

Tick-borne encephalitis

Tick-borne encephalitis (TBE) is a viral disease of the central nervous system that is endemic in Slovenia. The disease is a threat mainly to people who are in natural hotspots during the tick season.

In Europe, in addition to Slovenia, Austria, Switzerland, Germany, Hungary, Poland, the Czech Republic, Slovakia, Russia, the Baltic States and some Scandinavian countries are natural hotspots of TBE, and new hotspots are emerging. The incidence of TBE varies widely across Europe and between countries, with Slovenia having one of the highest TBE incidence rates in Europe. Over the last decade, an average of 250 people per year have contracted TBE in Slovenia.

The cause

The causative agent is the tick-borne meningoencephalitis virus.

Transmission

The TBE virus is most commonly transmitted to humans by the bite of an infected tick. It is transmitted in the saliva of an infected tick within minutes of the tick bite. The TBE virus can also be transmitted by the intake of unpasteurised milk or dairy products made from the milk of infected livestock.

Symptoms and signs of the disease

The disease starts after incubation, which usually lasts 7–14 days after the tick bite. Around a third of patients do not notice the tick bite. The characteristic illness is biphasic; the first period of illness is characterised by a short, uncharacteristic febrile illness, usually lasting 2–4 days, with muscle aches, fatigue, headache. This is followed by a symptom-free period lasting a few days to three weeks. The second stage of the disease is manifested by signs of central nervous system involvement, such as high fever with severe headache, sometimes with nausea and vomiting, and even unconsciousness and death. Children and adolescents usually have a milder course than adults. However, several cases of severe disease in children have been described. Older patients (especially those over 60) are more likely to have a severe course of the disease, which can lead to paralysis and often has permanent consequences (memory impairment, balance problems, headache, speech impairment, hearing impairment, paresis). Mortality in TBE patients is 0.5% to 2%.

Treatment

Only supportive treatment is available, including non-steroidal anti-inflammatory drugs (NSAIDs), and intubation and ventilation are sometimes necessary for severe central nervous system damage. Rehabilitation through appropriate physiotherapy is important when paresis or paralysis occurs.

Vaccination

TBE is most effectively prevented by vaccination. Two inactivated TBE vaccines are registered in Europe, both of which are safe and highly effective. The vaccination schemes are similar for both vaccines: it is recommended to vaccinate with the first two doses during the winter months, with an interval of one month, to establish protection against the disease before tick activity. The third dose follows in 9–12 months. Due to the gradual decline in protection after the baseline vaccination, both vaccines require booster doses, the first after three years and the next every five years. In older people, booster doses are recommended every three years due to the lower immune response. When protection is needed as quickly as possible, “accelerated vaccination schemes” can be used.

In Slovenia, vaccination is recommended for all people aged 1 year and older who move or live in an area where tick-borne encephalitis is known to occur. Vaccination takes place at all NIJZ regional units and at chosen physicians' clinics.

Other measures to prevent TBE

In addition to vaccination, other protective measures are also important. Avoiding endemic areas if possible, but otherwise protection against tick bites is important. This also protects against other tick-borne pathogens. Protect yourself on walks and outings in nature by wearing appropriate clothing that covers as much skin as possible (long trousers, long sleeves, compressed at the wrists and ankles) and closed shoes. Keep clothing light-coloured to make it easier to spot and remove ticks. Apply a tick repellent with a scent to repel ticks to exposed skin and permethrin to clothing. After exposure or return from an endemic area, all skin, especially soft areas, including the scalp, should be thoroughly examined and any attached ticks removed as soon as possible. Grasp the tick with a pair of pointed tweezers as close to the skin as possible and pull it out in a steady motion. If parts of the tick remain in the skin, remove them as soon as possible. Do not use oil, creams, kerosene or other ointments to remove ticks from the skin. It is also important to prevent alimentary infection by consuming milk and dairy products that have been properly treated with heat.

More information on TBE vaccination can be [found here](#).