LIPID PEROXIDATION IN PATIENTS WITH SCHIZOPHRENIA

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There is evidence that dysregulation of free radical metabolism associated with abnormal activities of antioxidative enzymes in schizophrenia can lead to lipid peroxidation of plasma, red blood cells, blood platelets and cerebrospinal fluid. Injury of neurons may affect their function, i.e. membrane transport, impairment of energy production in the mitochondrium, a change in membrane phospholipid composition, alteration of receptors and transporters as well as neurotransmission. The purpose of the present study was to assess the total antioxidant capa-city (TAC) and lipid peroxidation in plasma of schizophrenic patients (acute episode) after treatment with olanzapine and risperidone. Methods: In plasma from schizophrenic subjects (DSM-IV criteria for schizophrenia) (n = 30), treated with olanzapine and risperidone and in plasma from healthy volunteers (n = 60) the level of thiobarbituric acid reactive substances (TBARS) according to Rice-Evans and total antioxidant capacity ($ABTS^{\bullet+}$ assay) (Re *et al*., 1999, *Free Radic. Biol. Med*., 26, 1231) were measured.

In schizophrenic patients significantly lower plasma TAC ($p < 0.05$) and significantly increased level of TBARS ($p < 0.001$) were observed. The study *in vitro* showed that second generation antipsychotic drugs (SGA) – olanzapine and risperidone incubated with human plasma did not cause any significant increase of plasma lipid peroxidation. Conclusion: The obtained results indicate that in schizophrenic patients in acute episode pro- and antioxidant disturbances occur and SGA (olanzapine, risperidone) do non induce plasma lipid peroxidation.