Tick borne encephalitis

Tick-borne meningoencephalitis or tick-borne encephalitis (TBE) is a tick-borne viral infection of the central nervous system affecting humans as well as most other mammals. It is caused by the tick-borne encephalitis virus (*Flaviviridae*).

It is transmitted by the bite of infected deer- or sheep ticks or (rarely) through the non-pasteurized milk of infected cows. Ticks involved in transmission include Ixodes persulcatus and Ixodes ricinus. TBE cases occur dur-ing the peak of tick activity (between April and November), when humans are infected in rural areas by tick bites. Person-to-person transmission has not been reported. Vertical transmission from an infected mother to fetus has occurred.

In disease-endemic areas, persons with recreational or occupational exposure to rural or outdoor settings (e.g. hunters, campers, forest workers, farmers) are potentially at risk for infection by contact with the infected ticks.

The incubation period of TBE is usually between 7 and 14 days and is asymptomatic. A characteristic biphasic febrile period follows, with an initial phase that lasts 2 to 4 days and corresponds to the viremic phase. It is non-specific with symptoms that may include fever, malaise, anorexia, muscle aches, headache, nausea, and/or vomiting. After about 8 days of remission, the second phase of the disease occurs in 20 to 30% of patients and in-volves the central nervous system with symptoms of meningitis (e.g. fever, headache, and a stiff neck) or encephalitis (e.g. drowsiness, confusion, sensory disturbances, and/or motor abnormalities such as paralysis) or meningoencephalitis.

During the first phase of the disease, the most common laboratory abnormalities are a low white blood cell count (leukopenia) and a low platelet count (thrombocytopenia). Liver enzymes in the serum may also be mildly elevated. After the onset of neurological disease during the second phase, an increase in the number of white blood cells in the blood and the cerebrospi-nal fluid is usually found. The virus can be isolated from the blood during the first phase of the disease. Specific diagnosis usually depends on detection of specific IgM in either blood or CSF, usually appearing later, during the sec-ond phase of the disease.

In general, mortality is 1% to 2%, with death occurring 5 to 7 days after the onset of neurological signs.

The following tests are available:

- **Tick-borne encephalitis IgM antibodies**

  Indication: Suspicion of an acute infection
  Material: 1 ml serum
  TAT: 7-10 days*
  Method: EIA
  Units: Index
  Ref.- range: see report

- **Tick-borne encephalitis IgG antibodies**

  Indication: Immunity, previous infection
  Material: 1 ml serum
  TAT: 7-10 days*
  Method: EIA
  Units: U/mL
  Ref.- range: see report

- **Tick-borne encephalitis RNA in CSF**

  Indication: Suspicion of an acute infection, cerebral infection
  Material: 0.3 ml CSF
  TAT: 7-10 days*
  Method: PCR
  Ref.- range: see report

- **Tick-borne encephalitis RNA in tick**

  Material: tick
  TAT: 7- 10 days*
  Method: PCR
  Ref.- range: see report

For complete list of laboratory test offered at Freiburg Medical Laboratory, please visit http://www.fml-dubai.com/parameter-listings/