HEMATOLOGIC STATE OF ELDERLY DIABETES PATIENTS AGAINST METABOLIC DISORDERS

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The purpose of the work is to study the hematologic state and geometrical profile of blood cells against the background of metabolic disorders in elderly diabetes patients.

The blood of 68 II type diabetes (D-2) patients with concomitant metabolic disorders (Sland E., 2005) served as the subject of the investigation; among them 37 women and 31 men having got insulin; the average age - 63±0,7, the disease duration - 15±1,0 years. The control group was made up of 44 donors matching in sex and age without carbohydrate metabolism disorders.

The number of erythrocytes and leukocytes was calculated in blood, the concentration of hemoglobin, glucose, total protein and lipidic spectrum were defined by the unified methods accepted in the clinical hematology. The number of activated lymphocytes (Frolov A.K. and coauthors, 1990) as predictors of the pancreatic gland beta-cells destruction and diabetic angiopathies and negative disease course manifestation (Zhuk Ye.A., Galenok V.A., 1999) was defined in blood films; the white blood differential was derived. The video-registration and computer analysis of blood cells was carried out with the help of an image analyzer with the "Video-Test" software support. The mean corpuscular volume, membrane surface area and also nucleocytoplasmic index, leukocytic intoxication index (LII) and allergization index (AI) were calculated.

The basic hematologic factors (number of erythrocytes, leukocytes and total hemoglobin concentration) in all the examinees stayed within the physiological standard, but within the formed groups the number of erythrocytes and leukocytes in men is higher than that in women. In the D-2 patients there are fewer erythrocytes and more leukocytes than in the control group persons.

Hyperglycemia was detected in all the patients under the insulin therapy pressure. The glucose concentration in men's blood made 10,4±0,4, in women - 9,9±0,3 mmol•l^{-1}, that is authentically higher than in the donors of the control group. Under the conditions of glycemia decompensation the geometrical profile of erythrocytes and lymphocytes was characterized by an authentic increase of the mean diameter, membrane surface area and mean corpuscular volume. The specific surface area of erythrocytes (S/V) in men is higher than that in women; this dependence remained unchanged in D-2 patients. On the evidence of scientific literature the specific surface area increase is in close correlation relationship with the ability of erythrocytes to aggregation: it intensifies with the increase of lipids in blood (Katyukhin L.N., 2003). As our research showed, the red blood cells' geometrical profile changes were in close relationship with the concentration of glucose and atherogenic lipids in blood: the increase of cholesterol, triacylglycerols and low-density lipoproteins made 77 and 75; 44 and 34; 26 and 39% in men and women accordingly.

In the persons with metabolic disorders an authentic decrease of lymphocytic activated forms percentage was found out, maybe owing to cells' receptor apparatus disturbance (Kurayeva T. L. and coauthors, 2003). The increase of AI and LII reflect the presence of an allergic process and endogenous intoxication of mean severity.

Thus, in the D-2 patients with the concomitant metabolic disorders the mean diameter, mean corpuscular volume, membrane surface area of erythrocytes and lymphocytes is increased, the right neutrophilous shift is registered, the percentage of monocytes and lymphocytic activated forms is decreased against the increase of endogenous intoxication and allergization of the body.