

## Role of Spreading Depression On Memory Consolidation in Developmental Animal Model of Schizophrenia

B. Khodaie<sup>1</sup>, M. Ahmadi<sup>1</sup>, M. Lotfinia<sup>1</sup>, A. Lotfinia<sup>1</sup>

<sup>1</sup>Neuroscience, Shefa Neuroscience Research Center, Tehran, Iran

---

**Background:** Schizophrenia is a complex disorder, characterized by both genetic and environmental factors and their interactions. Post weaning social isolation (SI) has been proposed as a model of Schizophrenia. Glutamate hypothesis in schizophrenia produce analogous symptoms. In this regards, reduction in NMDA receptor activity has been hypothesized for induction of schizophrenia in clinical studies. Furthermore, NMDA receptors activation play role in various neurodegenerative diseases including phenomenon of spreading depression (SD). SD plays a pivotal role in glutamate release and its action on the NMDA receptor.

**Method and material:** In the present study 24Wistar juvenile rats (65-80 gr) were used. Animals were classified in three groups as SD treated with Social isolation, social isolation, and sham groups. SI was induced by six week post weaning social isolation of puppies, which followed by four consecutive weeks SD induction in SD-social isolation group. Prepulse inhibition (PPI) test and passive avoidance by shuttle box test have been done at the end of experiment.

**Results:** Our result from behavioral test suggested that SD induction during for week after six week social isolation may be able to help to ameliorate schizophrenia symptoms. Significant changes in cognition tests were seen in SD induced group in comparison with social isolation group.

**Conclusion:** data from present study revealed that glutamate level in extracellular space which followed by NMDA receptor activation as well as its expression following SD induction perhaps decrease some neurological characteristics of schizophrenia, which could reveal NMDA protective role on schizophrenic patient.