Objectives: scientific publications
Methods: analytical review
Results: The central nervous system has evolved a conserved unfolded protein response mechanism to cope with the accumulation of misfolded proteins. As one of the main intracellular redox systems involved in neuroprotection, the vitagene system becomes a potential neurohormetic target for novel cytoprotective interventions. Vitagens encode the cytoprotective heat shock proteins (Hsp) Hsp70 and heme oxygenase-1, as well as thioredoxin reductase and sirtuins. The cellular stress response is the ability of a cell to withstand stressful conditions, including the heat shock response. The production of heat shock proteins, including protein chaperones, is necessary for the folding and repair of damaged proteins, which promotes cell survival to avoid apoptosis.«Molecular chaperone» are proteins that function as part of an ancient defense system in our cells. They promote cell survival by sequestering damaged proteins and preventing their aggregation. Chaperone complexes are involved in the regulation of mitochondrial functions, assembly of the cytoplasmic proteolytic system of brain cells. The cellular response to stress requires the activation of survival pathways that are under the control of protective genes called vitagens. Vitagens are involved in the production of heat-shock protein molecules, glutathione, and bilirubin. They have antioxidant and anti-apoptotic activity and provide protection against oxidative stress.
Conclusions: Studies have shown that the heat shock response contributes to the maintenance of cellular homeostasis, the establishment of a cytoprotective state in a wide range of human diseases, including inflammation, cancer, aging, and neurodegenerative disorders. Endogenous proteins can be manipulated by food or pharmacological compounds, which represents an innovative approach to therapeutic intervention in neurodegenerative disorders, actually influencing reserve mechanisms and adaptive capacity.

Disclosure of Interest: None Declared

EPV0686

Platelet enzymatic activities in patients with late-onset schizophrenia spectrum disorders

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Introduction: Impairments in energy metabolism, glutamate neurotransmitter and antioxidant systems contribute substantially in development of schizophrenia spectrum disorders, especially in late-onset psychosis (LOP).
Objectives: Revealing subgroups of patients with LOP by determining activity of platelet enzymes of energy, glutamate, and glutathione metabolism.
Methods: 62 women of 52-89 years old were studied, with late onset schizophrenia spectrum disorders (F20.0, F25, F22.0, F06.2 by ICD-10). PANSS with its subscales was used to assess the severity of psychotic symptoms. Scores by PANSS and activity levels of platelet cytochrome *c*-oxidase (COX), glutamate dehydrogenase (GDH), glutathione reductase (GR) and glutathione-S-transferase (GST) were evaluated twice: before and on the 28-th day of antipsychotic treatment. Activities of COX, GDH, GR, and GST were measured in 37 women of 50-84 years old comprising the control group.
Results: Clustering of patients by the enzymatic activities resulted in 2 clusters (C1 and C2) significantly different by COX and GST ($p<0.001$). In C1 (n=40), as compared with control, reduced level of GDH activity before and after treatment ($p=0.049$ and $p=0.032$, respectively) and a reduced level of GR activity before treatment ($p=0.026$) were revealed. In C2 (n=22), as compared with the control, COX activity was increased before and after treatment ($p=0.0001$), GDH activity was decreased before and after treatment ($p=0.0002$ and $p=0.0001$, respectively), and GST activity was decreased before and after treatment ($p=0.029$ and $p=0.0029$, respectively). GR activity was not significantly changed in both clusters. Significant correlations were found between enzymatic activities and scores by psychometric scales: in C1, GR activity positively correlated with the score reduction (delta) by PANSS-Pos ($R=0.45$, $p=0.004$), by PANSS-Psy ($R=0.44$, $p=0.005$), and by PANSS ($R=0.47$, $p=0.002$), and GST activity – with the score reduction by PANSS-Psy ($R=0.315$, $p=0.048$). In C2 (n=22), GDH activity negatively correlated with the score reduction by PANSS-Pos ($R=-0.41$, $p=0.050$) and by PANSS ($R=-0.49$, $p=0.021$).
Conclusions: The different correlations revealed in two separated clusters between enzymatic activity levels and clinical measures characterizing the antipsychotic treatment efficacy will allow us to approach differentiated predicting the effectiveness of pharmacotherapy using the biochemical parameters.

Disclosure of Interest: None Declared

EPV0687

Clustering patients with late-life depression by blood glutathione-dependent enzymatic activities for stratification of a heterogeneous group

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Introduction: We have previously found significant alterations in activities of glutathione dependent enzymes in blood cells of patients with late-life depression (LLD) compared with age-matched controls.
Objectives: The revealing subgroups of LLD patients by glutathione-metabolism enzymes' activities in blood cells using cluster analysis.
Methods: LLD patients (n=101) of 60-86 age (69 patients with recurrent depression (RD), 23 with bipolar disorder (BD) and 9 patients with a single depressive episode (DE)) were assessed by Hamilton depression rating scale (HAMD-17), and Hamilton Anxiety Rating Scale (HARS). Activity levels of glutathione reductase (GR) and glutathione S-transferase (GST) were