

## **Powassan Virus Fact Sheet**

### **1. What is Powassan disease?**

- a. Powassan disease is a serious and rare tick-borne illness caused by Powassan virus (POWV). Fewer than 60 cases have been identified.
- b. POWV is the only arthropod-borne virus (Arbovirus) occurring in North America that is transmitted by ticks. The virus is in the same family as other arboviruses transmitted by mosquitoes ((e.g. dengue, St. Louis encephalitis, yellow fever, Japanese B encephalitis, West Nile virus) and in the laboratory special tests may be necessary to determine which of these viruses is the cause of illness.
- c. POWV is named after Powassan, Ontario, where it was first identified in 1958 in a specimen taken from the brain of a 5-year-old child.
- d. Most POWV infections have occurred in the upper Midwest (Minnesota and Wisconsin) but cases have also been seen in northern New England and New York State.

### **2. How do people get infected with POW virus? - POW virus is passed to people by ticks:**

- a. POWV is carried and transmitted by *Ixodes cookei*, a tick that normally feeds on woodchucks, skunks, or other medium-sized mammals.
- b. Recently a second type of POWV was isolated from a deer tick, *Ixodes scapularis*, which is the tick associated with Lyme and other tick-transmitted diseases. The ability of this second virus to cause human disease has not been fully determined.
- c. POWV does not spread from person to person.

### **3. How soon do signs of Powassan disease appear after infection? - Signs are generally seen about 4 to 18 days after an infected tick bite.**

### **4. What type of illness is caused by POW virus?**

- a. POWV infects the brain and can cause encephalitis (inflammation of the brain) and meningitis (inflammation of the membranes that surround the brain and spinal cord).

- b. Early signs of disease usually include headache, fever, nausea, vomiting, stiff neck and sleepiness. Later signs include respiratory distress, tremors, confusion, weakness, loss of coordination, speech difficulties, memory loss, seizures, coma, paralysis and death.
  - c. About 10% of patients diagnosed with POW disease will die from their infection, and residual neurological problems may persist among those who survive.
  - d. As happens with most Arbovirus infections, it is probable that some people infected with POWV may experience a mild illness that is never diagnosed, or will have no symptoms at all when infected. It is unknown whether or how often these milder or asymptomatic cases occur.
5. **How long does it take for a tick to transmit POWV?** - Ticks feed on blood by inserting their mouth parts into the skin of a person or animal. They are slow feeders so it takes time before any infectious agent can be transmitted. While the time interval is not specifically known for POWV, it may be shorter than the time known to be needed to transmit the Lyme disease bacterium (24 to 48 hours).
6. **How is POWV infection diagnosed.** There are no symptoms of illness that are unique to this infection. Specimens must be collected and tested in the to look for the presence of the virus or the body's immune response to the infection. Because the virus is similar to other disease-producing arboviruses, sometimes specialized tests must be done to distinguish between these viruses.
7. **What is the treatment for Powassan disease?** - There is no effective treatment for Powassan. As a result, supportive care is generally recommended.
8. **Is there a vaccine I can get for Powassan disease?** - Currently there is no POW vaccine.
9. **How do I protect myself from getting Powassan disease?** - To prevent tick-borne illnesses, the best protection is to avoid contact with infected ticks. If you are doing any outdoor activities in areas that may have ticks, you should take the following steps:
- a. Wear light-colored clothing as this will allow you to better see and remove ticks that are crawling on your clothing.
  - b. Tuck your pant legs into your socks, so that ticks cannot crawl up your pant legs.
  - c. Apply repellants to discourage ticks from attaching. Repellents containing permethrin can be sprayed onto boots and clothing, and will last for several days. Repellents containing



DEET can be applied to the skin, but will last only a few hours before reapplication is necessary. Follow the manufacturer's instructions and use with caution on children.

- d. Conduct a body check upon returning from tick-infested areas by searching your entire body for ticks. Use a hand-held or full-length mirror to view all parts of your body.

#### **10. How do I properly remove a tick?**

- a. Using fine-tipped tweezers, grab the tick at its mouth, and with firm, slow steady pressure pull the tick off. Do not squish the tick because it may contain infected bodily fluids.
- b. Do not use petroleum jelly, hot matches, nail polish remover or any other substance to try to remove the tick. Using those items will increase the risk of an infection when the agitated tick regurgitates infected stomach contents into the wound.

#### **11. For more information about Powassan disease:**

<http://www.cdc.gov/ncidod/dvbid/arbor/arbdet.htm>

This fact sheet provides general information. Please contact your physician and/or veterinarian for specific clinical information related to you or your animal.