CONDITION

Hantavirus

Hantavirus is a rodent-borne viral infection that can seriously affect the lungs, kidneys, and circulation.

WHAT IT IS
An acute infection caused by rodent-borne viruses

BODY SYSTEM
Lungs, kidneys, blood vessels, and circulation

MAIN SYMPTOMS
Fever, muscle aches, breathing trouble, reduced urine

WHAT CAUSES IT
Infection with a hantavirus from infected rodents

HOW IT IS DIAGNOSED
Hantavirus antibody tests, sometimes PCR

MAIN TREATMENT
Hospital monitoring and supportive care

CAN IT BE CURED?
Sometimes - survivors usually clear the infection

IS IT AN EMERGENCY?
Sometimes - breathing trouble, fainting, or shock signs

LONG-TERM OUTLOOK
Many recover, but severe infection can be fatal

Overview

Hantavirus is a group of viruses carried mainly by rodents. People can become infected after breathing in virus particles from contaminated rodent urine, droppings, or saliva. Infection is uncommon, but it matters because symptoms can worsen quickly and affect breathing, blood pressure, or kidney function.

Different hantaviruses cause different patterns of illness.

In the Americas, including the United States, hantaviruses can cause hantavirus pulmonary syndrome , also called hantavirus cardiopulmonary syndrome . This begins with flu-like symptoms and may progress to fluid leaking into the lungs, low blood pressure, and heart strain.

Hantaviruses found mainly in Europe and Asia can cause haemorrhagic fever with renal syndrome . This condition affects small blood vessels and the kidneys. "Haemorrhagic" refers to bleeding, although obvious bleeding does not occur in everyone. "Renal" means related to the kidneys.

Hantavirus does not usually cause a long-term infection in people. Many survivors recover, but severe illness requires hospital care and can be fatal.

Symptoms

Symptoms do not usually begin immediately after exposure. They may appear days to several weeks later, depending on the type of hantavirus.

Early symptoms often resemble influenza or another viral infection. They may include:

With hantavirus pulmonary syndrome, cough, chest tightness, and shortness of breath may develop after the early symptoms. Breathing can become difficult as fluid collects in the lungs. Some people also develop a fast heartbeat, low blood pressure, confusion, or fainting.

Haemorrhagic fever with renal syndrome may cause back or abdominal pain, blurred vision, facial flushing, or red eyes. As the kidneys become affected, urine output may fall. Swelling, low blood pressure, easy bruising, or bleeding can occur in more severe cases.

These symptoms have many possible causes. Having fever or muscle aches does not mean that you have hantavirus. A recent history of rodent exposure, together with the pattern of symptoms, helps healthcare professionals decide whether testing is needed.

- Fever, chills, and marked tiredness
- Muscle aches, especially in the back, hips, thighs, or shoulders
- Headache or dizziness
- Nausea, vomiting, diarrhoea, or abdominal pain

Causes and risk factors

Hantavirus infection usually follows contact with an infected rodent or its waste. Rodents can carry and shed the virus without appearing ill.

The main route of infection is inhalation. Tiny contaminated particles can enter the air when dry droppings, urine, nests, or dust are disturbed. This may happen while sweeping, vacuuming, cleaning a closed building, or moving stored materials.

Infection may also occur if contaminated material reaches broken skin, the eyes, nose, or mouth. Rodent bites are a possible but less common route.

Situations that may increase exposure include:

The rodent species that carry hantaviruses differ by region. In North America, the deer mouse is an important carrier of Sin Nombre virus, a cause of hantavirus pulmonary syndrome.

Most hantaviruses do not spread between people. Andes virus, found in parts of South America, is an important exception because person-to-person spread has occurred after close contact. Hantavirus is not generally spread through ordinary social contact in regions where Andes virus is not present.

- Cleaning rodent-infested sheds, cabins, barns, garages, or storage areas
- Entering buildings that have been closed for a long time
- Working around rodents, animal feed, crops, or waste
- Camping or sleeping where rodents can reach food or bedding
- Living or working in a building with an active rodent infestation

Diagnosis

Diagnosis starts with your symptoms, travel history, and possible rodent exposure. Tell the healthcare team about cleaning, camping, work, or time spent in a rodent-infested building, even if the exposure happened several weeks earlier.

Blood tests can detect antibodies made by the immune system in response to hantavirus. An IgM antibody result can support a recent infection. A rise in IgG antibodies between blood samples can also help confirm it.

A laboratory may use polymerase chain reaction , or PCR, to look for the virus's genetic material. Test availability and the most useful test can differ by location and stage of illness. Testing is often coordinated with a specialist laboratory or public health service.

Other tests do not confirm hantavirus by themselves, but they show how the body is being affected. These may include:

Low platelets, concentrated blood, abnormal immune cells, or signs of fluid in the lungs may raise suspicion for pulmonary syndrome. Kidney impairment and changes in urine output are more prominent in renal syndrome.

Because early hantavirus symptoms overlap with many infections, confirmation may take time. If severe hantavirus is suspected, supportive treatment should not wait for every test result.

- A complete blood count to check platelets and other blood cells
- Kidney and liver blood tests
- Oxygen measurements and a chest X-ray
- Heart monitoring and blood pressure checks
- Urine tests

Treatment and management

There is no established medicine that directly cures hantavirus pulmonary syndrome. Treatment focuses on supporting breathing, circulation, and other organ functions while the immune system clears the infection.

People with suspected severe infection are usually monitored in hospital. Care may include oxygen, close blood pressure monitoring, and carefully managed intravenous fluids. Too much fluid can worsen leakage into the lungs, so fluid treatment requires close supervision.

If breathing becomes severely impaired, a ventilator may be needed. Medicines can support dangerously low blood pressure. In selected specialist centres, extracorporeal membrane oxygenation, or ECMO , may temporarily support the heart and lungs during critical illness.

Haemorrhagic fever with renal syndrome is also managed with careful fluid and blood pressure control. Dialysis may be required if the kidneys cannot adequately remove waste and excess fluid. Dialysis can be temporary while the kidneys recover.

The antiviral medicine ribavirin has been studied, particularly for renal forms of hantavirus infection. Its benefit is uncertain and is not established for hantavirus pulmonary syndrome. Decisions about antiviral treatment are made by infectious-disease and public health specialists based on the virus, location, and clinical situation.

Antibiotics like amoxicillin or doxycycline do not treat hantavirus because antibiotics act against bacteria, not viruses. They may still be given at first if a serious bacterial infection cannot yet be ruled out.

Complications

Hantavirus can make small blood vessels unusually leaky. Fluid then moves out of the bloodstream and into surrounding tissues.

In pulmonary syndrome, this can cause fluid buildup in the lungs and severe oxygen shortage.

The heart may struggle to pump enough blood, and blood pressure can fall to dangerous levels. This is called shock.

Renal forms can cause sudden kidney injury. Possible effects include reduced urine output, fluid buildup, abnormal levels of salts such as potassium, and difficulty clearing waste from the blood.

Other possible complications include:

Severe hantavirus infection can be fatal despite intensive care. However, people who survive the critical stage often improve as blood vessel leakage settles and organ function recovers.

- Abnormal bleeding or very low platelets
- Irregular heart rhythms
- Liver or nervous system involvement
- Failure of several organs during critical illness
- Lasting tiredness, weakness, or reduced exercise tolerance after discharge

Prevention

There is no widely available vaccine for hantavirus in many countries, including the United States. Prevention therefore focuses on avoiding contact with rodents and safely cleaning contaminated areas.

Seal gaps and holes that allow rodents into buildings. Store food, rubbish, and animal feed in secure containers. Use appropriate traps and remove nesting materials that may attract rodents.

Do not sweep or vacuum dry rodent droppings, urine, or nests. This can send contaminated dust into the air. Instead, ventilate an enclosed space before cleaning, keep other people away, and wet contaminated material thoroughly with a suitable disinfectant. Follow public health instructions for cleaning and disposal.

Wear gloves during cleanup and wash your hands afterward. A heavy infestation, contaminated ventilation system, or occupied rodent nest may require professional pest control or specialist cleanup. Public health agencies may recommend additional protective equipment for high-risk settings.

When camping, keep food sealed, avoid sleeping directly on bare ground, and choose areas without visible rodent activity. Do not handle wild rodents.

These measures lower risk but cannot guarantee that every exposure will be prevented.

Living with it and what to expect

Hantavirus is usually an acute infection rather than a condition that repeatedly flares over many years. The most serious changes generally occur during the first days of hospital illness.

Recovery after pulmonary syndrome may take weeks or months. Breathlessness and lung function often improve, but tiredness, muscle weakness, reduced stamina, or difficulty returning to usual activity may continue for some time. Rehabilitation or a gradual return to work may be helpful.

After haemorrhagic fever with renal syndrome, urine output can increase greatly during the recovery phase. Kidney function often improves over subsequent weeks or months. Some people may be left with reduced kidney function or higher blood pressure, so follow-up blood pressure, blood tests, and urine tests may be arranged.

Routine follow-up may also review breathing, heart symptoms, fatigue, sleep, mood, and the practical effects of a critical illness. Recovery is not identical for everyone, and the length of hospital stay alone does not predict how quickly energy will return.

Once the acute infection has cleared, ongoing isolation is not generally needed. Special public health advice may apply to Andes virus exposure because that virus can spread between people.

When to get medical help

Seek prompt medical advice if you develop fever, strong muscle aches, vomiting, abdominal pain, or unusual weakness after a possible rodent exposure. Explain when and where the exposure occurred. Early symptoms are not specific, but this information can affect testing and monitoring.

Get emergency help for:

Do not drive yourself if you are severely breathless, faint, or confused. These symptoms need urgent assessment whether or not hantavirus is the cause.

After discharge, attend routine follow-up appointments. Contact your healthcare team sooner if breathlessness, swelling, urine output, blood pressure, or ability to manage daily activities is getting worse rather than gradually improving.

- New or rapidly worsening shortness of breath
- Chest tightness, blue or grey lips, or severe breathing difficulty

- Fainting, confusion, extreme drowsiness, or signs of shock
- Very little urine, severe swelling, or sudden weakness
- Significant unexplained bleeding

Common questions

Can I catch hantavirus from another person?

Usually not. Most hantaviruses spread from rodents to people, not between people. Andes virus in South America is an exception and has spread through close person-to-person contact.

Can I get hantavirus from old mouse droppings?

Potentially. Risk is greatest when contaminated droppings, urine, or nesting material are disturbed and particles become airborne. Do not sweep or vacuum them while dry. Use the wet-cleaning method recommended by your local public health authority.

How soon do symptoms appear after rodent exposure?

Symptoms may begin days to several weeks after exposure. The timing differs among hantavirus types, so mention relevant rodent contact even if it did not happen recently.

Does every mouse carry hantavirus?

No. Only some rodents are infected, and the main carrier species differ by region. You cannot tell whether a rodent carries hantavirus by looking at it, so all wild-rodent waste should be handled cautiously.

Is hantavirus always fatal?

No. Many people survive, especially with timely recognition and supportive hospital care. However, pulmonary syndrome and severe renal syndrome can be life-threatening.

Can hantavirus come back after recovery?

Hantavirus does not usually remain as a chronic infection or cause repeated episodes. Some survivors have fatigue, breathing limitations, high blood pressure, or kidney problems that need follow-up.

Sources

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