MECHANICAL MODEL OF BLOOD CIRCULATION

Salomov Shoxabbos Nozimjon O'g'li

Student of Andijan State Medical Institute

Annotation: The first attempt to apply the laws of mechanics to the study of the organism occurred in the 17th century. Hemodynamics - hydrostatic pressure occurs due to differences in different parts of the vascular system (it is known that the sand flows from the high-pressure area to the low-pressure area). The main factor in this is the contraction of the heart. Due to the elasticity of blood vessels, negative pressure in the thoracic cavity, contraction of the diaphragm and skeletal muscles, blood flows continuously in the blood vessels. As a result, there is a regu lar metabolism between blood and tissues. A number of indicators of circulatory and respiratory status are also important in the development of diagnostics of heart and lung diseases and the consequences of surgery.

Key words: Systole, diastole, hemodynamics, ECG, thermoregulation, pulse, car diac automation, cardiac biocurrent, cardiac cycle, biomechanics, arteries, veins, capillaries, hormones, coronary arteries, cavities.

Circulation is the movement of blood through the circulatory system due to the contraction of the heart. Circulation maintains metabolism and homeostasis bet ween the body's tissues and the environment. Blood carries oxygen, water, protein, carbohydrates, fats, minerals, vitamins, and more to the tissues, and removes car bon dioxide and other metabolic wastes from the tissues. Blood circulation was discovered in 1628 by the English physician W. Garvey. It moves in the blood vessels due to the contraction and relaxation of the heart muscle. The amount of blood that the heart pumps per minute is called the minute volume. The minute volume at rest is 4-5 liters, and in the case of emotional impact it increases by 3-4 times. The heart pumps blood into the artery in portions. With bleeding, the walls of the arteries dilate. The energy stored in the diastole maintains a certain level of blood pressure in the arteries and maintains a continuous flow of blood in the

capillaries. Only 5% of the blood in the body is in the capillaries, but the main function of the blood circulation - the exchange of blood and tissue - takes place in these capillaries. Due to the hydrostatic pressure of the blood in the capillaries, the fluid is filtered from the capillaries to the tissue. Blood resists in the capillaries, overcoming which it loses energy and lowers blood pressure. The circulatory system is divided into two circles, aquatic and terrestrial. The small circulatory system includes the right ventricular artery and the pulmonary veins exiting the lungs. The small circulatory system is involved in the exchange of gases in the blood. The great circulatory system (system) includes the aorta, arteries, arterial capillaries, venous capillaries, venous cavities, and their pocket valves, which originate in the left ventricle of the heart. The large circulatory system is involved in the delivery of nutrients and oxygen to tissues and organs, and from there to the digestive system for the delivery of harmful substances from metabolism.

General understanding of the circulatory system and its importance The circulatory system includes the coronary arteries, capillaries, veins, and lymphatic vessels. The heart and blood vessels ensure the uninterrupted movement of blood in the human body. As a result of the automatic contraction and dilation of the heart, blood travels through large arteries and capillaries to all tissues and cells of the body, and then through small, medium and large veins. returns to the heart. From the left ventricle of the heart, arterial blood, rich in nutrients, oxygen, and hormones, is pumped into the aorta. It travels through large, medium, and small arteries to the capillaries between tissues and cells. Nutrients, oxygen and hormones in the blood pass into the cells. Residual substances and carbon dioxide formed as a result of metabolism in the cells pass from them to the small veins, capillaries, and then through the middle, large veins to the right compartment of the heart. Thus, the cardiovascular system delivers nutrients and oxygen to all the tissues and cells of the body. It receives the residual substance formed in them and delivers it to the digestive organs. That is why the cardiovascular system is also called the carrier system. The cardiovascular system plays the most important vital function. If the heart stops for a short time, a person’s life will also stop. The cardiovascular

system is made up of several parts, as mentioned above. In order to study the functioning of this system perfectly, it is expedient to get acquainted with the structure and function of each of its parts.

Liturature :

1. E. Ismailov, N. Mamatqulov, G'. Xodjayev, N. Norboyev Biofizika. Toshkent.2013yil.

2. Grabovskiy R.I. «Fizika kursi». T. O'qituvchi 1980 yil.

3. Remezev A.N. «Tibbiy va biologik fizika». T. 1990 yil.

4. Merion D.J. «Obщaya fizika s biologicheskimi primerami». M. VSh. 1986 g.

5. Rubin A.Ye. «Biofizika». M. 1-2 Tom. VSh. 1982 g.

6. Belanovskiy A.S. «Osnovы biofiziki veterinarii». M. Agropiramizdat. 1989 g.

7. Volkenshteyn V.M. «Biofizika». M. 1981 g.

8. Glazer R. «Ocherki osnovы biomexaniki». M. Mir. 1988 g.

9. Osnovы agrofiziki podredaksii AF Ioffe M. VSh. 1990 g.