MEDICAL SCIENCES

NEUROIMMUNOLOGICAL STATUS IN PATIENTS OF THE NEUROLOGICAL DEPARTMENT CAUSED BY STRESS

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In conditions of long-term stress, people are more likely to become dependent on various psychoactive substances, including alcohol and drugs. The purpose of this work was to detect the association of pathological changes in clinical, biochemical and neuroimmunological parameters of patients with mental disorders, complicated by craniocerebral traumas, alcohol and drug intoxication or poisoning under the influence of a stressful condition and the prognosis of the course of the disease [1, p. 72-73]. Methods of investigation: determination of glucose concentration, bilirubin, total protein, transaminases, prothrombin time, fibrinogen, activated thromboplastintime, hemoglobin, leukocytes, counting of leukocyte formula, S-100B protein by the method of immunoassay analysis. Previous studies have shown that the microglia is sensitive to stress, as evidenced by increased activation responses to further immune threat [1, p. 74]. Recently, studies on the level of neuro-specific markers in the patient's cerebrospinal fluid and blood have been performed to improve the diagnosis of brain lesions. Thus, an increase in the levels of neuropspecific enzymes (NSE), major myelin proteins (MDIs), glial fibrillary acidic proteins (GFAPs) and S-100B proteins are estimated. The results of studies indicate that immuno-enzyme screening of neuro-specific proteins allows us to assess the degree of damage to the central nervous system and the depth of pathological changes occurring in the nervous system [2, p. 45]. Determination of the level of S-100B protein in the cerebrospinal fluid in patients with pathology of the brain can confirm the degree of damage to the blood-brain barrier, the possibility of its reproduction, as a consequence, to predict the course of the disease. Serum S100B protein levels have been thoroughly studied in several conditions for damage to the nervous tissue, but not with alcohol addiction. Patients from the neurological department were involved in the study, which in turn were burdened with craniocerebral traumas, alcohol and drug poisoning, which were treated at the Emergency hospital in Kamianske. The patients were divided into three groups. The first one involved patients with craniocerebral trauma – 10 people. The second group consisted of patients in the state of alcohol or drug poisoning – 5. To the last third group included

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patients with complex mental disorders – 12 people. The total number was 27 people. All patients were examined in acute time when they arrived at the hospital and in the dynamics. Samples of venous blood and urine were received from all patients. In the whole blood, studies were conducted on the general analysis of blood, glucose, ethanol. In serum, studies were conducted on bilirubin, transaminases, and total protein. The plasma of the blood was a study of prothrombin time, activated partial thromboplastin time, fibrinogen. Drug tests were performed in urine specimens [3, p. 89]. In the group of patients with severe alcohol and drug poisoning, changes in clinical and biochemical parameters were more significant. The study of the level of protein S-100B in serum was conducted on the basis of the Department of Biochemistry and Physiology at Oles Hochar Dnipro National University. The content of serum protein S-100B was determined by the inhibitory immune method enzyme assay (ELISA) [2, p. 47]. The testing was carried out in 96-well polystyrene tablets (Nunc, Denmark) with reagents from one manufacturer ("Sigma", USA): monospecific polyclonal antibodies against S-100B protein, purified S-100B as a standard, and antibodies against Ig G rabbits labeled with horseradish peroxidase. To evaluate the results, the optical density was measured on the Anthos 2010 (Finland) spectrometer at a wavelength of 492 nm. The venous blood was immediately centrifuged after collection and the resulting serum was frozen in a freezing chamber at -40°C until analysis. Serum samples were subjected to a single defrost immediately prior to the study [4, p. 30].

According to the obtained results, it was found that the highest levels of protein were observed in the second group of patients with alcohol or narcotic poisoning: the mean value = 0.121 μg / ml, in the first group: mean = 0.119 μg / ml. Patients in the third group had an inflated amount of S100B in comparison with the control value of conditionally healthy people (0 to 0.07 μg / ml), but less than the previous groups of patients (Figure 1).

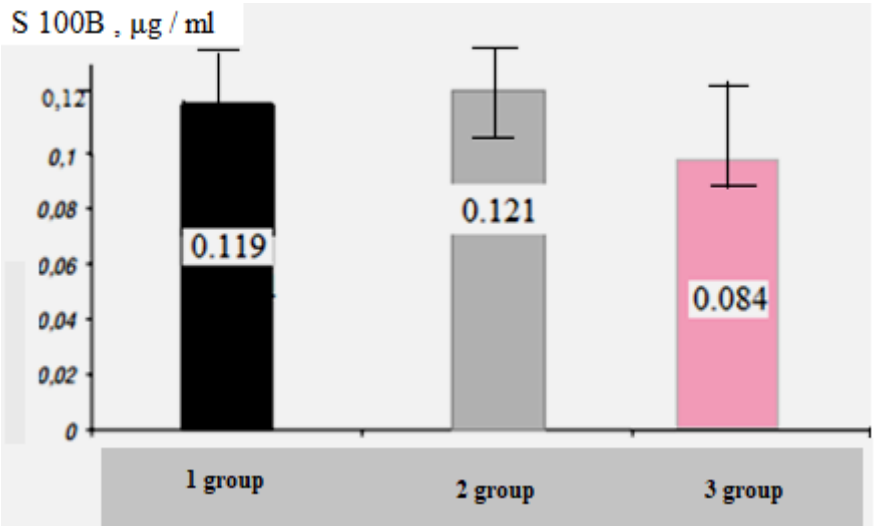

Figure 1. Variability of S100B in the studied groups

It was showed a significant increase in the transaminases of all the examined patients: in patients with craniocerebral trauma in 40% of cases, in patients with

poisoning – 60%, in neurological patients – an increase in ALT in 65%, and AST in 35% of cases. Glucose levels were elevated in all patients with craniocerebral trauma and poisoning – 100%. This group also demonstrated deviations in the contraction system, and hemoglobin in 20% of cases. In the blood of patients of all groups alcohol was detected: in the group of patients with craniocerebral traumas in 50% of cases, in patients with poisoning – in 60%, in neurological patients – in 41%. Drugs were observed in urine in 20% of patients with craniocerebral trauma, in 40% of patients with poisoning, in 25% of cases in patients with neurological disorders.

The obtained data confirms that not only craniocerebral injuries directly but also alcohol and drugs cause damage to the hepatoto-encephalic barrier of the brain when poisoned with these substances, as evidenced by an increase in the calcium-binding protein S100B in the blood. The results also indicate the effectiveness of the use of neuro-specific S100B proteins for clinical control and base for further investigation.

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