

DNASE AND PROTEASE ACTIVITY OF IMMUNOGLOBULINS G OF PATIENTS WITH SCHIZOPHRENIA

L. Smirnova¹, N. Fattakhov², D. Parshukova², V. Buneva³, E. Kometova⁴, A. Semke⁴, S. Ivanova¹

¹Laboratory of Cellular and Molecular-Biological Investigations, Mental Health Research Institute, ²Medico-Biological Faculty, Siberian State Medical University, Tomsk, ³Laboratory of Repair Enzymes, Institute of Chemical Biology and Fundamental Medicine, Novosibirsk, ⁴Mental Health Research Institute, Tomsk, Russia

Introduction: Phenomenon of presence of catalytic properties in immunoglobulins has been actively investigated. Research of catalytic properties of antibodies in schizophrenic patients with various clinical manifestations of the illness has not been carried out previously.

Objectives: To study DNase and proteolytic activity of immunoglobulins G isolated from serum of blood of patients with schizophrenia.

Methods: IgG have been isolated from serum of blood of 34 persons with affine chromatography. DNase activity of antibodies was identified according to degree of hydrolysis of supercoiled form of DNA of plasmid pBluescript per unit of time. Proteolytic activity was assessed according to degree of hydrolysis of basic protein myelin and its peptides. IgG were electrophoretic homogeneity.

Results: We have identified that IgG of schizophrenic patients possess a higher ($0,392 \pm 0,19$ nM DNA /mgAB/h), than in healthy persons ($0,029 \pm 0,06$ nM DNA /mgAB/h) specific DNase activity. It has been shown that DNase activity is an own property of antibodies. It has been found that proteolytic hydrolysis of serum of blood of schizophrenic patients is 5 times as high as indices of hydrolysis in healthy persons. It has been revealed that patients with predominant negative symptoms show maximum high percent of protease hydrolysis 66,9%, different from patients with leading positive symptoms (13,9%).

Conclusions: Increase of DNA-hydrolyzing properties of Ig G is likely to be associated with great number of extracellular DNA. Detection of high values of proteolytic activity may be associated with occurring in serum of blood of patients of large number of destructed or damaged proteins.