



LONG-TERM IMPAIRMENTS AFTER TBE: DATA FROM LITHUANIA

Background

Tick-borne encephalitis (TBE) is one of the most significant tick-borne diseases in Europe, with Lithuania having one of the highest incidence rates among the general population. The clinical presentation of the disease following infection with the TBE virus varies widely and can include asymptomatic cases, meningitis, meningoencephalitis, meningoencephalomyelitis, and myeloradiculitis. It has been observed that neurological and neuropsychological sequelae can persist in over 40% of TBE patients. To date, the full range of neurocognitive impairments resulting from TBE remains unexplored. Therefore, a prospective study was conducted to assess the long-term neurological and neurocognitive outcomes of TBE in adults in Lithuania.

Results

The prospective study, conducted in 2018/19, included 222 patients (aged 18 or older) suspected of having neuroinfections. Of these, 106 were confirmed as TBE cases, and 98 were ultimately included in the study. In 72.5% of patients, TBE presented with a biphasic course, in 25.5% with a monophasic course, and 2% could not be classified. Of the patients, 53% had a mild form of TBE, 38.8% had a moderate form, and 8.2% experienced a severe form.

Seventy-seven patients (78.6%) returned for the first follow-up visit, with a median time of 154 days since discharge, while 61 patients (62.2%) returned for the second follow-up, with a median time of 541 days after discharge.

At the first follow-up, 36.4% of the patients exhibited objective neurological signs, most commonly tremor and ataxia, and all patients reported subjective symptoms. By the second follow-up, 67.2% still reported subjective symptoms, primarily memory impairment, sleep disturbances, and headaches. Additionally, 39.3% continued to exhibit objective neurological signs, most commonly tremor and spinal nerve damage.

During the first follow-up, TBE patients scored significantly lower than healthy controls in three cognitive domains: processing speed, verbal

learning, and visual learning. The youngest age group performed the worst overall, with the oldest group performing the worst in verbal learning. Illness severity tended to affect both processing speed and working memory.

However, neurocognitive functioning significantly improved between the first and second follow-ups. By the second follow-up, TBE patients no longer showed differences in any cognitive domain compared to healthy controls, and disease severity no longer impacted cognitive functioning.

Discussion

This study demonstrated that several cognitive domains remained impaired for an extended period following TBE, negatively affecting patients' quality of life. Even after 1.5 years, 7 out of 12 patients who experienced limb paresis during the acute phase continued to suffer from significant functional loss in the affected limbs. In many patients, tremor and ataxia persisted, and a considerable number of individuals reported headaches, concentration problems, memory issues, and emotional disturbances. Even mild forms of TBE may lead to potential metabolic changes in the central nervous system (CNS), resulting in long-term damage and persistent cognitive or memory problems.

Literature

Griška et al.
Long-term neurological and neurocognitive impairments after tick-borne encephalitis in Lithuania – a prospective study

Author: Dr. Michael Bröker

Compiled: October 2024