva throughout their lives. Blood tests available through veterinarians are recommended to

confirm Seoul virus in rats. Molecular tests also can detect virus DNA in rats, but because infected animals may not shed virus continuously, this test is not recommended.

Because infected rats continue to shed the virus intermittently and there is no treatment available to eliminate infection, euthanasia is recommended to eliminate the risk of the virus spreading to humans and other rats.

Prevention

- Wash hands with soap and warm water after contact with the pet.
- Take steps to prevent contact between wild rats and pet rats; store your pet's food in a secure container.
- Avoid contact with rat saliva, urine, and feces (including when handling bedding or nesting material).
- Wear gloves if there is a possibility of contact with saliva, urine, or feces, particularly if a person has skin wounds or abrasions.
- Do not vacuum or sweep rat droppings, urine, or bedding, which can make the virus airborne.
- Follow CDC guidelines for cleaning areas contaminated by infected rats: <https://www.cdc.gov/rodents/cleaning/index.html>

References

Hemorrhagic Fever with Renal Syndrome (CDC): <https://www.cdc.gov/hantavirus/hfrs/index.html>

Seoul Virus Frequently Asked Questions (CDC): <https://www.cdc.gov/hantavirus/outbreaks/seoul-virus/faqs-seoul-virus.html>

Healthy Pets, Healthy People (CDC): <https://www.cdc.gov/healthypets/>