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TBE VIRUS INFECTION WITHOUT CENTRAL NERVOUS SYSTEM INVOLVEMENT

Background

Most TBE virus infections remain asymptomatic; but when the infection is symptomatic, the disease can manifest with fever and can often involve the central nervous system (CNS) which leads to tick-borne encephalitis. When an individual is infected by a European subtype of TBE virus, the illness mostly results in a biphasic course. After an initial phase which usually lasts not longer than a week and which corresponds to viremia, typical symptoms are fever, fatigue, malaise and headache, the illness improves for a few days, and then the second phase starts with CNS involvement.

However, TBE virus infection can also result in an isolated initial phase of TBE, the abortive form of TBE, also called summer flu, and without involvement of the CNS. A TBE virus infection without CNS involvement is believed to be favorable. A Slovenian team of experts has analyzed in detail the clinical and laboratory characteristics of febrile illness in patients in whom TBE virus infection was established by the presence of viral RNA in the blood.

Results and discussion

A total of 98 adult patients (median age 51 years) have been examined for febrile illness in whom TBE virus RNA was identified in their serum. Most patients (88.7%) reported a tick bite within four weeks of the onset of illness. Median time from tick bite to onset of illness was six days and total time of illness was seven days. 37.8% of the patients were hospitalized for a median of three days. Most frequent symptoms were malaise and fatigue (98%), fever (96.9%), headache (85.7%), and myalgias (54.1%).

Patients also had gastrointestinal symptoms (abdominal pain, nausea, vomiting, or diarrhea), and nearly 20% had respiratory symptoms or chills (chills are uncommon in patients with viral infections and are more common in diseases caused by bacteria).

The most frequent laboratory findings were leukopenia (87.5%), thrombocytopenia (59.4%) and abnormal liver test results (62.5%). The result in this study corroborates previous findings that in most patients, the concentration of total leukocytes in the peripheral blood is reduced. The new finding is a reduction in all major subgroups of leukocytes and a tendency for total numbers of neutrophils, lymphocytes, leukocytes, and monocytes to increase. In contrast, thrombocytopenia, liver tests (including AST, ALT, and GGT), and lactate dehydrogenase tended to deteriorate with the duration of illness.

None of the patients had TBE IgG at the time of positive PCR results, although 7.6% had specific IgM, and in these patients, the duration of illness was longer compared to patients who were completely seronegative. All patients later seroconverted. Viral load was higher in patients with more severe illness.

Of the 62 patients who received a diagnosis during a prospective study, six (9.7%) did not experience any symptoms during the follow-up period of two months. In contrast, 52 patients (83.9%) experienced overt signs of meningitis or meningoencephalitis and fulfilled serologic criteria for TBE. Of the 62 prospectively followed patients, 27 were hospitalized. The likelihood of later CNS involvement in hospitalized patients was similar to that in patients with less severe illness who were treated as outpatients. Illness progressed to TBE in 84% of patients within 18 days after defervescence.

Some review articles have stated that febrile illness without later CNS involvement is a frequent clinical manifestation of TBE virus infection representing approx. two-thirds of all

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clinically manifested TBE virus infections. However, it is difficult to find primary sources to underline this belief. In contrast, in most cases, CNS will be involved following an asymptomatic period (within 18 days after defervescence after improvement of the first febrile phase).

Literature

Bogovic et al.

Clinical and laboratory characteristics and outcome of illness caused by tick-borne encephalitis virus without central nervous system involvement

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