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Editorial

FOUR ARTICLES concerning the role of the nitric oxide (NO) in the brain were published in our journal during last two years. They were not very oriented onto the study of *activitas nervosa superior*. The question may arise what was then the reason for publishing them?

It is known that the NO is one of the specific CNS neurotransmitters with numerous effects upon the activity of brain neuronal networks and is released not only as classical neurotransmitters on synapses but on the overall course of the axons and from the neuronal body as well. The NO is active in the brain cortex and in the striatum with neuropeptides, in aminergic neurons of nc. dorsalis raphe, in cortical GABA-ergic neurons, in neurons of hypothalamus and cerebellum. It was shown it plays a role in CNS morphogenesis and can affect the regulation of output of several neurotransmitters. The NO takes part in output regulation of neurohormones of hypothalamo-hypophysal axis and several literary data point to the glia cells taking part in NO production and to their possible role in pathophysiological mechanisms of certain CNS damages and diseases. The nitrergic signaling pathways interact with glutamate signaling and it is proposed that the both could play a role in the central fatigue.

The NO could affect the long-term potentiation and depression and in this way also the synaptic plasticity. Therefore, it can be precluded that it can affect the basic physiological regulatory mechanisms related to memory functions. It is supposed that the NO may affect the acquisition of new memory traces mainly. The production of new memory traces depends also upon the overall activation of the CNS. It is also known that the NO affects the activity of the cholinergic neurons localized at basal parts of the telencephalon. These neurons are important for the regulation of the overall level of brain activation. In spite of the fact the effects of NO have limited time duration the question appears whether it may affect the regulatory mechanisms of attention. There exist literary data pointing to the significant role of NO in dopaminergic signalization within the CNS. Sensory gating is one of the important cognitive processes dependent upon the intact dopaminergic neurotransmission. It is the basal cognitive process by which the irrelevant stimuli are filtered out. As a consequence, the attention may be focused upon the relevant aspects of the environment and adaptive behavior as well.

There are many reasons to study the effects of NO in the CNS in order to preclude its role in the regulatory mechanisms of the higher brain functions.

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