

nature, form and extent of the process.

**Objective:** to conduct histopathology assessment of the structural and functional characteristics of tissue processes in the lung tissue in patients with multidrug-resistant (MDR) of the pathogen.

**Materials and methods:** autopsy material, covering the 62 patients who died of fibro-cavernous pulmonary tuberculosis in hospitals of the Amur region. Groups are divided according to the type of agent LU: I group - MDR (43 people), II group - 19 people with drug-sensitive saved. Was determined the prevalence of lesions of the lung tissue, studied the cellular microenvironment and histological features of arterioles, capillaries and venules in the focus of inflammation. For morphometric studies received pieces of lung tissue destruction zones of active inflammation, the walls of the pulmonary cavities with qualitative and quantitative determination of cellular composition.

**Results:** the most significant morphological changes were detected for persons suffering from pulmonary tuberculosis DR.

In these patients, there is the prevalence of a specific severity of lung lesions with caseous layer in the cavity, and the tuberculosis foci of infection, extensive seroplastic inflammation in adjacent and distant from the cavity of lung parenchyma. It is worth noting that even in all cases, we observed an increase in the permeability of the phenomenon and vasculitis. However, in the cases of DR-TB lesion was more common and combines not only the destruction of the endothelium, and thrombosis of large and small vessels. Material from patients with drug-sensitive saved had the characteristics of exudative productive process with a less pronounced inflammatory response, in which there was fibrosis of the lung parenchyma. While the streets of Latvia, who died of fibro-cavernous pulmonary tuberculosis, we observed a pronounced exudative alterative reaction in conjunction with a deep damage of the microvasculature.

**Conclusion.** The results of the study show that there is a relationship between the inflammatory response and the morphological features of the reactions in the lung parenchyma in patients with DR TB, which depends on the severity of the first. The most pronounced changes in patients died from progressive fibro-cavernous tuberculosis, released during the life of Mycobacterium tuberculosis with multidrug-resistant and multi-drug resistant.

#### Literature

1. Voronkova O. V. Etiologiya i immunopatogenez tuberkuleza legkikh s mnozhestvennoy lekarstvennoy ustoychivost'yu: avtoreferat dissertatsii doktora meditsinskikh nauk. Tomsk; 2006.
2. Zyuzya Yu. R., Gedymin L.E., Burtseva S. A., Yerokhin V. V. Problemy tuberkuleza i bolezni legkih 2006; 10: 56-59.
3. Kukovitskaya V.V., Svisunova V.P. Dal'nevostochnyy meditsinskiy zhurnal 2008; 4:19-21.
4. Makarov I.Yu., Zhukova E.N. Dal'nevostochnyy meditsinskiy zhurnal 2013; 1: 24-26.
5. Khomenko A.G., Mishin V.Yu., Chukanov V.I. Problemy tuberkuleza i bolezney legkih 1999; 1: 22-27.

DOI: 10.22448/AMJ.2016.15-16.86-88

UDC 542.46.591:447.048

#### MORPHOFUNCTIONAL CHARACTERISTICS OF LIMB SKIN OF RATS IN PRE-REACTIVE PERIOD AT A LOCAL COOLING ON THE BACKGROUND OF DIHYDROQUERCETIN

Malyuk E.A., Tseluyko S.S., Krasavina N.P.

Amur State Medical Academy, Blagoveshchensk, Russia

**Abstract** This article presents the results of the laboratory analysis of the drug-dihydroquercetin as a cryoprotectant, ie substance that prevents or reduces the effect of cold damage. In the open areas of the body frostbite may occur caused by damaging effect of cold directly to the tissue. Local cooling is one of the most common environmental impacts that people living in the northern regions periodically undergo. Preparations of antioxidant activity, in particular dihydroquercetin – the basic flavonoid compound obtained from Siberian larch wood, has a wide spectrum of pharmacological effects, such as high antioxidant activity, it can be used as a substance, preventing cell swelling.

**Key words:** epidermis, dermis, keratinocytes, cold injury, frostbite, local cooling of the skin, dihydroquercetin.

Temperature is the most important environmental factors affecting human and animals. Effect of low temperature on biological objects is dependent on the degree of maturity of the body and phylogenetic implemented through different mechanisms in in vitro circumstances and in vivo [1].

When exposed to low ambient temperatures on the whole organism occur, usually cold be damaged mechanism of action. First - this is a direct cryodestruction. But the most important thing for us is the second mechanism - the effect of low temperatures on the organism as a whole, at a temperature of environment environmental below ~ 30 ° C, in the open areas of the body may occur frostbite, caused damaging effect of cold

directly on the fabric [4].

Lipid peroxidation (LPO) cell membranes typev is a normal metabolic process and proceeds with low effectiveness continuously throughout the body. At the cellular level during the period of cold ischemia accumulated toxic end products of anaerobic metabolism; restore adequate blood flow after they enter the blood, causing development of reperfusion syndrome [6].

Dihydroquercetin - basic flavonoid connection Siberian larch wood [1, 2]. This compound has a broad spectrum of pharmacological effects such as anti-inflammatory, anti-edema effect has, normalizes the skin collagen production, increases the antioxidant activity [5].

**Materials and methods.** The study was conducted on 70 white mongrel adult male rats weighing 150 - 200g

Animals were divided into three groups - a control contained in a vivarium and clogged at the end of the experiment; group receiving dihydroquercetin topically in the form of 2.5% petrolatum ointment bases. The third group was administered orally dihydroquercetin 5 mg / 100 g Each group was divided into two groups: the first has been intact, the animals of the second subgroup called local frostbite with a cotton swab dipped in liquid nitrogen for 1 minute, and they were packed immediately, in doreaktivny period frostbite.

The object of the study served as the material of the skin of the hind limbs of white laboratory rats, which was taken on the morphological study. For light microscopy: the skin material rats were fixed in 10% neutral formalin solution zabuferënnom, casting was carried out in paraffin blocks, sectioned of which 5-7 microns thick and the review of histological studies were stained with hematoxylin - eosin and methylene blue.

For electron microscopy were prepared and semithin ultrathin sections: this resulting material was fixed in glutaraldehyde, washed in phosphate buffer with sucrose, dehydrated in ascending concentrations of acetone, the reaction was carried osmium tetroxide - zinc iodide. For light-optical studies used semithin sections, which were stained with methylene blue. For electron microscopic examination of ultrathin sections were applied, contrasted with uranyl - acetate and lead citrate [2, 6].

Photographing and semifine paraffin sections was performed on a microscope «Microphot FXA '' (Nikon, Japan) with an increase from 350 to 700 times.

Ultrathin sections were examined for transmission electron microscope Tecnai G2 Spirit TWIN at magnifications of 20 000 - 85 000 times.

The morphometric study was carried out on a semi-automatic software - hardware complex personal computer image analysis with a special program for morphometric computing "morphometry".

**Results and discussion.** In the control group (not received pharmacological correction), subjected to local cooling and derived from the experiment immediately after cold exposure - in doreaktivny period of cold injury observed following morphological changes: the boundaries between the layers of the epidermis and by the cells of a back seat, basal cell nuclei and granular layers piknotizirovany, t .e. observed phenomena paranecrosis. Pigment paints over epidermal cells diffusely, vacuolated cytoplasm of epithelial cells. From the vascular papillary dermis observed stasis, there is persistent spasm of blood vessels of the dermis, which speaks about the phenomena of cold stress.

Red blood cells are glued together in "coin columns" and clog capillaries, visible phenomenon of microcirculatory occlusion system.

In the control group in the local application Dihydroquercetin by epidermal exfoliation effect is observed, indicating that the drug Dihydroquercetin keratolytic action, keratinization processes are unremarkable. On the part of the dermis revealed swelling of moderate severity in the mesh layer, in addition, there is a growing fibroblastic reaction. The results indicate a positive effect of the drug on the water and electrolyte, protein exchange in the skin and stimulating effect on the synthesis of glycosaminoglycan's in the local application Dihydroquercetin.

In a subgroup subjected to a local cooling, local application on the background dihydroquercetin, and withdrawn from the experiment period doreaktivny frostbite, compared with the control subgroup mild effects observed paranecrosis keratinocytes. From the papillary dermis vascular stasis symptoms appear to a lesser extent, indicating that the cryoprotective manifestation Dihydroquercetin when applied topically.

When administered orally in class Dihydroquercetin subjected to the phenomena of local cooling of the epidermis cells paranecrosis less pronounced than in the control group, indicating that the cryoprotective effect of the drug in this experiment. However cryoprotective effect upon oral administration weaker than the local use of the drug, indicating rapid biotransformation dihydroquercetin oral application.

In our study, we used an antibody to determine inducible NO-synthase. Inducible form expressed in many cells. With the assistance of this form a large amount of NO, which is hundreds of micromolar, and maintained for from a few hours to several days, depending on the duration of the stimulus. The impact of NO leads to increased production of superoxide anion and peroxy nitrite, have a damaging effect, as well as an increase in nitrotyrosine new residues. Effects of nitric oxide on the cellular mechanisms of inflammation including its

impact on the features of cell apoptosis [3].

The degree of activity of inducible NO-synthase is estimated by the intensity of the brown staining in immunohistochemical detection. We have found that in the papillary dermis with frostbite in cold injury dor-eaktivnom period the color intensity of inducible NO-synthase is increased, which indicates the severity of inflammation in the papillary layer. In the groups treated with dihydroquercetin cryoprotective purpose staining intensity increases after frostbite less pronounced, particularly when the drug topically, indicating that the anti-inflammatory action dihydroquercetin, which is most pronounced when it is applied locally.

Thus, these data support the use of DHQ locally, where there is a visible effect in the cryoprotective dor-eaktivny period.

#### Conclusions

1. When applied topically Dihydroquercetin manage to reduce the level of structural damage of keratinocytes, reduce reactive effects from dermal microvasculature. For oral use of the drug positive effects are mild.

2. The effect on the connective tissue and microvasculature of the dermis is more significant when taken orally.

#### Literature

1. Babkin V.A., Ostroukhova L.A., Markov Yu., Ivanova S.Z., Onuchina N.A., Babkin D.V. Biologically active extractives of larch wood // Chemistry for sustainable development. 2001. №3.

2. Dorovskih V.A., Borodin E.A., Tseluyko S.S., The antioxidants in the prevention and korrektsii cold stress. Blagoveshchensk: AGMA. 2001. 183 p.

3. Myadelets O.D., Adaskevich V.P., Morfofunkcionalnaja dermatology. Moscow 2006. P. 655-656.

4. Nozdrin V.I., Barashkova S.A., Semchenko V.V. Leather and its derivatives. Omsk. Eagle 2005. 7-24.

5. Teselkin Y.O., Zhambalova B.A., Babenkova I.V. and others. The antioxidant properties of DHQ Tutorial "Biophysics" in 1996. T. 41, no. 3, pp 620 - 624.

6. Gnaiger E., Kuznetsov A. V., Rieger O., Amberger A., Fuchs A., Stadlmann S., Eberl T., Margreiter R. Mitochondrial defects by intracellular calcium overload versus endothelial coldischaemia/reperfusion injury // Transplant International. 2000. T. 13. N.7. P. 555-557.

**DOI: 10.22448/AMJ.2016.15-16.88-90**

**UDC 618-01**

#### **PECULIARITIES OF THE PERIOD OF PREGNANCY AND CHILDBIRTH FOR WOMEN WITH HYSTEROMYOMA**

**Mirlas E.M., Zaritskaya E.N., Shulzhenko E.V., Ivanova I.S., Amur State Medical Academy, Blagoveshchensk, Russia, Municipal clinical hospital, maternity hospital, Blagoveshchensk, Russia**

Hysteromyoma is one of the most actual gynecological problems because of the high prevalence and the "rejuvenation" of the disease, as well as of the negative influence that this pathology exerts on female reproductive functions particularly on the pregnancy and childbirth. The increasing number of patients of fertile age with hysteromyoma, a growing modern tendency to planning the first pregnancy in the late reproductive age after the education and formation of a professional career increasingly confront gynecologists to the problem of conducting the pregnancy with hysteromyoma. The frequency of uterine myoma ranges from 24 up to 50% according to different authors. The tendency to increasing hysteromyoma frequency can be caused, on the one hand, by diagnostic improvement, and on the other - by the prevalence of "aggressive" obstetric and gynecologic surgery (caesarean section, abortion, hysteroscopy, laparoscopy, hysterosalpingography, biopsy and cervical coagulation, diagnostic curettage and removing of the intrauterine device, etc.), and inflammatory diseases of the genitals transmitted sexually. The aim of our work is to investigate clinical and anamnestic characteristics of the course of pregnancy and childbirth for women with hysteromyoma.

We conducted an analysis of the 64 childbirth case histories of women with hysteromyoma. The median age was  $33 \pm 4,4$  years old. 21.7% of women suffers from this disease at the age of 20-29 years old, 79.7% of women - at the age of 30 years old or more, that confirms a high risk of hysteromyoma in this age group. We have found that hysteromyoma occur quite frequently in nulliparous 42.2%, 57.8% in multiparous. 87.5% of women had concomitant extragenital pathology. Quite often pregnancy of women with hysteromyoma is accompanied by anemia. In our research in 35.9% of the cases mild anemia was revealed.

In evaluation of the forecast of pregnancy an importance is given to complicated gynecological anamnesis that 65.6% of women had. In 45.3% of cases of cervical erosion is detected, 9.4% of women had ovarian cysts, 7.8% of women had an endometritis. 6.3% of women had infertility which is a frequent complication of uterine myoma. Threat of miscarriage in the different stages of gestation refers to features of pregnancy when it is combined with a hysteromyoma. In the first trimester, it occurs in 35.9%, in the second trimester - 41% and in the third trimester - 23% of women.

Sizes of the myoma nodes have a direct impact on fetal growth and development. Thus in the literature