Brain-Derived Neurotrophic Factor Level in Cerebrospinal Fluid of Adult Patients with Acute Bacterial Meningitis and Meningoencephalitis

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Aim of the work is to determine the level of brain-derived neurotrophic factor (BDNF) in the CSF of adult patients with bacterial meningitis and meningoencephalitis.

Materials and Methods. We measured level of BDNF in CSF of 11 patients with meningococcal and 10 pneumococcal meningitis, 25 patients with meningococcal and 35 pneumococcal meningoencephalitis, 11 non survivors. In the control group, we selected 15 patients with acute respiratory diseases and meningismus. The CSF was determined on the day of admission to hospital using the ELISA method (Merck Millipore, Germany).

Results. The CSF level of BDNF in the control group was 75,43±1,32 pg/ml. The highest BDNF levels were obtained in patients with meningococcal (91,12±3,85 pg/ml) and pneumococcal (83,46±3,83 pg/ml) meningitis (p<0,05). The level of BDNF in group of meningoencephalitis was significantly lower compared with the meningitis (p<0,05) (meningococcal – 71,62±1,12 pg/ml, pneumococcal – 72,21±1,01 pg/ml), but was not significantly differ from the control group indicators (p<0,05). Level of CSF BDNF in non survivors was 70,30±4,85 pg/ml – significantly lower than in the control and meningitis groups (p<0,05), but not different from the levels of survivors with meningoencephalitis.

Conclusions. We can assume that in patients with bacterial meningitis, increased expression of BDNF protects the CNS cells and reduces the number of affected neurons. Such an effect may reduce the severity of neurological manifestations of neuroinfection. In meningoencephalitis BDNF levels have been reduced. Such changes can be a confirmation that during acute bacterial neuroinfections the development of lesions of the central nervous system is associated with the decompensation of neuroprotective mechanisms. Obviously, determining the diagnostic and predictive role of BDNF levels in the CSF in patients with acute neuroinfection needs further research.

Key words: brain-derived neurotrophic factor, CSF, bacterial meningitis, bacterial meningoencephalitis.

Features of the Ki-67 Expression in the Kidneys of the Newborns Which Developed under the Maternal Preeclampsia Conditions

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At present, preeclampsia is considered as a frequent multifactorial complication of pregnancy [1–3]. The influence of maternal preeclampsia on the offspring kidneys is unknown and unexplored. The aim is to identify the expression features of the Ki-67 marker in the kidneys of newborns that developed under conditions of maternal preeclampsia of varying severity.

Materials and Methods. The material of the study was the tissue of the kidneys of full-term newborns. All material was divided into the following groups: I – newborns
from mothers with physiological pregnancy (n=15); II – newborns from mothers whose pregnancy was complicated by preeclampsia of mild severity (n=13); III – newborns from mothers whose pregnancy was complicated by preeclampsia of moderate severity (n=14); IV – newborns from mothers whose pregnancy was complicated by severe preeclampsia (n=13). An immunohistochemical study was performed with monoclonal antibodies to Ki-67.

**Results.** In groups I-IV in the newborns kidneys Ki-67 expression was detected in the nuclei of cells of the glomeruli, epithelial cells of the tubules and collecting ducts, endothelial cells of the vessels stroma, immune cells and fibroblastic cells located in the organ stroma. In groups II-IV, compared with group I, proliferative activity increased, as evidenced by a significant increase in the number of Ki-67-positive cells (group I – (6.93±0.42), group II – (22.18±0.58), group III – (20.36±0.68), group IV – (19.23±0.45). Proliferative activity in group I was evenly expressed in the parenchyma and stroma of the organ, but in groups II-IV its predominance was noted in the stroma compared with the parenchyma, which was due to an increase in the number and morphofunctional activity of the fibroblastic cells.

**Conclusion.** Maternal preeclampsia leads to an increase in the number of Ki-67-positive cells in the kidneys of newborns, while the stromal proliferative activity was increased and the parenchymal decreased. The prospect of further research is to study the processes of apoptosis in these organs.

**References:**

**Key words:** newborn, kidney, maternal preeclampsia, Ki-67 expression.

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**CLINICAL DIAGNOSTIC IMPORTANCE OF DETERMINING ANTIMICROBIAL PROTEINS AND CYTOKINES IN THE ORAL FLUID IN PATIENTS WITH PURULENT-INFLAMMATORY DISEASES OF THE ORAL CAVITY**

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The applied complex treatment of cancer of the oral mucosa (OM) that is largely determines the development of purulent complications, since the cytostatic effect of radiation exposure and chemotherapy in this group of patients can lead to mucositis with the involvement of all the components of the oral cavity: the mucosa itself, salivary glands, bone structures of the jaws [1]. The presence of pathogenic microflora in the oral cavity, which can at any time lead to serious purulent-inflammatory complications, exacerbated during chemoradiotherapy, is an additional aggravating factor [2]. Radical chemoradiation treatment of patients with cancer of the OM affects the immune status of the body and the problem of the development of purulent complications in the postoperative period, which necessitates special examinations of the oral cavity with diagnostic measures [3]. To solve such practical problems, there is a need for additional molecular diagnostic markers, which could reflect the risk of developing supplicative complications of complex treatment of cancer of the oral mucous membrane disease.