

West Nile virus – WNV

West Nile virus (WNV) is mainly transmitted to people through the bites of infected mosquitoes.

Most infected people do not show any symptoms or the symptoms are similar to those of the flu, such as fever, headache, muscle pain and fatigue. In some cases, the disease can be severe including damage to the central nervous system. Most clinically apparent infections occur between mid-July and late September. The occurrence of the disease depends on numerous factors, such as the presence and activity of vectors (mosquitoes) and the natural reservoirs of the virus (birds). In Slovenia, natural conditions enable the existence of vectors and, together with data from neighbouring countries, indicate the possibility of WNV occurring in our country as well.

Causes

West Nile virus was found in northwest Uganda in West Nile district in 1937. It was classified in the genus flavivirus, family Flaviviridae. WNV can be classified into five distinct lineages. Two lineages (L1 and L2) are circulating. L1 was named the Kunjin virus and was found in Africa, the Middle East, Europe, India, Australia, and the Americas. L2 was found in sub-Saharan Africa, Madagascar, and later also in Europe.

Incubation period

The time from infection to onset of illness is usually 3 to 14 days after infection.

Transmission

WNV is usually transmitted to humans through the bite of an infected mosquito (mosquitoes of the genus *Culex*). Vectors (mosquitoes) become infected by sucking the blood of infected birds, which are the natural reservoir of the disease. Contact with birds does not pose a risk of transmission of the virus. Other modes of transmission are rare and include transmission between humans via blood transfusions and blood components, and donated organs, which is possible but extremely rare. Transmission from mother to unborn child and transmission via breast milk are possible.

Susceptibility to infection

All individuals who have not yet been infected with WNV are susceptible to the disease. Individuals over 50 years of age and individuals with compromised immunity are at greater risk of developing a more severe form of the disease. Immunity after infection is likely to be long-lasting.

Symptoms and signs of the disease

After being bitten by an infected mosquito, most people do not become ill, as in approximately 80% of cases the infection progresses without any signs or symptoms. Only a small proportion of people experience a short-term feverish illness with symptoms such as malaise, headache, fever rash, muscle and joint pain (West Nile fever). Approximately 1 in 150 people develop a more severe form of the disease with central nervous system involvement and signs such as impaired consciousness, convulsions, neurological deficits, and movement disorders.

Infectiousness

The virus is present in the blood 1–3 days after exposure and remains there for 1–11 days. In humans and other mammals that can be infected with WNV (e.g., horses), the amount of WNV is too low to be an effective source of infection for mosquitoes and to sustain further transmission of the disease through this route.

Treatment

Mild forms of the disease do not require treatment and resolve spontaneously. Severe forms of the disease usually require hospitalization. There are no effective antiviral drugs; treatment is symptomatic, i.e., with drugs that alleviate the symptoms of the disease, and supportive, with drugs that support the affected organ systems.

Prevention

The most effective measure to reduce the risk of infection in areas where West Nile virus is circulating is to prevent mosquito bites. By following these measures, we can reduce the risk of infection:

- Wear light-coloured clothing that covers as much of the body as possible.
- Avoid staying outdoors when mosquito activity is at its peak (in the morning and late afternoon).
- Use mosquito repellents. Follow the manufacturer's instructions carefully for effective and safe use.
- Prevent mosquitoes from entering indoor spaces by using mosquito nets.
- Take care of the surrounding area and remove conditions conducive to mosquito breeding (standing water in vases, flower pots, clogged gutters, etc.).

It is safest not to touch dead birds. Birds found dead in gardens, yards, near dwellings, on balconies, or terraces should be removed in a safe manner. Put on a plastic or rubber glove and place the dead bird in a plastic bag, which you then throw away with the glove in the general waste. If we do not have suitable gloves that we can throw away after use, we put a plastic bag on our hand, pick up the bird, and throw it in the trash together with the plastic bag. We wash our hands thoroughly with soap and warm water.

There is no vaccine to prevent WNV infection in humans.