TICK-BORNE ENCEPHALITIS

WHAT IS TICK-BORNE ENCEPHALITIS?

Tick-borne encephalitis (TBE) is a viral infection affecting the central nervous system – it is caused by three different virus sub-types: European, Far eastern and Siberian and is endemic in many regions of Eurasia.

The cycle of transmission revolves around the virus reservoirs (small rodents, wild and domestic animals) and the vector (some species of ticks). Humans are accidental, dead-end hosts and cannot transmit the virus to others (one possible exception being via the placenta from mother to baby). The risk of acquiring the infection is greatest from April to November, when ticks are most active.

Ticks are commonly found low in the undergrowth and can attach themselves to people passing by. Human infections follow the bites of ticks infected with the virus, usually in people who visit or work in ideal habitats, such as forests or fields. The incubation period for this mode of transmission ranges from 7 – 28 days, however infection can also be acquired by consuming unpasteurised dairy products from infected cows, goats or sheep – four days is the average incubation period in these cases.

Up to two-thirds of infections produce no symptoms and the person does not feel unwell, but 20-30 percent of people will have a mild illness which presents as flu-like (fever, headache, myalgia, nausea and fatigue) lasting for a week or so. Around one third of these symptomatic cases will go on to develop serious conditions such as encephalitis, meningitis, paralysis, coma or, rarely, death – people aged over 60 have a higher risk of neurological abnormalities and death. For those with severe disease who recover, long term effects of the illness such as cognitive deficits, limb weakness or difficulty in walking or coordination may occur.

The most severe disease associated with the three TBE virus sub-types arises from the far eastern subtype. Clinical illness results in high rates of neurological abnormalities or even death in more than one-third of those affected.

WHERE IS IT FOUND?

The TBE sub-types' names give an indication of where they are found, but there may be some overlap: European (endemic in mainland Europe); Far eastern (eastern Russia and in forested regions of China and Japan); and Siberian (the rest of Russia, Siberia, Urals region and in some areas of north-eastern Europe). Risk areas have expanded over the past 3 decades and TBE now represents a significant public health concern for many regions in Europe and beyond.

RISK TO TRAVELLERS

Travelvax advises that the risk to travellers who do not visit marshes, grasslands or forested areas in endemic areas (up to around 1500m), or consume unpasteurised dairy products is low. However, for travellers anticipating extensive unprotected outdoor, evening and/or night-time exposure in rural areas (such as hiking, bicycling & camping) the risk may be significant, even during a brief trip. People engaging in certain occupational activities or foraging for berries and mushrooms also have a higher potential for contact with infected ticks, as do those who will be living in TBE-endemic areas. Consumption of unpasteurised dairy products should also be avoided.

When visiting TBE endemic areas, it is essential to avoid tick bites through the use of an effective insect repellent and to ensure all skin is covered – long sleeves, trousers tucked into boots. It's also advisable to treat clothing treated with permethrin, a contact insecticide. Frequently check all over the body and hair for ticks (also their tiny larvae and nymph forms) and remove any ticks promptly by grasping the tick's head close to the skin using tweezers (pointed if possible) and pull steadily – don't twist or jerk.

HOW IS TICK-BORNE ENCEPHALITIS TREATED?

There is no specific antiviral medication available for TBE infections and supportive therapy remains the mainstay of treatment.

WHAT IS TICK-BORNE ENCEPHALITIS VACCINATION?

Vaccination is another important preventive measure against TBE and, while the vaccine is not a licensed product in Australia, it can be accessed by a medical practitioner through the Special Access Scheme (SAS Catergory C) of the Department of Health's Therapeutic Goods Administration (TGA).

Precautions for vaccination exist for the following and should be discussed with the prescribing doctor: known or suspected auto-immune disease, pre-existing cerebral disorders, pregnancy or lactation.

Type: Injection

- Inactivated viral vaccine

SCHEDULE

Three doses given on day 0, then after 1 - 3 months, and lastly 5 - 12 months after the second dose.

Due to the timing of these doses, it is recommended to start the vaccine course several months before arrival in a TBE-endemic area to ensure adequate protection.

Boosters:

First booster after 3 years, then at 5-year intervals if at risk - every 3 years for people over 60 years.

SCHEDULE (ACCELERATED)

Second dose can be given 2 weeks after the 1st dose.

LEVEL OF PROTECTION

- over 90% after the second vaccination and above 97% after the 3-dose primary series

POSSIBLE SIDE EFFECTS

Mostly mild and transient.

- Swelling, redness and pain at the injection site
- Headache, fatigue, malaise, nausea, muscle pain

References:

ECDC: Factsheet about tick-borne encephalitis (TBE) https://www.ecdc.europa.eu/en/tick-borne-encephalitis/facts/factsheet

NaTHNaC: Tick-borne encephalitis factsheet https://travelhealthpro.org.uk/factsheet/22/tick-borne-encephalitis

Epidemiological and Ecological Studies of Tick-borne Encephalitis Virus:
https://www.diva-portal.org/smash/get/diva2:712234/FULLTEXT01.pdf

FAQS

More information on Tick-borne Encephalitis is available during your pre-travel consultation with Travelvax. Call 1300 360 164 for the location of the clinic nearest to you.