

P4.01.

Electrophysiological changes in a complex model of schizophrenia in rats

Petrovszki, Z.¹; Gombkötő, P.¹; Nagy, A.¹; Benedek, G.¹; Tuboly, G.²; Horvath, G.^{1,2*}

1: Department of Physiology, Faculty of Medicine, University of Szeged, P.O. Box 427, H-6701 Szeged, Hungary

2: Department of Neurology, Faculty of Medicine, University of Szeged, P.O. Box 427, H-6701 Szeged, Hungary

Clinical studies have proved that schizophrenia is accompanied by sensory gating dysfunctions. We induced schizophrenia-related alterations by subchronic ketamine treatment and post-weaning social isolation in rats to examine their long-lasting effects on auditory evoked potentials (AEP). Methods: Male Wistar rats (day 21 of age) were either housed individually and treated with ketamine for 4 weeks or grouped without any treatments. At the age of 11th weeks animals were implanted with cortical electrodes. One week later pair-click stimuli were applied and AEPs were registered for two months. A positive peak (15 ms) after the click, followed by a negative (35 ms) and a late positive one at (60 ms) could be identified. The amplitudes were determined as differences between peaks: P1-N1; N1-P2. Peak-latency and amplitude for the conditioning (first) and test (second) stimuli were analyzed. Results: The amplitude of the waves decreased significantly after the second stimuli; however, gating of treated animals was impaired. The latency of the first wave increased significantly in the schizophrenic rats as well. These changes were stable during the whole investigated period. Our model simulates the deficit in auditory gating observed in schizophrenia, suggesting that this paradigm might produce an appropriate animal model of schizophrenia for long period.

This work was supported by grants of TÁMOP 4.2.2.-08/01-2008-0002 and a Hungarian Research Grants (OTKA, PD75156 and K68594).