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Calcium as a treatment option for alcohol dependence

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In the last couple of decades anti-craving drugs have been developed. Acamprosate was described as an effective treatment option to support alcohol abstinence with a low side effect profile. Moreover its molecular mode of action is highly controversial. Recently, calcium salt was described to be the active part of Acamprosate. Using a clinical sample of placebo ($n = 10$) vs. Acamprosate-treated ($n = 19$) abstinent alcohol-dependent patients, we measured calcium plasma concentrations after the 1st, 2nd and 3rd month after the treatment commenced. Before treatment, the same physiological calcium concentration of about 2.4 mmol/l was found in both groups respectively. We found significant correlations in the Acamprosate group while no correlations in the placebo group were observed.

The very well regulated extracellular calcium serum concentration seems to get out of balance in association with the severity of alcohol dependence in inpatients during withdrawal.

Accordingly, in another clinical sample ($n = 57$) we found a negative correlation between calcium serum concentration and craving ($r^2 = 0.125$; $P = 0.011$) on day 1 of detoxification. The measurement of craving was carried out by a self-rating scale, the Obsessive Compulsive Drinking Scale (OCDS). Furthermore a low calcium level correlated with high breathalyser readings and the number of alcohol inpatient detoxification's.

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Disrupted homeostasis during chronic ethanol consumption associated with specific mechanism of endogenous neurosteroids activityT. Shushpanova^{1,*}, N. Bokhan², A. Mandel², A. Solonsky¹, T. Novozheeva¹, A. Semke³, V. Lebedeva⁴, T. Kazennykh⁵, V. Udut (Deputy Director)⁶, G. Arbit⁷, V. Philimonov⁷, E. Markova⁸¹ Mental Health Research Institute, Biological Psychiatry Department, Tomsk, Russia² Mental Health Research Institute, Addictive States Department, Tomsk, Russia³ Mental Health Research Institute, Endogenous Disorders Department, Tomsk, Russia⁴ Mental Health Research Institute, Clinics, Tomsk, Russia⁵ Mental Health Research Institute, Scientific secretary, Tomsk, Russia⁶ Pharmacology and Regenerative Medicine Research Institute, Tomsk, Russia⁷ National Research Tomsk Polytechnic University, Biotechnology and Organic Chemistry Department, Tomsk, Russia⁸ Basic and Clinical Immunology Institute, Laboratory of Neuroimmunology, Novosibirsk, Russia

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Introduction Neurobiological research describes one of mechanisms overlap in the Cortico-Striatum-Limbic Circuit (CSLC), which can be disrupted due to chronic stress and alcohol abuse that primarily modulated by the hypothalamic-pituitary-adrenal (HPA) axis, from which cortisol is an end-product.

Objectives To investigate the effects of chronic stimulant abuse on the CSLC. This was examined by relating cortisol levels with

grey matter volume in brain structures associated with addiction and stress.

Aims We hypothesized that stimulant-dependent individuals show increased cortisol levels and abnormalities in the CSLC. We further hypothesized relationships between altered grey matter volume and increased cortisol levels in the patients.

Methods Twenty-two alcohol-dependent individuals, men only and 21 healthy volunteers (matched for age and gender) underwent an assessment session. Cortisol, DHEA and DHEA-S was assessed in blood plasma. Mood, impulsivity and compulsivity were measured by clinical instruments.

Results Alcohol-dependent individuals showed higher levels of cortisol in blood plasma, and decreased levels of progesterone and its metabolites DHEA and DHEA-S, which were associated with distinct expression in impulsivity and compulsivity in alcoholic patients. Indices of these steroids were changed compared with healthy persons. Plasma cortisol was positively correlated with the duration of alcohol use. The relationships observed between cortisol, progesterone and its metabolites: DHEA and DHEA-S may be explained by abnormal functioning of HPA axis.

Conclusions Optimizing of disrupted homeostasis during chronic ethanol consumption being provided with specific mechanism by manipulation of endogenous neurosteroids activity may prove a beneficial pharmacotherapeutic strategy in the intervention of alcohol abuse.

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Therapeutic efficacy of original anticonvulsant meta-chloro-benzhydriurea (m-ch-BHU) in the treatment of patients with a compulsive craving for alcoholT. Shushpanova^{1,*}, N. Bokhan², A. Mandel³, V. Lebedeva⁴¹ Mental Health Research Institute, Biological Psychiatry, Tomsk, Russia² Mental Health Research Institute, Administration, Tomsk, Russia³ Mental Health Research Institute, Addictive States Department, Tomsk, Russia⁴ Mental Health Research Institute, Clinics, Tomsk, Russia

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Introduction The problem of the treatment of alcohol addiction is very difficult due to the reoccurrence of relapses. One of the major concepts of the formation of alcohol addiction is the concept of epileptic origin of compulsive craving for alcohol.

Objective We investigated therapeutic efficacy of long-term dosing of original anticonvulsant (m-ch-BHU) on symptoms of alcohol withdrawal syndrome (AWS) in patients with a compulsive craving for alcohol.

Methods Sixty-eight male alcoholic patients aged from 24 to 53 years with different levels of alcohol abuse were examined. Type of course of alcoholism in examined patients was of middle-progressing character. Clinical evaluation of state of patients was carried out with traditional clinical description. Quantitative characterization was conducted according to Hamilton Anxiety Scale and Hamilton Depression Scale. m-ch-BHU was administered to alcoholic patients at dose from 300 mg a day during 21 days against the background of conventional medication as well as in post-withdrawal period under various degrees of severity of affective disorders.

Results Among affective disorders dysphoric symptoms have a marked tropism for m-ch-BHU. Of the other clinical manifestations in the structure of AWS cerebral diencephalic paroxysms, cardio-