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**The effect of ozonized solutions on regenerative processes in the skin
after its cryoinjury**

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Ozone, that is an allotropic modification of oxygen, has the properties of a powerful oxidizing agent for chemicals. The interaction of ozone with the body is manifested at all levels: molecular, cellular, tissue, organ, system. So that, the effect of ozone at the cellular level can be assessed as an adap-

togenic, regenerated cell redox potential and self-regulation. Ozone is a factor that qualitatively changes cell metabolism and microcirculation due to the expansion of the structural-enzymatic spectrum of oxygen utilization and the increase in the energy efficiency of tissue oxidative systems. The injection of ozone into the body in certain concentrations is accompanied by a wide range of biological influence on various organs and systems: the central nervous system, endocrine, cardiovascular, excretory, respiratory, hematopoietic, immune and reproductive. Ozone can be considered both a pharmacological drug and ecologically pure physical-chemical factor that has bactericidal and antiviral properties. In the economic aspect, the cost of ozone therapy course is lower on several exponents in comparison with use of reserve-series antibiotics and a new generation with an extremely expensive one. Reducing of tissue hypoxia is one of the mechanisms of anti-inflammatory action of ozone therapy. The stimulation of reparative processes in the primary purulent wounds during treatment has been noted in many studies according to use of ozone in purulent surgery. In connection with the above, the purpose of our investigation is to study the reparative processes in the skin after cryoinjuring and the influence on them of various concentrations of ozonized solutions.

The work was performed on 80 white rats male Wistar according to agreement of the International Principles of the European Convention for the Protection of Vertebrate Animals (Strasbourg, 1986). A copper applicator which was cooled till liquid nitrogen temperature (-196°C) was used to simulate cold wounds. All experimental animals were daily subcutaneously injected with ozonized physiological solution (OPS) with ozone concentrations of 12 mg/l; 6 mg/l; 1 mg/l. The dynamics of wound healing after cold skin damage and the effect of various ozone concentrations on regenerative processes were studied on the 1st, 3rd, 7th and 14th day.

OPS was obtained at a facility with a barrier-free ozone generator which had been designed in Institute for Problems of Cryobiology and Cryomedicine (Ukraine, Kharkov). A physiological solution (0.89% NaCl; pH 7.2) was bubbled with an ozone-oxygen mixture, and then the concentration of ozone was estimated spectrophotometrically on a Specord UV VIS device (Germany) by absorbing light on the Hartley strip.

A semi-quantitative assessment of the histological characteristics of severity that reflects the state of inflammatory necrotic and regenerative processes in the skin has been carried out for a morphological study of development and regression of pathological disorders caused by cryoinjuring. The analysis of histological sections has been carried out under a Carl Zeiss (Jena) microscope; a Canon digital camera EOS 300D Digital was used for photo registration.

According to the data obtained, it has been shown that the treatment of cryodamages with OPS improves the regenerative processes in the skin. The regenerative properties are increased with a decrease of the ozone concentration in the OPS. The best healing results were obtained in the group of animals that were treated with ozone concentration in 1 mg/l OPS.