NERVE GROWTH FACTOR AND S100B IN BLOOD AND CEREBROSPINAL FLUID AS INDICATORS OF THE SEVERITY OF ISCHEMIC STROKE

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Aim. To determine the relationship between the content of markers of nerve tissue damage nerve growth factor (NGF) and S100b with the clinical manifestations of acute ischemic stroke (IS). Material and methods. A total of 17 people with AI at the age of 68.5 (68; 75.7) were examined; comparison group 15 volunteers aged 65.0 (62.0; 66.5) years. The condition of the patients was assessed by determining at admission somatic status, the size of the lesion of the brain, as well as the severity of stroke according to the NIHSS scale and the degree of disability and functional independence of patients according to the modified Rankin scale (mRS). Blood and cerebrospinal fluid (CSF) for research were taken at 1, 3 and 10 days after IS. Concentrations of NGF, S100b protein, IL6 in serum and CSF; plasma D-dimer were determined by ELISA. Statistical processing of the research results was carried out using STATISTIKA 6.0 software.

Results and discussion. NGF is produced predominantly by glial cells and neurons, an important factor in protecting nerve tissue cells from apoptosis and necrosis, a modulator of neuromediation in the central nervous system [4]. Reducing the concentration of NGF may be...
associated with neurological deficit, cognitive and emotional disorders [2, 3, 6]. Protein S100b is a specific protein of astrocytes and Schwann cells, the concentration of which increases in CSF and blood as a result of its increased secretion under the influence of hypoxic or inflammatory stimuli [1, 5]. The study revealed a decrease in the concentration of NGF in the blood of patients with severe IS and death in 1–10 days after a stroke. NGF concentrations in the blood \( r = -0.300, p < 0.05 \) and in the CSF \( r = -0.271, p < 0.05 \) correlated with the size of the lesion of the brain. A negative correlation dependence of the level of NGF in the blood with the somatic status of patients on admission \( r = -0.322, p < 0.05 \) was also detected. The concentration of S100b increased many times from 3 days after IS in the deceased patients in the CSF and to a lesser extent in the blood. The S100b correlated with the outcome of the disease \( r = 0.50, p < 0.01 \), NIHSS \( r = 0.651, p < 0.01 \) and mRS \( r = 0.451, p < 0.05 \). Changes in the concentrations of NGF and S100b were associated with an increase plasma D-dimer and CSF IL6 levels.

**Conclusion.** The NGF and S100b reflect the brain damage severity and the patients’ condition in the acute IS and associates with inflammation activity.

References