

TICK-BORNE ENCEPHALITIS (TBE, FSME)
THE ACUTE COURSE OF THE DISEASE AND SOME REMARKS ON THE EPIDEMIOLOGICAL
SITUATION IN THE NORDIC COUNTRIES

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In Sweden and Finland TBE has been known to be endemic since the 1950's. In Sweden, as in many other European countries, we have seen an increase over the years in reported TBE-cases. During the 1980's we had approximately 40 cases per year but during the 1990's we noticed an increase and during recent years we have had 105-185 TBE-cases annually. The established endemic areas have been the archipelago of Stockholm and around Lake Mälaren west of Stockholm and to some extent along the Baltic coastline south of Stockholm including the big islands of Öland and Gotland. But during the last 10 or so years we have found new endemic foci in several locations in the southern and middle part of Sweden, especially close to the sea and around the big lakes Vättern and Vänern. We do not know for sure if there has been a new introduction of the TBE-virus to new areas during these years or if this increase is associated with a higher awareness among the general population and in the medical community.

In Finland the endemic area covers the archipelago of Åland and Åbo and a few other scattered areas. Approximately 10-40 cases are reported annually. The island of Bornholm is the only place in Denmark where TBE has been found with 1-8 cases every year. In Norway TBE was found in 1998 in the southern coastal area with 0-3 annual cases reported.

The acute phase of TBE is extensively described in several retrospective and prospective studies performed in Europe. Men are, of some reason (behavioural and exposure differences?), more often affected than women. In some countries TBE is a disease associated with leisure activities but there are also reports of correlation with occupational exposure. In Sweden 70 % of the patients are living permanently in endemic areas or they have private or rented summerhouses in the risk areas. The median age in most reports is 40-50 years of age. The incidence among younger children is often reported as low.

When the tick is attached to a human the virus will be transmitted via the saliva of the tick and the transmission is believed to be fast and not correlated to the duration of the tick-bite. The virus will replicate locally and in regional lymphnodes and will after an incubation period of 8 (4-28) days spread hematogenically to different organs (the viremic first phase of the disease). This phase appears with fever, muscle pain, fatigue and headache during 4 (1-8) days, an uncharacteristic clinical picture indistinguishable from other viral diseases. In a proportion of the infected individuals the virus will cross the blood-brain barrier and the patient will present with signs of central nervous system (CNS) involvement. This second phase is often preceded by a latency phase of 8 (1-33) days. This biphasic course is common and often seen in two thirds of the patients. The CNS-infection is manifested as meningitis, meningo-encephalitis or meningo-encephalo-myelitis. The purely meningitic form of the disease is associated with fever, headache and meningeal signs (stiff neck, vomiting, light- and sound irritability). The encephalitic cases present with signs of involvement of the brain as ataxia, cognitive dysfunctions, dysphasia, altered consciousness, confusion, irritability, tremor and more rarely seizures and cranial nerve paralysis. Spinal nerve paralysis (the myelitic cases) is seen in 11-15% of the total cases. Most typically the shoulder girdle is involved but hemi- and tetraparesis are also seen. The duration of hospitalisation is a little different between countries based on different policies and traditions. In Sweden the median time in hospital was 7 days with a wide range from 0-262 days in our prospective follow-up study. 50 % of the patients were still sick-listed after 40 days. See Dr Baumhacks presentation for more details on the long-term consequences of TBE.

The case fatality rate in adults is approximately 0,5 % if data from different studies in Europe is pooled.

Concerning children it is considered that TBE is a more benign illness but also younger children can present with encephalitis even if the proportion compared with adults is lower. There are few follow-up studies of children with TBE and the available data is to some extent contradictory. But most reports state that the long-time prognosis is much more favourable for children with few long-lasting sequelae reported. But there is a need of consecutive and well conducted follow-up studies of affected children in Europe.