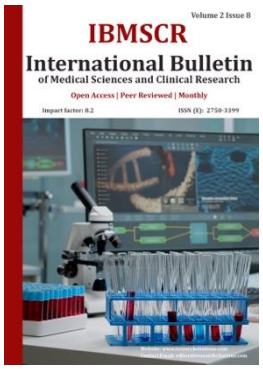

STUDY OF THE EFFECT OF ACUTE RADIATION ON THE BODY USING CLINICAL AND EXPERIMENTAL METHODS.

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Abstract. The following article presents methods for improving a new approach to the treatment and Prevention of Morpho-functional changes in the heart caused by acute radiation, the mechanism of how much radiation affects the human body, as well as a specific clinic of acute radiation for the purpose of their treatment.

Keywords. Radiation, radioprotective agents, protons, positrons, neutrons, radioactive substance, spurilin.

There is no loss of relevance in the development of treatment-prophylactic measures for changes in the body under the influence of radiation, including the morphological characteristics of the members and the reduction of radiation exposure.

Circulatory disorders are observed based on many clinical syndromes, closely related to pathogenetically different effects monosubates. Heart failure is primarily a pathological condition that cannot provide normal blood circulation in tissues and organs. Acute radiation causes excessive heart failure. The development of this heart failure is a long-term overwork of the myocardium, which is caused by the release of blood from the heart into large vessels (overwork) or an excessive increase in blood flow to the heart.

Light disease caused by exposure to acute radiation (radiation) is a pathological condition of the body, caused by exposure to doses higher than the maximum permissible standards of ionizing radiation". There is no loss of relevance in the development of treatment-prophylactic measures for changes in the body under the influence of radiation, including the morphological characteristics of the members and the reduction of radiation exposure.

Morphological changes formed by the influence of acute radiation on the internal organs of the body have also been studied, the results of experimental studies on the effect of biological preparations have been published. However, the morphological changes that occur in the heart under the influence of acute radiation, a new treatment for them with antioxidants-the degree of preventive effect has not been studied, the degree of influence of biological preparations on the level of morphological changes has not been shown [2,8,10].

Ionizing radiation varieties include: electromagnetic oscillations with small wavelengths, X-rays, ɣ - radiation, χ-and β-particles (electrons) protons, positrons, neutrons, and other irradiated particles. While X-rays and α-radiation have the highest and deepest ability to penetrate the body, the least Access Ability has been shown to belong to β-radiation [1,7,8].

The most dangerous among isotopes are those that have a long absorption period, which, when exposed to an organism, remain a source of internal radiation for the rest of a person's life. Elimination of radioactive elements is carried out through the gastrointestinal

tract, respiratory tract and kidneys. The primary stage of radiation exposure is the ionization of molecules and atoms in the cell structure [1,3,4].

The indirect effect of radiation is explained by the formation of radiolysis of water, which makes up 70-80% of the body, in which radicals with oxidative and alkaline properties are formed when water ionizes. In addition, the formation of atomic hydrogen, hydroperoxyl radicals, hydrogen peroxide is also significant. Free oxidizing radicals undergo an enzymatic reaction, as a result of which active sulfhydryl groups are converted into inactive disulfide compounds. These biochemical processes lead to a decrease in the catalytic activity of enzyme systems, which in turn leads to a decrease in DNA and RNA in cell nuclei, a condition that disrupts the processes of their renewal [1,9].

The relevance and necessity of this study was determined by the patomorphological changes in various internal organs under the influence of acute radiation, the scarcity of R & D studies on the impact of a novel treatment-preventive approach on an irradiated organism in an experiment.

One cycle of cardiac work lasts about 0.85 seconds, of which only 0.11 seconds corresponds to the time of contraction of the vesicles, 0.32 seconds corresponds to the time of contraction of the ventricles, while the longest is the resting period, lasting 0.4 seconds. During rest, the heart of an adult works in the system in about 70 cycles per minute.

Usually, the heart cycle is an orderly process, which is based on the conduction of excitation in the heart. Typically, an electrical pulse occurs in the sinoatrial node, where the upper umbilical vein joins the right ventricle. The depolarization wave spreads rapidly through the right and left compartments, reaching the atrioventricular node, where it spreads significantly. The impulse then spreads rapidly along the GIS chimney and passes along the right and left feet of the chimney. They branch into Purkine fibers and the impulse spreads to the myocardial fibers, causing them to contract.

Schematic image of the conduction system of the heart (marked with Blue): (1) sinoatrial node, (2) atrioventricular node. A certain part of the heart muscle specializes in giving control signals to the rest of the heart in the form of corresponding impulses of an autotube nature. This specialized part of the heart is called the cardiac conduction system. It is he who ensures the automatism of the heart.

The sinoatrial node, which is called A Level 1 pacemaker and is located in the wall of the right compartment, is an important part of cardiac conduction and controls the frequency of the heart cycle by sending regular autotube impulses. Through the atrial conduction pathways, these impulses enter the atrioventricular node and later the individual cells of the relaxed myocardium, causing them to contract. Thus, the conduction of the heart provides the rhythmic work of the heart, that is, normal cardiac activity, with the help of coordination of the bladder and ventricular contraction.

It was found that it is permissible to cite all 4 stages of the preparation of histological preparations performed during the study:

The first stage is the acquisition of biological objects. Anesthesia was used to kill laboratory animals. Then the animal was quickly opened, the necessary organ and tissues were obtained, from which small pieces (5-10 mm3) were cut with a sharp tool and placed on a fixer. The size of the fixer turned out to be 20-40 times more than the size of the specified object. Fixation prevents the development of post-mortem changes in tissues, suppresses biochemical processes in them. The effect of any fixator is based on complex physicochemical

processes, primarily protein coagulation. We used complex reagents containing one (formalin, alcohol, acetone) and two or more components (Sarnoy liquid - absolute alcohol, chloroform, ice acetic acid; zenker liquid - mercury chloride, potassium dichromate, sodium sulfate, formalin, distilled water).

The second stage is the washing, dehydration and filling of biological objects. To obtain thin slices, fixed biological objects were prepared accordingly: to make it dense enough, after fixation, the pieces were washed under running water for 12-24 hours to get rid of excess fixator. This stage was skipped for the pieces located in the Sarnoy fluid. After washing, they were loosened and compacted with intensifying alcohols, for which they were successively 50°, 60°, 70°, 90°, 96° and 100° alcohols were used. Then the pieces were clarified, for which the absolute alcohol (100°) and o-xylol were first mixed in a 1:1 ratio, placed in the same mixture, and then in 2/3 of the Pure o-xylol. After cleaning, it was dissolved in a thermostat (a mixture of equal parts of o-xylol and paraffin) at a temperature of 37°C, then 2/3 of pure paraffin, at 56°C. Paraffin-soaked parts were glued to wooden blocks. Biological objects prepared in this way can be stored outdoors for a long time.

The third stage is the preparation of histological blocks. Microtome was used to prepare the blocks. The resulting paraffin pieces were glued to the glass of an item smeared with a mixture of protein and glycerin (in a 1:1 ratio) and dried in a thermostat at 37°C, thus being prepared for the next step.

The fourth stage is painting and cutting. Under the trinocular microscope, a Chinese-made, software-enabled HL-19 model designed for block staining and biological micro-object monitoring, the member structure was clearly observed and based on the unequal chemical composition of tissue structures. Traditional dyes were used to make a large number of histological preparations for dyeing.

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