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Morphometric characteristics of neurons in the cerebellar cortex of white rats at acute closed craniocerebral injury

Olga Sergeevna Shubina¹, Leonid Petrovich Telcov² and Marina Vladimirovna Egorova¹¹Mordovian State Pedagogical Institute, Russia²Mordovian State University, Russia

In an experiment on 10 mature white eugamic male rats weighing 200-250 g, it was found that in 24 hours after an Acute Closed Craniocerebral Trauma (ACCT, a falling cargo model), mild in comparison with the control group of animals (10 rats) in the cerebellar cortex happen the quantitative changes of the thickness of the cortical layers and the morphometric characteristics of the neurons. The count was performed on frontal sections 5-7 μm thick, colored with cresyl violet according to Nissl. The statistical processing of the obtained results was carried out using the parametric t-Student test. When compared with the control data, in the cortex of the cerebellum in animals with ACCT was detected the decrease in the thickness of the molecular layer by 16% ($p \leq 0.05$), the granular layer by 18.7% ($p \leq 0.05$), increase in the thickness of the ganglionic layer by 15% ($p \leq 0.05$); reduction in the area of ganglionic layer of basket neurons by 21% ($p \leq 0.05$), star neurons by 23% ($p \leq 0.05$), Purkinje cells by 44.2% ($p \leq 0.05$); decrease in the volume of the pericarion of basket neurons by 115.2% ($p \leq 0.05$), Purkinje cells by 50% ($p \leq 0.05$), increase in the volume of the pericarion in stellate neurons by 99.9% ($p \leq 0.05$); increase of the area of the nucleus of basket neurons by 21% ($p \leq 0.05$), Purkinje cells by 25% ($p \leq 0.05$), decrease of the stellate neurons by 16% ($p \leq 0.05$); decrease in the volume of the basket neuron nucleus by 50% ($p \leq 0.05$), Purkinje cells by 31.4% ($p \leq 0.05$), increase in stellate neurons by 50.3% ($p \leq 0.05$), which can be used as dysfunction of cerebellar neuronal nets in the post-traumatic period.

Recent Publications

1. Avtandilov G G (1990) Medical morphometry. Guide. Medicine: 384.
2. Eremenko I R (2013) The effect of lead rats entering the dairy term on the concentration of lipids in the cerebral hemispheres and cerebellum in prepubertal ontogeny. Far East Medical Journal 3:108-111.
3. Ipastova I D (2014) Macro-and micromorphology of the brain and cerebellum white rat. Bulletin of the Bashkir State Agrarian University 4(32):30-35.

Biography

Olga Sergeevna Shubina is a Professor, Doctor of Biological Sciences at Mordovian State Pedagogical Institute studying questions of the influence of anthropogenic and natural factors on the morphofunctional state, growth and development of the animal and human organism. Within the framework of the direction, the role of the immune system in the case of a violation of the reproductive function of the organism is examined.

o.shubina@mail.ru