

was assessed in four brain structures of inbred C57BL/6 and BALB/c mice with "active" and "freezing" reaction under emotional stress conditions, accordingly.

Intact animals were used as control (group 1). Handling and parenteral injection of saline (group 2) and additionally after 1 h exposure to brightly lighted "open field" paradigm (group 4) were used as the stress factors. Afobazole (5 mg/kg, i.p.) instead of saline was injected in mice of groups 3 and 5, which were exposed to the same stress factors. Animals were sacrificed 1 h after the exposure to the last stress factor. Brain structures – cortex (Cx), hippocampus (Hip), hypothalamus (Hyp), striatum (St) were obtained. BDNF levels were measured with a two-site enzyme linked immunosorbent assay (ELISA).

BDNF protein levels appeared significantly ($p < 0.01$) lower in Hyp and Hip in animals of both strains (groups 2 and 4). More pronounced decrease was after 1 h (group 2) compared with intact mice. Afobazole (groups 3 and 5) significantly ($p < 0.01$) increased BDNF level in both strains. The effect of afobazole was greater in BALB/c mice – BDNF levels did not differ from those of the intact group. The decrease of BDNF levels in Cx was revealed only in group 2 after handling and saline injection. In St, significant increase of BDNF levels was registered in BALB/c mice, while in C57BL/6 a decrease in group 2 and an increase in group 4 was revealed. Afobazole significantly increased BDNF levels in all groups of both strains.

The data obtained suggest that BDNF levels are rapidly down-regulated in stress in Hyp and Hip. Afobazole, an anxiolytic with selective effect in animals with "freezing" emotional stress reaction, could prevent the decrease in BDNF levels in stress conditions and is more active in BALB/c mice. These results are also in accord with recently established neuroprotective activity of afobazole.

P.3.018 Neuropharmacological effects of heptapeptide Selank on the neurotransmitter content in brain structures of Wistar rats

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Abnormalities in the brain peptidergic systems functioning are considered to be one of the main causes of psychoemotional disorders. Basing on that, the study of natural peptide ligands and their synthetic analogues, which are supposed to be the most adequate correctors of psychopathological states, remains of great interest. Selank, Trh-Lys-Pro-Arg-Pro-Gly-Pro, was shown to

reveal a unique psychopharmacological profile, being resistant to enzymatic degradation. Previous studies demonstrated that while lower doses of peptide exert anxiolytic effects, higher concentrations of Selank appear to possess psychostimulant properties. However, despite major advances in the investigation of pharmacological properties of the mentioned peptide, its neurochemical profile remains unclear. Thus, the aim of the present work was to study the effects of heptapeptide Selank on the neurotransmitter content in brain structures of Wistar rats. Selank was injected intraperitoneally 1 h prior to decapitation, the following dosage were selected – 0.25 mg/kg (anxiolytic effects) and 1 mg/kg (psychostimulant action). The brain structures (frontal cortex – FC, hippocampus, hypothalamus, nucleus accumbens – NAc, and striatum) were extracted on ice, frozen and stored in liquid nitrogen. The levels of monoamines and their metabolites were measured by HPLC/ED techniques. Dopamine (DA) levels were found to increase in dose-dependent manner in hippocampus and to diminish in the striatum. A dramatic rise in content of the DA metabolite dioxyphenylacetic acid (DOPAC) (300–400% for 1 mg/kg dose) was shown in FC and hippocampus. Concentrations of homovanillic acid (HVA), another DA metabolite, changed in a more complex manner: while it decreased in FC and hypothalamus (20% for dose 1 mg/kg), the drastic rise of this parameter in hippocampus (250% for the same dose) was detected. Noteworthy, similar reciprocal shifts in DA metabolite contents were demonstrated in FC and NAc for 0.25 mg/kg dose – whereas in FC the HVA content rises up to 70%, it decreases in NAc (up to 30%). Serotonin (5-HT) and its metabolite 5-hydroxyindoleacetic acid (5-HIAA) did not change statistically significantly in any structures studied except striatum where a slight decrease of 5-HT (25% for 1 mg/kg dose) was demonstrated. The complex parameter HVA/DA was found to decrease in FC for 0.25 mg/kg dose, which allows to suggest an inhibitory action of Selank on DA turnover. The results obtained lead us to suggest that Selank exerts complex effects on brain DA-ergic neurotransmitters and to less extent on serotonergic systems.

P.3.019 Interstrain differences in neurotransmitters response in BALB/c and C57Bl/6 mice after open field stress

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Objectives: Currently a well acknowledged role of the monoamines of emotional stress response development