LAWRENCE-DOUGLAS COUNTY
Health Department
www.ldchealth.org

Viral hemorraghic fevers

Your questions answered

What are viral hemorraghic fevers?

Viral hemorrhagic fevers (VHFs) are a group of illnesses caused by several distinct families of viruses. In general, the term "viral hemorrhagic fever" is used to describe a severe multi-system syndrome (multisystem in that multiple organ systems in the body are affected).
Characteristically, the overall vascular system is damaged and the body's ability to regulate itself is impaired. These symptoms are often accompanied by hemorrhage (bleeding); however, the bleeding is itself rarely life-threatening. While some types of hemorrhagic fever viruses can cause relatively mild illnesses, many of these viruses cause severe, life-threatening disease.

What carries viruses that cause viral hemorraghic fevers?

For the most part, rodents and insects are the main carriers for viruses causing VHFs. The multi-mammate rat, cotton rat, deer mouse, house mouse and other field rodents are examples of hosts. In the United States, particularly the southwestern states, hantavirus is the most common hemorraghic fever. Arthropod ticks and mosquitoes serve as vectors for some of the illnesses. However, the hosts of some viruses remain unknown – Ebola and Marburg viruses are well-known examples.

How are viral hemorraghic fevers transmitted?

Viruses causing hemorrhagic fever are initially transmitted to humans when the activities of infected hosts or vectors and humans overlap. The viruses carried in rodents are transmitted when humans have contact with urine, fecal matter, saliva or other body excretions from infected rodents. The viruses associated with arthropods are spread most often when the vector mosquito or tick bites a human or when a human crushes a tick. However, some of these vectors may spread virus to animals, livestock, for example. Humans then become infected when they care for or slaughter the animals. Some viruses that cause hemorrhagic fever can spread from one person to another, once an initial person has become infected. Ebola, Marburg, Lassa and Crimean-Congo hemorrhagic fever viruses are examples.
This type of secondary transmission of the virus can occur directly, through close contact with infected people or their body fluids. It can also occur indirectly, through contact with objects contaminated with infected body fluids. For example, contaminated syringes and needles have played an important role in spreading infection in outbreaks of Ebola hemorrhagic fever and Lassa fever.

What are the symptoms?

Specific signs and symptoms vary by the type of VHF, but initial signs and symptoms often include marked fever, fatigue, dizziness, muscle aches, loss

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of strength and exhaustion. Patients with severe cases of VHF often show signs of bleeding under the skin, in internal organs or from body orifices like the mouth, eyes or ears.
However, although they may bleed from many sites around the body, patients rarely die because of blood loss. Severely ill patient cases may also show shock, nervous system malfunction, coma, delirium and seizures. Some types of VHF are associated with renal (kidney) failure.

How are patients with viral hemorrhagic fever treated?

Patients receive supportive therapy, but generally speaking, there is no other treatment or established cure for VHFs. Ribavirin, an anti-viral drug, has been effective in treating some individuals with Lassa fever or Hemorrhagic Fever with Renal Syndrome (HFRS).
Treatment with convalescent-phase plasma has been used with success in some patients with Argentine hemorrhagic fever.

How can cases of viral hemorrhagic fever be prevented and controlled?

With the exception of yellow fever and Argentine hemorrhagic fever, for which vaccines have been developed, no vaccines exist that can protect against these diseases. Therefore, prevention efforts must concentrate on avoiding contact with host species.
If prevention methods fail and a case of VHF does occur, efforts should focus on preventing further transmission from person to person, if the virus can be transmitted in this way. Because many of the hosts that carry hemorrhagic fever viruses are rodents, disease prevention efforts include:

- Controlling rodent populations
- Discouraging rodents from entering or living in homes or workplaces
- Encouraging safe cleanup of rodent nests and droppings.

For hemorrhagic fever viruses spread by insects, prevention efforts often focus on community-wide insect control. In addition, people are encouraged to use insect repellent, proper clothing, bed nets, window screens and other insect barriers to avoid being bitten.
For those hemorrhagic fever viruses that can be transmitted from one person to another, avoiding close physical contact with infected people and their body fluids is the most important way of controlling the spread of disease. Barrier nursing or infection control techniques include isolating infected individuals and wearing protective clothing. Other infection control recommendations include proper use, disinfection and disposal of instruments and equipment used in treating or caring for patients with VHF, such as needles and thermometers.

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For more information on viral hemorraghic fevers, call the Lawrence-Douglas County Health Department at (785) 843-0721 or visit us on the web at: www.ldchealth.org