Non-contact blood activation

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The results of experiments on non-contact blood activation are presented. The electrokinetic mobility of erythrocytes in the presence and absence of contactless activation is investigated. Electrochemical activation, non-contact activation, blood, erythrocytes.

The most important parameter of water, from the point of view of modern medicine, is its "charge" - the oxidation-reduction potential (ORP), which must be negative, since human cells have a negative ORP (-70 mV). Diseases occur when the negative potential of cells (ORP) falls below normal. Water activated in one way or another has a negative ORP, a microcluster structure, is easily absorbed by the body and replenishes the negative charges and energy lost in the course of illness to blood cells. Of particular interest from this point of view are methods of non-contact activation (BA) of liquids without changing their chemical composition [1-3]. In particular, positive clinical experience has been accumulated when using non-contact activated saline solutions (FR) for droppers by the Kiselev method (laser + UFO + acoustics) [3].

In this regard, this work investigated the non-contact activation of blood in a diaphragmless electrolyzer [2] and the dynamics of blood erythrocytes in saline, the percentage of their activity in the presence of the BA effect.

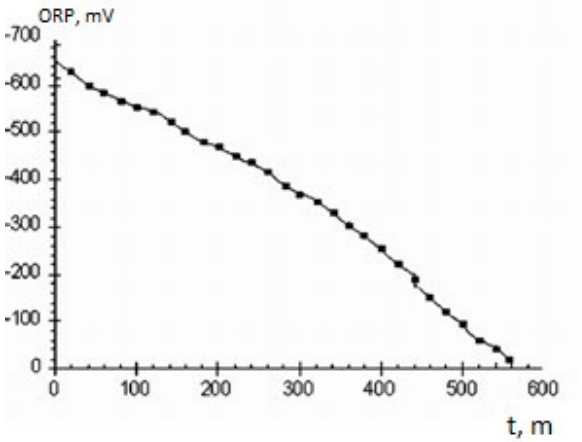
Experiments on non-contact blood activation.

Experiment № 1.

The experiments were carried out in an "Espero" type electrolyzer. Sealed thin-walled polyethylene containers for BA were filled with blood with a volume of V = 50 ml and placed in the electrolyzer for 30 minutes. The electrolyzer was filled with tap water V = 1.8 l, with the addition of sodium chloride NaCl 9 g / l. It is coaxially located: anode and cathode. The activation current and voltage were equal to Iact = 3 A, Uact = 14 V. After the activation, blood parameters were measured (Table No. 1). Pic. 1 shows a graph of the relaxation of ORP of BA blood.

Table No.1.

	pH	ORP, mV	T, ° C
Blood, initial parameters	8,7±0,2	175±5	20±1
Blood BA between electrodes	8,5±0,2	- 654±5	20±1
BA blood outside the electrodes	8,6±0,2	- 645±5	22±1



Pic. 1. Relaxation graph of ORP of non-contact activated blood.

Experiment № 2.

In this experiment, the non-contact activation of blood was studied based on a standard medical dropper in a flow (drip mode). The experiment was carried out in an electrolytic cell, consisting of an anode and a cathode arranged coaxially, the size of the anode (length L = 80 cm, diameter D = 0.8 cm), cathode (length L = 80 cm, diameter D = 1.4 cm), between them placed along the entire length of the dropper (wall thickness L = 1.5 mm) with blood. The space between the anode and cathode (I = 5 A) is filled with water with the addition of NaCl 1.5 g/l. The rate of blood flow is 1 drop per second. The results of this experiment are shown in table No. 2.

Table No.2.

	pH	ORP, mV	T, ° C
Blood, initial parameters	8,9±0,2	293±5	21±1
BA blood in a dropper	9,1±0,2	- 275±5	32±1

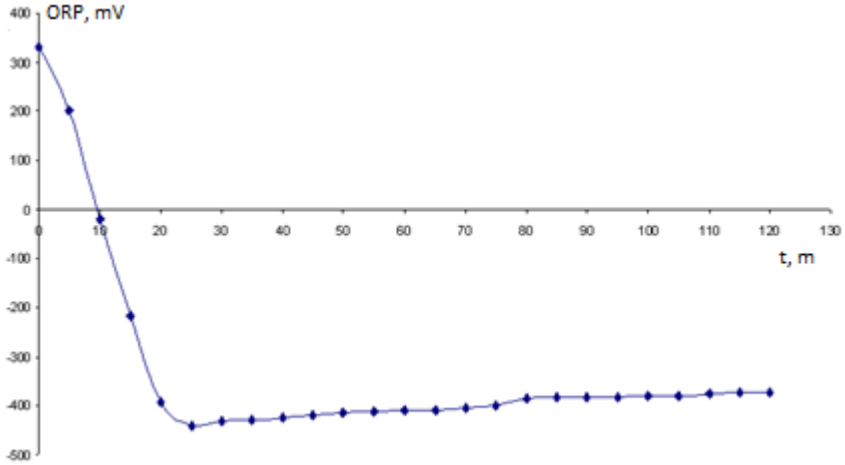
Experiment № 3.

The material for research was erythrocytes - the formed elements of blood.

The studies used the ability of cells to commit forced vibrations when an external alternating electric field is applied due to the presence of an electric charge on the cell surface [4].

We used peripheral blood taken from the upper phalanx of the 4th finger of the left hand. Blood cells, placed in saline, made forced oscillations under the influence of an alternating electric field. An alternating voltage (14 V, frequency 0.5 Hz) was applied alternately to a pair of flat rectangular silver electrodes. The poles of the electrodes were brought out onto a glass slide for contact with a suspension of cells in saline. Measurements of the amplitude and number of mobile (active) erythrocytes to the total number as a percentage, lying in the field of view of the microscope, with bioelectric activity were carried out at a microscope magnification of 600x. Each cycle of measurements was carried out for 20 minutes. For the study, a mini-thermostat was used to maintain the temperature 37ºC.

For non-contact activation, sealed thin-walled polyethylene bags (25 μm thick) with saline were placed in a previously activated NaCl solution (9 g / l), prepared with tap water, in a diaphragmless electrolyzer [2]. The graph of the dependence of the ORP of saline on the time of contactless activation is shown in pic. 2.



Pic. 2. ORP FR dependence on activation time at voltage 4V and current 1A.

The activation of the saline solution in the electrolyzer was carried out for 15 minutes by passing an electric current of 1 A through it at a voltage of 4 V. After activation, the solution was thoroughly mixed, then a bag filled with saline solution was placed in it for 15 minutes. Then the bag with the contents was removed from the solution. As necessary, their contents were taken from the containers and the dynamics of erythrocytes was studied. In the control, the dynamics of erythrocytes in non-activated RF was studied. The average amplitude of fluctuations, taking into account the random error, as well as the number of mobile (active) erythrocytes to the total number as a percentage are presented in table No. 3.

Table No.3.

Experience conditions	Amplitude in cu.	Activity, %
BA FR with blood	0.61±0.8	50
FR, blood added before measurements (control)	1.00±0.12	60
BA, FR blood added before measurements	1.79±0.12	90

The results of the experiment showed that direct contactless activation of blood in saline has a suppressive effect on cells in comparison with post-activation of blood in BA FR and control.

For a long time (several months) there were differences in the results with the preservation of the general trend (Table №3). Deviations, apparently, are associated with differences in the composition of the environment, the physiological state of cells, geomagnetic disturbances and a number of other factors.

Non-contact activation of blood and its components, which changes the structure and properties of blood without changing its chemical composition, opens up completely new prospects for the practical use of this effect in medicine - for the prevention and treatment of various diseases, for blood incubators.

Literature:

1. Prilutskiy V.I., Bakhir V.M. Electrochemically activated water: Abnormal properties, mechanism of biological action. - M .; VNIIIMT JSC NPO "Ekran". 1997, 228 p. sb10-1.htm.
2. Shironosov V.G. Resonance in Physics, Chemistry and Biology. Izhevsk. Publishing house "Udmurt University", 2000/01, 92 p. sb22.htm
3. Kiselev B.I. Adaptive treatment method (artificial source of biofield in medicine). St. Petersburg; "Complex". no. 1.1997, 9 p. sb17-4.htm
4. Kazankin D.S. Electrokinetic methods of intravital cell research. "MIS-RT", collection. 17-3, 2000. sb17-3.htm

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