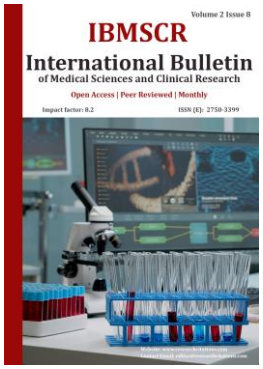

PHYSICAL AND BIOCHEMICAL PROPERTIES OF BLOOD

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Abstract: Currently, the study of the composition of blood is becoming important in medicine. By determining the composition of blood, it is possible to study the mechanisms of various infectious diseases, viral diseases, immune cells, and normal functioning. Many diseases spread through blood to all organs and tissues. spreads to the tissues. Blood ensures the basic life activity and affects the work of other organs and tissues through the tissue fluid.
Key words: Osmotic pressure, gamestasis, specific gravity, plasma, shaped elements, tissue fluid, internal environment, tissue fluid, immunity

Introduction: Blood performs several functions in the body, including: Transport function. Respiratory function. Nourishing (trophic). Excretory function. Thermoregulator function. Blood plays an important role in maintaining certain indicators of homeostasis. Participates in water-salt exchange. Protective function. All substance and energy exchange processes take place through the above functions of blood and are controlled by humoral factors.

Body: Blood, lymph, tissue, spinal cord, pleural, joint and other fluids make up the body's internal environment. Of these, the tissue fluid is the true internal environment, as it is in direct contact with the cell. The blood is in direct contact with the endocardium and endothelium of the vessels, providing their vital activity, influencing the work of other organs and tissues through the tissue fluid. Therefore, the internal environment is a whole system that carries out humoral transport, and it can be seen that it consists of the following rings: blood - tissue fluid - tissue fluid - lymph - blood. In other words, for an organism to live actively, its cells need to be in a controlled environment. Moving in the blood vessels, it transports various substances: oxygen, carbonic anhydride gases, nutrients, hormones, enzymes and other substances. 2. Breath function. It carries 02 from the lungs to the tissues and CO2 from the tissues to the lungs. 3. Nutritive (trophic). From the digestive tract, the necessary nutrients (glucose, fructose, peptides, amino acids, salts, vitamins, water, fat and its compounds) are absorbed into the blood and lymph and deliver them to the tissues. 4. Excretory function. Unnecessary (waste) substances formed in metabolism are transported from the tissues to the excretory organs, and the excretory organs expel them. 5. Thermoregulator function. It re-supplies the blood with heat and plays a major role in keeping the body temperature uniform. 6 Blood is of great importance in keeping certain parameters of homeostasis constant. 7. Participates in water-salt exchange. 8. Protective duty. Leukocytes protect the body by participating in immunity and phagocytosis. 9. The function of humoral control. First of all, it ensures the transport of hormones and biologically active substances in the blood. Due to the control function, the internal environment is maintained, the intensity of

metabolism, hemopoiesis and other physiological activities are controlled. 10. Creation of creative gardens. Blood plasma and shaped elements carry macromolecules that form informative bonds. In addition, if we look at the biochemical properties of blood, it is necessary to determine its composition and quantity. The composition of blood consists mainly of two: blood plasma and shaped elements It is 6-8% of the human body weight and it corresponds to an average of 5-6 l. To determine the amount of blood: a neutral dye, radioactive isotopes or colloid solutions are injected into the blood, and these substances are evenly distributed in the blood. after dispersion, its concentration is determined. Depending on the degree of dilution of substances, the amount of blood can be determined. Plasma makes up 55-60% of the blood, 90-91% of it is water and 9-10% of dry matter, and the total amount of proteins is 7-8% on average. The shaped elements of the blood make up 40-45% of the blood. erythrocytes are 4.5-5 million/µl, leukocytes are 6-9 thousand/µl, and platelets are 250-400 thousand/µl. Nitrogenous compounds other than protein in blood plasma: substances (amino acids, polypeptides) formed as a result of hydrolysis of proteins, absorbed from the digestive tract and used by cells for the synthesis of protoplasmic proteins, and substances formed as a result of the breakdown of proteins and excreted from the body. (urea, uric acid, creatinine, ammonia). The total amount of nonoxygen nitrogen, called residual nitrogen, in plasma is 30-40 mg%. Half of it corresponds to urea. When the kidneys do not work enough, the residual nitrogen in the blood plasma is too high. Nitrogen-free organic matter in blood plasma: the main energy source for body cells is glucose (80-120 mg % or 4.4-6.7 mmol/1) and various organic acids, lactic acid, formed as a result of the activity of body cells. Solutions that have the same osmotic pressure as blood, i.e. the concentration of salts is equal to that of blood, are called isotonic solutions or isoosmotic solutions. A 0.9% solution of NaCl is an isotonic solution for warm-blooded animals and humans. This solution is often called physiological solution. Solutions whose osmotic pressure is greater than that of blood are called hypertonic solutions, and solutions with a lower osmotic pressure are called hypotonic solutions. Blood plasma proteins. The importance of blood plasma proteins is diverse.1. Creates oncotic pressure of blood. Provides water exchange between blood and tissues. 2. Since proteins have buffer properties, they maintain the acid-alkaline balance of the blood.

3. Proteins ensure a certain level of viscosity of blood plasma, which is important for keeping arterial pressure at a certain level. 4. Blood plasma proteins prevent the sedimentation of erythrocytes. 5. Plasma proteins are important in blood clotting (fibrinogen). 6. Proteins of blood plasma are an important factor of not suffering from infectious diseases, i.e. immunity (globulins). 7. Blood plasma proteins are important in transporting substances such as hormones, minerals, lipids and cholesterol. 8. It is a reserve for tissue proteins. 9. The creator participates in creating gardens. It affects the genetic apparatus of cells and ensures their growth, development, differentiation and body structure. The organic composition of the plasma includes non-protein nitrogen storage substances (amino acids, polypeptides, urea, uric acid, creatine, ammonia). Non-protein nitrogen storage substances are called residual nitrogen and their total amount is 11-15 mmol/1 (30-40mg%). When kidney function is impaired, the amount of these substances in the blood increases. Plasma also contains organic substances that do not store nitrogen: glucose 4.4-6.6 mmol/1 (80-120 mg%), neutral fats, lipids, hydrolytic enzymes. , proenzymes, enzymes involved in blood coagulation and fibrinolysis. Physical and chemical properties of blood. Color of blood. Hemoglobin contained

in erythrocytes gives blood a red color. Arterial blood has a pale red color due to its rich content of oxyhemoglobin. Venous blood has a dark red color due to recycled and oxidized hemoglobins. The more hemoglobin in the blood delivers oxygen to the tissue, the darker the venous blood. Specific gravity of blood. It ranges from 1.058 to 1.062 and depends on the amount of erythrocytes in its composition. The specific gravity of plasma is 1.025 - 1.034, depending on the amount of proteins in it. Blood viscosity i. The viscosity of blood is 4.5-5.0 when compared to water. Blood viscosity mainly depends on the amount of erythrocytes and partially plasma proteins. The viscosity of venous blood is higher than that of arterial blood, due to the fact that erythrocytes in venous blood store CO2 and are slightly larger in diameter. The release of erythrocytes from the depot increases blood viscosity. Plasma viscosity does not exceed 1.8 - 2.2. When a person consumes a lot of protein, the viscosity of the plasma, and consequently of the blood, may increase. Osmotic pressure of blood. Osmotic pressure is the force that ensures the passage of a solvent (water for blood) from a thick liquid solution to a thick solution through a semiconducting membrane. Blood osmotic pressure is carried out cryoscopically - by determining the freezing point (depression).

Conclusion: In short, it is not an exaggeration to say that about 50% of the processes in the body take place through the blood. Due to the functions of the blood in the body, the greatest function, such as the metabolism of all substances, is performed. we will be able to correctly understand the mechanism of diseases.

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