STRESZCZENIE W JĘZYKU ANGIELSKIM

Objective: Tick-borne encephalitis is an acute viral infection of the central nervous system (CNS) caused by the RNA of the virus belonging to the Flaviviridae family and transmitted by the ticks Ixodidae (Ixodes ricinus, Ixodes persulcatus). The disease has a biphasic course, with the first phase associated with the presence of the virus in the blood and the second associated with the virus entering the CNS, which manifests as meningitis meningoencephalitis, meningoencephalomyelitis. To this date, there has been no correlation between the neurological symptoms of the 2nd phase of the disease and organic changes within the CNS seen in routine imaging methods.

Aim: Determining whether in the absence of macroscopic changes in a routine magnetic resonance imaging protocol in patients with the 2nd neurological phase of the disease there are fluctuation in metabolite levels in ^{1}H-MRS which may indicate permanent or temporary damage of the occupied structures.

Methods: 25 patients with clinically confirmed TBE and 25 healthy volunteers (control group) matched in terms of age were examined. In all of them a full medical examination was carried out, laboratory evidence of TBE infection was confirmed, magnetic resonance imaging and proton magnetic resonance spectroscopy were performed.

Results: The NAA/Cr ratio was significantly lower in the left and right thalamus (bootstrapped p=0.000 and p=0.001, respectively). Additionally, the difference was also found in the right basal ganglia confirmed by both the one-sided t-test and nonparametric methods. A statistically significant increase in the Cho/Cr ratio was observed in the left thalamus and left cerebellar hemisphere (bootstrapped p=0.007 and p=0.016 respectively), There were no statistically significant brain metabolite changes in other study areas.

Conclusion: The study showed a decrease in the NAA / CR ratio and Cho / Cr increase in patients in the 2nd phase of the disease, while lacking macroscopic changes in routine magnetic resonance imaging, this may suggest damage / impairment of central nervous system function. The study showed that ^{1}H-MRS may be an appropriate tool to assess changes in the central nervous system in patients with the neuroinfectious phase in the course of tick-borne encephalitis.