

Schizophrenia is a serious mental disorder affecting about 1% of the world's population. Serotonin-1A (5-HT<sub>1A</sub>) receptors are found on dendrites, which are concentrated in and N-methyl-D-aspartate (NMDA) receptors. Current therapy has many side effects. Based hypoglutamaterg hypothesis of schizophrenia is the current strategy in the search for new drugs indirect activation of NMDA receptors. Direct activation of NMDA receptors leads to neuronal damage. The aim of the thesis was to determine whether NMDA receptors interact with 5-HT<sub>1A</sub> receptors as the molecular and the behavioral level. At the molecular level, we found that administration of 5-HT<sub>1A</sub> agonist receptors (8-OH-DPAT, tandospirone) leads to an increase/decrease the expression of subunits (GluN1, 2B), the NMDA receptor in the frontal cortex and hippocampus. At the behavioral level, we test for sensorimotor gating (Prepuz inhibition of startle response, PPI) we found that the administration of 8-OH-DPAT worse information processing. Tandospirone had no effect on PPI. Test anxiety measurement (ultrasonic vocalizations) showed that 8-OH-DPAT and tandospirone at high doses improves anxiety. The test for recognition memory (novel object recognition test, NORT) that tandospiron, at a lower dose improves recognition memory. 8-OH-DPAT had no effect level of recognition memory. A sub-objective was to determine whether the administration of 5-HT<sub>1A</sub> agonist receptor in combination with the NMDA receptor antagonist MK-801 (model of schizophrenia-like behavior) affects NMDA receptor subunit. Tandospirone and 8-OH-DPAT decreased/increased expression of subunits (GluN2A, 2B), the NMDA receptor in the frontal cortex and hippocampus. In the PPI test, 8-OH-DPAT at a lower dose of PPI increased, whereas the higher dose of 8-OH-DPAT decreased PPI. Tandospirone design showed the same effect as a full agonist. It is clear that NMDA receptors interact with 5-HT<sub>1A</sub> receptors, thereby indirectly affecting the NMDA receptor via 5-HT<sub>1A</sub> receptors by agonists of these receptors could have positive benefits for patients with neuropsychiatric disorders such as schizophrenia, epilepsy atd.