



TBE IN CHILDREN

Background

An infection with TBE virus is often asymptomatic, but it can result in various clinical courses and forms ranging from mild disease (“summer flu”) to inflammation of the central nervous system, such as meningitis, meningoencephalitis and meningoencephalomyelitis.

TBE virus infections in children generally cause milder courses of disease compared to adults. However, new data generated during the last few years showed that children may not completely recover after TBE and may suffer from long-term sequelae. An article published by a French team has summarized new findings about clinical manifestations of TBE in children.

Results

Since 2012, TBE has become a notifiable disease in the EU. About 2000 to 3000 cases of TBE are reported annually. The highest incidence rates of TBE are in the Baltic countries, in the Czech Republic and Slovenia. In high endemic countries, the rates in children under the age of fourteen years is in the range from 7% to 16% with a mean age of disease at about nine years. TBE in infants is extremely rare. The main route of infection are tick bites (mostly from March to November), while alimentary infections by non-pasteurized milk and milk products account for about 1% of reported cases in children.

Many childhood infections are asymptomatic, nonspecific or subclinical. The incubation time (median 14 days) in children do not differ from adults and has a biphasic course (58%–100%) beginning with flu-like symptoms and fever around 38.5°C in 40%–100% of patients and are frequently associated with headache. The initial nonspecific phase usually lasts about one week. The second stage develops in 5% to 30% of children with reappearance of fever (lasting for about 14 days), asthenia, and headache.

Meningitis is the predominant form among children (60%–80%), followed by meningoencephalitis (13%–41%) and meningoencephalomyelitis (0%–4%). The most frequent encephalic signs are tremors, ataxia, paresis, behavioral changes, paretic involvement, abnormal hyperkinetic movements, vertigo, aphasia and speech impairment, and inversion of sleep and wakefulness. Length of hospital stay among children ranges from 2 to 46 days, and the proportion of children admitted to an intensive care unit was 0% to 22%.

Although in most children the course of TBE is classically considered mild and patient recovery is often complete at discharge, long-term sequelae are reported. In observational studies, a substantial proportion of subjective complaints were reported by the children, their parents and their teachers.

The children experienced residual cognitive problems, attention problems, fatigue, irritability, behavioral changes, hyperactivity and/or poor endurance, all affecting daily life and school performance. The observational studies demonstrated a significant morbidity and sequelae associated with pediatric TBE and highlighted the need for long-term follow-up, at least six months after patient discharge.

Discussion

Few retrospective studies have pointed out that TBE diagnosis is probably largely missed during childhood, especially among preschool children. This may be attributed to a high rate of subclinical infections in children. As severity of the initial illness does not seem to be predictive of later outcomes, it appears reasonable to consider offering a TBE diagnosis to all children with meningitis, encephalitis or myelitis in TBE endemic areas.



Even if TBE virus infection leads to a mild clinical presentation with favorable outcome, severe forms can occur in children, whatever their age. All in all, data strongly suggest that TBE virus infections should be considered in children with unspecific and unexplained CNS-related symptoms. It is important to protect children's brains from cognitive impairment.

Safe and effective vaccines are available but rarely prescribed to children. Unfortunately, vaccination rates remain low, especially in children, and thus vaccination strategies may be reconsidered in many European countries.

Literature

Parfut et al.

Tick-borne encephalitis in pediatrics: An often overlooked diagnosis.

Infect Dis Now. 2023;53(2):104645. doi: 10.1016/j.idnow.2023.01.005

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