



ACUTE CLINICAL MANIFESTATIONS OF TBE

Background

Notifications of TBE are based on laboratory analyses. According to the definitions of the EU, cases are restricted to involvement of the central nervous system (CNS). In contrast, this is not a prerequisite in Germany, and the Robert Koch-Institut (Berlin) also includes clinical cases without CNS involvement, which amount to approximately 50% of all cases reported in German routine surveillance data. It remains unclear if these patients experience only mild, febrile forms of TBE without CNS involvement, or if CNS involvement is underreported. An intensified surveillance on TBE cases has been carried out by questionnaires from 2018 to 2020 in Bavaria and Baden-Wuerttemberg (southern Germany) to assess clinical manifestations and healthcare utilization as well as to identify factors associated with TBE severity.

Results

Of 1220 eligible cases, 581 (48%) participated (66 were children). The mean age of the study participants was 48.6 years (range 2–89 years), and 63.3% were male. Of the 97.1% of cases residing in TBE risk areas, 40.5% were unaware of this before contracting TBE. 17 patients were fully vaccinated (2.9%). Comorbidities were present in 247 cases (42.5%).

Mild TBE occurred in 19.8% of cases (n=115), moderate TBE in 59.9% (n=348) and severe TBE in 20.3% (n=118). 31 children experienced moderate (47.0%) and 6 severe TBE (9.1%); four required intensive care. In 398 of 581 cases, the clinical diagnosis categories were available, of which 361 (90.7%) were hospitalized and CNS involvement were reported in 56.3% according to routine data but was documented in 83.9% of all cases according to data in this study.

A biphasic course was reported by 58% overall with a 7-day interval between phases (median; range=1–33). The first phase was characterized by fatigue (89.5%), fever (76.5%), headache (71.1%), myalgia (67.3%) and gastrointestinal symptoms (48.6%). Fever was more common in children (90.2%), and myalgia in adults (71.6%). In the second phase, 51% of cases reported persisting symptoms.

Healthcare utilization was high with 90% hospitalization and markedly increased with age. Almost all employed cases (91%) required sick leave.

Half of the cases (50.5%) reported a diagnosis other than TBE initially. This occurred 10% more frequently in low-incidence than in high-incidence districts (57.5% vs. 47.6%), and children tended to be misdiagnosed more often than adults (62.9% vs. 49.0%). Most initial diagnoses were influenza (35.0%) and Lyme borreliosis (11.3%). Antibiotic prescriptions (63.4%) as well as antiviral treatment, acyclovir (53.5%), were common. Severe acute TBE was associated with age, hypertension, and monophasic disease.

Discussion

The study contributes novel insights into clinical manifestations, factors associated with TBE severity, and healthcare utilization in Germany. Routine surveillance data poorly captured TBE severity and underreported the proportion of cases with CNS involvement, only a small proportion (less than 20%) experienced mild, non-CNS febrile form of TBE.

Children experienced considerable morbidity: 56% had moderate or severe TBE, and 78% were hospitalized. Given the low vaccination rates at school entry of about 35% in risk areas, there is potential for prevention by vaccination.



The observed high rate of initial misdiagnosis suggests that diagnosing TBE is challenging, and that awareness of current guidelines should be increased. Consequently, awareness of TBE severity and prevention in endemic areas should be improved by increased TBE vaccination.

Literature

Nygren et al.

Tick-borne encephalitis: Acute clinical manifestations. severity in 581 cases from Germany, 2018-2022

J Infect. 2023;86(4):369-375. doi.org/10.1016/j.jinf.2023.02.018

Author: Dr. Michael Bröker

Compiled: April 2023
