P31.02

Blunted prolactin response to fenfluramine following add-on fluvoxamine

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The study examined the hypothesis that fluvoxamine, an agent effective in ameliorating negative symptoms of schizophrenia when added to antipsychotic treatment, acts by modifying the serotonergic system. Prolactin and cortisol response to fenfluramine challenge was examined before and after add-on fluvoxamine treatment in 12 medicated chronic schizophrenia patients. Prolactin response to fenfluramine was significantly blunted after fluvoxamine treatment. The data supports the hypothesis that add-on fluvoxamine acts by modifying the serotonergic system in schizophrenic patients. Reduction in serotonergic responsiveness following fluvoxamine treatment is similar to that following clozapine and is consistent with clinical evidence showing effectiveness of both in treatment of negative symptoms.

P31.03

Release of prolactin but not of adenocorticotropic hormone increases significantly in lactate-induced panic attacks

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In contrast to pronounced psychopathological effects, the stress hormones ACTH and cortisol are not increased during sodium lactate- induced panic attacks. To further investigate this phenomenon, we measured prolactin, another potentially stress-sensitive hormone.

We studied the plasma prolactin and ACTH responses to 20 minutes infusions with 0.5 molar sodium lactate (10 ml/kg body weight) and placebo (isovolemic normal saline) in eight patients with panic disorder and eight sex- and age-matched normal controls.

In comparison to placebo, lactate infusion led to enhanced prolactin secretion in all subjects studied; this increase of plasma prolactin was significantly elevated ($p<0.05$) in panickers compared to non-panickers. In contrast, ACTH did not increase significantly after lactate vs. placebo, both in panickers and non-panickers.

The mechanisms for this differential endocrine stress response of prolactin and ACTH in lactate-induced panic is still unclear. The potential influence of modulatory peptides and neurotransmitters will be further investigated.

P32. Neuroimmunology

P32.01

Marker of bipolar mania: soluble IL-2 & transferrin receptors in serum

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We studied plasma soluble interleukin-2 receptor (sIL-2R), sIL-6R, Clara cell protein (CC16), and transferrin receptor (TfR) levels in 57 bipolar manic (DSM-IV) patients aged 16 to 45 years during both acute mania and subsequent remission (YMRS < 12). The results were compared with age-and sex- matched healthy controls. The mean plasma TfR levels in both acute mania and subsequent remission were elevated and independent of any clinical or immune-inflammatory variables. There is none alternation of circulating CC16 and SIL-6R. Dosage of valproate, total number of prior affective episodes, YMRS scores, and a negative first-degree family history of mood disorder may play a contributory role in the elevation of plasma sIL-2R levels during acute mania. (adjusted $R2 = 0.229$, $P< 0.0025$). Our findings demonstrate that increasing plasma sIL-2R and TfR levels in bipolar disorder are associated with illness itself rather than pharmacological effects and individual variations (e.g. BMI). Increasing plasma TfR levels without alternation of plasma sIL-6R might be considered as a trait of bipolar disorder and plasma sIL-2R as a state marker of illness severity during acute mania.

P32.02

Neuroplasticity in major depression may be indicated by S100B

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Objectives: Neurodegenerative mechanisms contribute to the pathophysiology of major depression. S-100B is a astroglial peptide which exerts multiple neurotrophic effects on sero-toninergic neurons, axonal growth and synaptogenesis. S-100B has been reported to be in-creased in diseases with neuronal cell damage or degeneration and is therefore a candidate to indicate neuronal restructuring in major depression.

Method: S-100B plasma levels were determined in 25 patients with major depression and 25 matched healthy controls using an immunofluorometric sandwich assay.

Results: Patients with major depression showed significantly increased S-100B levels compared to healthy controls. S-100B plasma levels were significantly positively correlated with the relative reduction of depressive symptoms after four weeks of treatment. This effect was pronounced in patients of the melancholic subtype. In a linear regression model, only S-100B and severity of depressive symptoms upon admission revealed a significant predictive effect on therapeutic response.

Conclusions: The results indicate that the neuroprotective functions of S-100B might counterbalance neurodegenerative mechanisms that are involved in the pathophysiology of major depression and in the response to antidepressant treatment.

P33. Neurophysiology

P33.01

Word recognition memory in healthy subjects at risk for depression

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Event related brain potential (ERP) studies of memory in depression have shown impaired working memory and recollection processes indicated by a reduction of the "old/new effect". In word recognition experiments, this repetition effect is modulated by changes of different ERP components, e.g. the N400 or LPC. Furthermore, changes of these components were also observed in non-depressive patients with a history of an affective disorder. Therefore, the question has to be raised, whether these findings may also be found in healthy subjects at risk for depression.

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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 predomination to type. Addiction this property of the person caused neuropsysiology. The inversion of hemispheric predominance and disturbances of intergemisphere transfer of emotiogenic information is an underlying neurophysiological 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 interferentional 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 neurophysiological 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. Neurophysiological 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.

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