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Tick-borne meningoencephalitis (Tick-borne encephalitis, TBE)

Causes and symptoms

What are the causes of Tick-borne meningoencephalitis?

Tick-borne meningoencephalitis (TBE) is an infectious disease caused by a virus. The causative agent is tick-borne and needs a minimal temperature of 8°C to proliferate. This is why TBE occurs between April and October with a peak in June and July. Roughly ten percent of these tick bites lead to illness. TBE is wide-spread in Europe. Regions of high risk in Germany are Bavaria and Baden-Württemberg but also the south of Thuringia, the south of Hessen, and Rhineland-Palatinate. Within Europe, Austria, Alsace, the Czech Republic, Slovakia, Poland, western Russia, and Finland are considered regions of high risk.

How does TBE manifest itself?

The majority of infected people do not experience any symptoms at all. About one third comes down with flu-like symptoms following an incubation time of four to 28 days (ten days on average). Fever, headache, joint pains, muscle soreness and sometimes stomach pains last about three to eight days. These are common complaints do not necessarily allude to TBE. After a short recovery the fever rises again.

Depending on the area afflicted more than half of all TBE cases amount to an isolated inflammation of the protective membranes covering the brain and spinal chord (meningitis). Symptoms are headache, dizziness, fever and nausea. Neck stiffness is considered a key symptom of meningitis. If the infection spreads to the brain itself (meningoencephalitis), impairments of coordination and consciousness result along with palsy of limbs and facial nerves. Meningitis and meningoencephalitis often go hand in hand. Both diseases heal after one to three weeks without after effects. In a few cases an infection of the spinal marrow (meningoencephalomyelitis) may lead to palsy of arm, leg, and shoulder muscles, which can last for several months.

Diagnosis and treatment

How is Tick-borne encephalitis diagnosed?

A tick bite within an area of high risk asserted in the exploration of case history (anamnesis) alludes to Tick-borne encephalitis (TBE). Another indication of an infection with TBE is the double fever peak. The diagnosis is confirmed by inflammatory changes of blood and cerebro-spinal fluid (liquor) and the detection of IgM and IgA antibodies in the blood. In Germany, the health authorities have to be notified of any diagnosis of Tick-borne encephalitis.

How is TBE treated?

As yet, there is no specific therapy against Tick-borne encephalitis. Thus, therapy concentrates on alleviating the symptoms. Analgesic medication like Paracetamol and Metamizole is effective against the headache and can reduce fever. In case of stronger headaches analgesic and fever reducing drugs like Ibuprofen or Diclofenac may help. During therapy strict bed rest is recommended. Hospitalization is advisable in severe cases.

Prognosis and prevention

How is the prognosis of Tick-borne encephalitis?

Tick-borne encephalitis (TBE) usually heals completely. Only one third of the patients require rehabilitation measures. Children have a particularly good prognosis. Physiotherapy, occupational therapy or logopedic therapy may be helpful following a meningoencephalomyelitis due to possible neurological disorders.

How to prevent TBE?

Avoiding tick bites is the best prevention of TBE. As ticks live in forests with scrubs and meadows, long clothing should be worn in regions of high risk. For imperilled persons like foresters, for example, or prior to spending time in areas of high TBE risk an immunization may be advisable. This requires three vaccinations that are refreshed after three to five years, respectively.

More information about Tick-borne meningoencephalitis

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