



POWASSAN VIRUS DISEASE

What is Powassan virus disease?

Powassan virus disease is a rare, but often serious disease caused by flavivirus spread by infected ticks. The disease is named after Powassan, Ontario where it was first discovered in 1958. Two types of Powassan virus have been found in North America and include lineage 1 and lineage 2 Powassan viruses.

Who gets Powassan virus disease?

In the United States, cases of Powassan virus disease are primarily reported from northeastern states and the Great Lakes region. People who engage in outdoor work or recreational activities in endemic areas with known tick habitat may be at increased risk of infection.

How is Powassan virus disease spread?

The bite of an infected tick spreads the Powassan virus to people. Not all ticks carry these viruses and not all people bitten by a tick will get sick. A tick needs to be attached to a person for a certain amount of time before it can cause disease. For Powassan virus, a tick can transmit the virus while being attached for as little as 15 minutes.

Powassan virus lineage 2 (deer tick virus) is spread by the blacklegged (deer) tick (*Ixodes scapularis*). This is the same tick species that is the vector of Lyme disease. Powassan virus lineage 1 is spread by two similar tick species: the squirrel tick (*Ixodes marxi*) and the groundhog tick (*Ixodes cookei*). As their names suggest, they usually feed on groundhogs and squirrels, not humans.

In rare cases, Powassan virus can be spread by infected blood transfusions.

What are the symptoms of Powassan virus disease?

Many people infected with Powassan virus do not have symptoms. Initial symptoms can include fever, headache, vomiting, and weakness. Powassan virus can cause severe disease, which includes infection of the brain (encephalitis) or the membranes around the brain (meningitis). Symptoms of severe disease include confusion, loss of coordination, difficulty speaking, and seizures. Approximately one out of 10 people with severe disease die and half of the survivors have long-term health problems like recurring headaches and memory problems.

When do symptoms appear?

Symptoms appear one week to one month after the bite of an infected tick.



How is Powassan virus disease diagnosed?

Health care providers diagnose Powassan virus disease based on signs and symptoms, history of living in or travelling to an area where the virus is known, history of possible exposure to the ticks that carry Powassan virus, and laboratory testing of blood or spinal fluid.

How is Powassan virus disease treated?

There is no treatment to prevent or cure Powassan virus infection. The Centers for Disease Control and Prevention (CDC) recommends rest, fluids, and over-the-counter pain medications to relieve symptoms. People with severe disease may need to be hospitalized.

How can Powassan virus disease be prevented?

The most important way to prevent your chances of becoming infected with Powassan virus is to prevent tick bites:

- Wear light-colored clothing when outdoors.
- Tuck pant legs into socks so ticks cannot crawl up the inside of the pants.
- Use Environmental Protection Agency (EPA) registered insect repellents containing DEET, picaridin, or oil of lemon eucalyptus (OLE).
- Treat clothing and gear with products containing 0.5% permethrin. Permethrin can be used to treat boots, clothing, and camping gear and it remains protective through several washings. Alternatively, you can buy permethrin-treated clothing and gear.
- When outdoors, stay on the center of trails. Ticks crawl on the tips of grasses and shrubs and crawl on people and animals when they brush against the vegetation.

Resources

Centers for Disease Control and Prevention, <https://www.cdc.gov/powassan/>