

Additions to the diagnosis of several diseases

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Diabetes and malignant tumors - a well-known diseases. We have found that the adsorption-transport function of red blood cells is related to the diagnosis of these diseases.

We performed research for many years and found that red blood cells absorb a variety of substances on their surface (1). Substances “transported” from erythrocytes surface to mural layer of blood capillaries firstly participate in transcapillary and tissue exchange, and also included to the interstitial fluid and lymph.

In animal experiments during insulin introduction it was found that primarily amount of glucose transported on the erythrocyte surface is reduced. It was revealed that insulin is also carried on the surface of red blood cells. A study in diabetic patients the relationship between the amount of insulin and glucose, transported to the surface of red blood cells, requires a separate grant (I offer cooperation).

The initial form of diabetes is characterized by an increased glucose transport to the surface of red blood cells. Diagnosis of this form of diabetes is possible even with the known devices for determining glucose in capillary blood (with glucometr). One way of identifying the total glucose in blood (content of glucose in the plasma and on the surface of blood cells) has patent of Republic of Kazakhstan (№ 30294, 2015 г.). Proposed additions are contained in international patent applications.

Experimentally we detected insufficient adsorption-transport function of red blood cells at type 2 diabetes. These data indicate that the addition of glucose to hemoglobin decreases the ability of erythrocytes to adsorb proteins, lipids and

carbohydrates. We have experimentally revealed differences in the content of glycohemoglobin in old and young red blood cells.

In recent years we found that well-known tumor markers such as alfafetoprotein (afp) and immunoglobulin E (IgE) are transported on the surface of red blood cells. Grant financing is also necessary for a complete understanding of the diagnostic ratios of afp/IgE transported to the surface of red blood cells. These markers vary oppositely in cancer patients. Research is needed not only in cancer patients with varying degrees of severity, but also in growing children and pregnant women. There is an assumption that the ratio afp/IgE is the most accurate indicator of the absence, presence and degree of malignancy of tumors.

The new additions of diagnostic extend the capabilities of therapy.

1. Gareyev R. Adsorption – transport function of erythrocytes. Physiology, №1 (1), 2015, 50-56 (Kazakhstan). e-mail rauf.gareyev@gmail.com