Precision Psychiatry

EPP0430

Antioxidant and metabolic adjunctive treatment in late onset psychosis

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Introduction: Basing on our previous findings of significant additional gain obtained from usage of adjunctive antioxidant medicine added to antipsychotic+antidepressant therapy in late-onset schizophrenia-like psychoses (LOP), the group often suffering of comorbid pathologies and experiencing substantial side-effects of drugs, we spred our approach to try "metabolic" medicines as adjunctives in LOP.
Objectives: To reveal biochemical parameters of the blood cells which might be used for distinguishing subgroups of patients suffering with LOP for whom various adjunctive therapy (antioxidant, metabolic) would be advantageous.
Methods: The study included 59 patients 50-89 years old, with LOP (onset after 40 years), and 38 healthy peoples 51 – 84 years old. The activities of glutamate dehydrogenase (GDH), glutathione reductase (GR), and glutathione S-transferase (GST) were determined spectrophotometrically in erythrocytes and platelets. Scores by PANSS were evaluated twice: before and on the 28-th day of antipsychotic treatment.
Results: Samples from control group were used for determination of the control ranges for levels of studied enzymatic activities. Enzymatic activity levels were analyzed in three groups of patients: group Gr1 (n=16) treated without adjunctive therapy, and two other groups (Gr2 and Gr3) treated with adjunctive medicines: antioxidant 2-ethyl-6-methyl-3-hydroxypyridine succinate (Gr2, n=20), or "metabolic" medicines citicoline/cerebrolysin/cortexin/actovegin/gliatilin (Gr3, n=23).
As compared with controls, activity of erythrocyte GR was decreased at baseline and after the treatment course in all patients' groups ($p<0.01$); in Gr2 significant decreases in baseline platelet GDH and GST activities were observed ($p=0.005$). Different significant links between biochemical parameters and scores by clinical scales before treatment were observed: in Gr1, erythrocyte GST activity positively correlated with scores by PANSS-Neg ($R=0.61$, $p=0.012$), by PANSS-Psy ($R=0.54$, $p=0.032$), and by PANSS ($R=0.62$, $p=0.010$), in Gr2, erythrocyte GST activity positively correlated with scores by PANSS-Pos ($R=0.53$, $p=0.016$), by PANSS-Psy ($R=0.52$, $p=0.015$), and by PANSS ($R=0.60$, $p=0.005$), in Gr3, platelet GR activity positively correlated with PANSS-Pos ($R=0.50$, $p=0.014$).
Conclusions: We have confirmed the additional favor (decrease in side-effect severity) obtained by distinct patient groups when treated with adjunctive antioxidant or "metabolic" therapy. Moreover, correlations revealed in the patient subgroups between enzymatic activities and scores by psychometric scales enable revealing those biochemical markers measurement of which facilitate differentiating the patients for whom the adjunctive medicines to antipsychotic+antioxidant treatment can positively influence the treatment outcome.

Disclosure of Interest: None Declared

Psychoneuroimmunology

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M2 macrophage-derived soluble factors enhance neuronal density in the frontal cortex of depression-like mice

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Introduction: Chronic inflammation in depression is associated with decreased levels of neurotrpohic factors and suppressed neurogenesis. We have previously shown that intranasal therapy with soluble factors from M2 macrophages polarized by interaction with apoptotic cells in serum deprivation conditions (M2(LS); LS - low serum) and characterized by anti-inflammatory and pro-regenerative activity leads to the correction of the behavioral pattern in mice with a depression-like state.
Objectives: The present study focuses on the effect of M2(LS) macrophages on neuronal density in the frontal cortex and hippocampus of depression-like mice.
Methods: Depressive-like state was formed in passive male mice (CBAxC57Bl/6)F1) as a result of repeated experience of defeat in agonistic interactions with aggressive partner during 20 days (the sensory contact model). Depression-like mice were then treated intranasally with M2(LS) macrophages conditioned medium for 7 days. After that, the number of mature neurons in the frontal cortex and hippocampus was assessed using Nissl staining.
Results: The neuronal density in the pyramidal layer of the frontal cortex was significantly lower in depression-like mice than that in the intact control group of mice ($p=0,047$). At the same time, the number of neurons in the experimental group of mice that received soluble M2(LS) factors, was higher than that in depressive-like untreated control mice ($p=0,003$) and was comparable to that in the intact group of mice. At the same time the neuronal density in the CA1 and CA3 hippocampal areas did not change in depression-like mice following intranasal treatment with conditioned medium of M2(LS) macrophages.
Conclusions: The data obtained may indicate the neuroprotective effect of M2(LS) macrophages in the stress-induced depression model, which is realized through soluble factors and manifests itself in an increase of the pyramidal neurons density in the frontal cortex.

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