

P 49 Dynamics of neurospecific enolase liquor concentrations in the acute period of tick-borne infections in children

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Quantity analyses of the antigen level of the enolase as a cytoplasmatic protein in cases of tick-borne neuroinfections in the course of the disease may allow to monitor the duration of the disease as well as the effectiveness of the used therapy and to give a prognosis and to estimate the possible outcome.

With the aim of investigating the dynamics of the neurospecific enolase liquor concentration in children with acute tick-borne infections, we evaluated clinical and laboratory findings in 49 2–14-year-old patients who were treated from meningitis (29 cases) and meningoencephalitis (20 cases). All the cases of meningoencephalitis were caused by a serologically confirmed mixed infection of tick-borne encephalitis (TBE) and borreliosis. Sixteen cases of meningitis were caused by TBE, 13 by mixed infection, among them TBE and borreliosis (8 cases), TBE and ehrlichiosis (1 case), and borreliosis and anaplasmosis (4 cases).

The paired liquor samples were taken from patients and were tested for IgM and IgG against TBE virus using ELISA and indirect immunofluorescence. The control group included 10 healthy children. Liquor enolase concentration in samples I (taken after 1–3 days of disease) of meningitis cases caused by TBE was $1.54 \pm 1.22 \mu\text{g/l}$, in samples II (taken after 16–18 days of disease) $1.82 \pm 1.45 \text{ mkg/l}$ ($p < 0.001$). In meningitis cases caused by a mixed infection, the enolase concentration reached $2.30 \pm 1.18 \mu\text{g/l}$ (I) and $7.15 \pm 1.70 \mu\text{g/l}$ (II) ($p < 0.001$). In meningoencephalitis caused by TBE, the concentration was $5.83 \pm 0.64 \mu\text{g/l}$ (I) and increased up to $12.13 \pm 0.17 \mu\text{g/l}$ (II) ($p < 0.001$).

The data correlated with the prolongation of the disease ($r=0.9$; $p < 0.001$). The changes of the liquor enolase concentration reflected the condition of the blood-brain barrier and gave a good indication of the brain neuronal damage mostly manifested in meningoencephalitis. An increase of the liquor enolase concentration during the regress of the clinical manifestations can be connected with a partial recovery of the blood-brain barrier in spite of clinically marked reconvalescence.