Centre for Physiology and Biochemical Research (CPBR)
International Stress and Behavior Society (ISBS)

Proceedings

17th Multidisciplinary International Conference on Neuroscience and Biological Psychiatry

"Stress and Behavior"

ISBS Conference

St-Petersburg, Russia
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The Russian Society for BioPsychiatry (RSBP)
Ukrainian Society for Biological Psychiatry (USBP)
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system takes an active part in stress reaction regulation during sleep deprivation and post deprivation sleep.

BEHAVIORAL EFFECTS OF SINGLE INTRACEREBROVENTRICULAR ADMINISTRATION OF AMYLOID-BETA PEPTIDE FRAGMENT 25-35 IN RATS. V Mukhin, I Abdurasulova, K Abdurasulova, V Klimenko, Institute of Experimental Medicine RAMS, St. Petersburg, Russia
INTRODUCTION: Amyloid-beta peptide plays a physiological role as a neurotrophic factor. On the other hand, accumulation of this peptide in the form of the soluble oligomers is the principal link of Alzheimer disease pathogenesis. It is known that portion 25-35 is the functional domain of this peptide which showed the same neurotrophic and neurotoxic effect as the amyloid beta 1-40. For this reason central injection of this fragment could be considered as animal model of Alzheimer disease. Besides morphological and neurochemical changes such injections cause some cognitive impairment of behavior. This disturbance is usually treated as impairment of learning and memory. But our research experience has shown that behavioral changes are not so simple. The aim of this study was to investigate behavioral changes due to icv administration of amyloid-beta protein fragment 25-35. **METHODS:** Four groups of Wistar rats (285±12 g) were in study. In the experimental group water solution of fragment 25-35 of amyloid-beta peptide was injected into the right brain ventricle (5 or 1.2 µl/min). The other three groups were used as controls as follows: 1) the group of central administration of saline solution, 2) the sham operated and 3) the intact rats groups. After a fortnight the rats were exposed to behavioral testing: open field test, novel object recognition test, passive avoidance test and learning of operant food-getting behavior in the TSE PhenoMaster system. **RESULTS AND DISCUSSION:** The rats of the experimental group had complex behavioral impairment including amnesia, neophobia, and reduction in exploratory and locomotor activity. So we have seen not only syndrome of cognitive impairment but also some depression-like signs of affective disorder. It seems not surprising because it is well known that depression and neophobia may often be the early syndromes of Alzheimer disease. Depression-like affective component has also been seen in transgenic models of Alzheimer disease. **CONCLUSION:** Single administration of the amyloid-beta peptide fragment 25-35 is valid not only as a model of amnesia but also as a model of the complex of neuropsychiatric symptoms of the early stage of Alzheimer disease. Because of neophobia and impaired exploratory behavior behavioral learning and memory tests based on natural exploratory activity are irrelevant for this model.

THE EFFECT OF VALPROIC ACID ON NEURODEVELOPMENT MICE DURING GESTATION. J Podgorac, S Sekulic, I Capo, Lj Martac, G Kekovic, Institut Za Bioloska Istrazivanja Sinisa Stankovic, University of Belgrade, Belgrade, Serbia
INTRODUCTION: Medications, which are being taken during pregnancy, is common despite that most drugs cross the placenta, even prenatal subtoxic exposure, may lead to neurobehavioral impairments in the offspring. Valproic acid (VPA) is known as human teratogen. VPA exposition during pregnancy is associated with congenital malformation and neurodevelopmental disorders. In experimental research, behavioral models widely used are hot plate test, as condition learned test and the elevated plus maze as behavioral assay, used to asses states of anxiety/depression-like behavior. The hot plate is a test that is very susceptible to learning phenomena, which results in a progressive shortening of the reaction time, if testing is being continuously repeated. Our aim was to investigate influence of low VPA doses on neurobehavioral development. **METHODS:** Three groups were included in our study, two experimental and control group. Adult female NK mice were treated with subcutaneous injection of 50mg/kg VPA (n=6) or 100mg/kg (n=6) and control group (n=5) were treated with saline, during breeding and gestation. Body weight was measured daily and concentration of VAP, which was administered, was adjusted. Hot plate test was performed at 25 and at 32 postnatal days. Elevated plus maze test was conducted on postnatal day 35. **RESULTS AND DISCUSSION:** Between groups of pups, which mothers were treated with 50 mg/kg and 100 mg/kg VPA, the controls did not significantly differ in activity in the repeated hot plate test, whereas the elevated plus maze test showed significant differences ($p<0.001$) between the two experimental groups, and between control group and experimental group of mothers treated with 100mg/kg, in time spent and number of entries in the open arms. Age of offspring, which