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Viral Hemorrhagic Fever Fact Sheet

1. **What are Viral Hemorrhagic Fevers**? - Viral hemorrhagic fevers (VHFs) refer to a group of illnesses that are caused by several distinct families of viruses. In general, the term "viral hemorrhagic fever" is used to describe a severe multisystem 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, by itself, rarely life-threatening. While some types of hemorrhagic fever viruses can cause relatively mild illnesses, most of these viruses cause severe, life-threatening disease.

2. **What features do VHF viruses share?** - VHF viruses belong to four classification Families: (1) Arenaviruses, (2) Bunyaviruses, (3) Filoviruses, and (4) Flaviviruses that share a number of common features:

   a. They are all RNA viruses, and all are covered, or enveloped, in a fatty (lipid) coating.

   b. Their survival is dependent on an animal or insect host, called the natural reservoir.

   c. The viruses are geographically restricted to the areas where their host species live.

   d. Humans are not the natural reservoir for any of these viruses and are infected when they accidentally come into contact with infected hosts. However, with some VHF viruses infected humans can secondarily transmit the virus to one another.

   e. Human cases or disease outbreaks caused by these viruses occur sporadically and irregularly. Therefore, the occurrence of disease outbreaks cannot be easily predicted.

   f. With a few exceptions, there is no cure or established drug treatment for VHFs. Generally, patients receive supportive therapy which consists of balancing the patient's fluids and electrolytes, maintaining their oxygen status and blood pressure, and treating them for any complicating infections.

3. **What are some of the diseases caused by VHF viruses?** - Some well-known VHF diseases are Crimean-Congo Hemorrhagic Fever, Ebola Hemorrhagic Fever, Marburg Hemorrhagic Fever, Lassa Fever, and Rift Valley Fever

4. **How are VHF viruses transmitted?**

   a. VHF viruses are initially transmitted to humans when the activities of infected reservoir hosts or vectors and humans overlap. The viruses carried in rodent reservoirs are transmitted when humans have contact with urine, fecal matter, saliva, or other body excretions from infected rodents. The viruses associated with arthropod vectors 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.

b. 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

5. **What carries viruses that cause viral hemorrhagic fevers?-** Viruses associated with most VHFs are zoonotic. This means that these viruses naturally reside in an animal reservoir host or arthropod vector. They are totally dependent on their hosts for replication and overall survival. For the most part, rodents and arthropods are the main reservoirs for viruses causing VHFs. The multimammate rat, cotton rat, deer mouse, house mouse, and other field rodents are examples of reservoir hosts. 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.

6. **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.

   a. Because many of the hosts that carry hemorrhagic fever viruses are rodents, disease prevention efforts include:

      (1) Controlling rodent populations,

      (2) Discouraging rodents from entering or living in homes or workplaces, and

      (3) Encouraging safe cleanup of rodent nests and droppings.

   b. For hemorrhagic fever viruses spread by arthropod vectors, prevention efforts often focus on community-wide insect and arthropod control. In addition, people are encouraged to use insect repellant, proper clothing, bed nets, window screens, and other insect barriers to avoid being bitten.

   c. 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.

7. **For more information:** http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/vhf.htm

This fact sheet provides general information. Please contact your physician for specific clinical information.