

To study recognition processes we recorded ERPs in a visual continuous word recognition paradigm in a group of healthy subjects at risk of developing a depressive disorder in comparison with a control group.

ERPs for the correctly detected repeated words showed an increased positivity beginning approximately 250 ms post stimulus for both groups. However, the old/new effect was reduced for the subjects at risk for depression at right frontotemporal electrode sites indicating disturbed recollection processes. The findings may represent an electrophysiological trait-marker of cognitive processing in these subjects.

P33.02

Graft schemes for the treatment of various mental diseases

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Experimental researches of the intracerebral graft influence of the immature nervous tissue on a functional condition of animal-recipients are carried out widely at the different forms of pathology of the central nervous system. Numerous attempts are done to use grafts of the nervous tissue allocated from abortive material for clinical treatment of mental diseases. At present a great attention is given to the possibility of using as a donor material the brain stem cells. Neurotransplants can positively influence on the host brain, rendering modulating or stimulating effects, promoting the synthesis of different chemical substances or the formation of new neurons and/or glia both from the brain stem cells of the transplants and the host brain. For reception of a positive effect for each concrete disorder the application of the adequate scheme of neurotransplantation taking into account character of occurrence and development of every mental disease is necessary. According to own experimental results and literary data the possible schemes of neurotransplantation for treatment of Parkinson's disease, epilepsy, some forms of schizophrenia, infant cerebral palsy and Down's syndrome are described.

P33.03

Addiction and functional brain asymmetry

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The psychological analysis of patients with various kinds addiction shows, that for them the increased need for the changed conditions of consciousness is characteristic. Psychopsysiological inspections of addict on revealing functional asymmetry of a brain show, that the existential organization of mental activity of addict meets right hemisphere predominance to type. Addiction this property of the person caused neuropsychology. The inversion of hemispheric predominance and disturbances of interhemisphere transfer of emotiogenic information is an underlying neuropsychological mechanism of addiction. These phenomena have been elucidated by the help of the associative tests including emotiogenic words-stimuli. The subjects with alcohol addiction were characterized with the inverted reactions to affectogenic stimuli. In this group the presentation of the emotiogenic words, which have been preliminary selected by independent experts, produced associations with emotional coloring opposite to the word-stimulus. The number of the inverted associations was correlated with the severity of addictive disorder. Inversion of emotional reflection occurs at failure of identification, and is a parameter of readiness to addict realizations. The emotional

reaction accompanying addiction causes interferential oppression of other inclinations.

P33.04

Changes in visual evoked potentials after magnesium in anxiety disorders

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Hypomagnesemia may be associated with anxiety. Double blind placebo controlled trial of adjunctive treatment with magnesium was performed in patients with anxiety disorders. The effects of magnesium on anxiety and cognitive functioning, including electrophysiological parameters were evaluated.

The full set of electrophysiological data is available in 29 in-patients. The patients were evaluated by instruments measuring anxiety (CAS, BAI) and cognitive functioning (CWT, WMS). Visual evoked potentials (VEP) were also recorded before and after five weeks of standard citalopram treatment with either peroral magnesium orotate or placebo. The "cognitive" stimuli for VEP consisted of rare (25%) complex stimuli (preserved unknown human face) and frequent stimuli (75%) of "scrambled" human face. Magnesium did not add anything to a significant improvement of anxiety and cognitive performance in both treatment groups. However, the amplitude of a positive evoked potential (P 200) significantly increased in response to the preserved face only in the group treated with the adjunctive magnesium. The result suggests that the electrophysiological measures may be able to detect an effect of magnesium on cognitive processing.

P33.05

Stimulus processing and behavior control in schizophrenic patients

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Processing emotional stimuli into adequate actions is frequently disturbed in schizophrenia. This process contains two components: (a) perception of emotional stimuli and (b) execution of a movement. Little is known about plasticity of behavioral control and its role for the development, course, and the therapeutic response of schizophrenia. To objectively measure these disturbed functions, a paradigm was developed using the combination of different neuropsychological methods in order to continuously assess the components of this process. Schizophrenic patients were subjected to visual stimuli (photos on PC-Screen, IAPS) which they could turn on by releasing a button and turn off by pressing a second button. Neuropsychological methods including EEG, startle reflex (EMG, m. orbicularis oculi), EMG (m. biceps brachii) and kinematic measures of hand movements by infrared detection (Proflex) were used to analyze the neuronal process from stimulus perception to movement execution. A specific software program guaranteed continuous chronological assessment of the signals with high spatial and temporal precision. Objective findings of behavioral dysregulation in schizophrenic patients may be used as therapeutic response criteria and for early detection of psychosis.