

ing granulation tissue. Lumen of blood vessels, the underlying tissues was extended, indicating that the congestion in the area of the inflammatory process, a constant output of neutrophils, macrophages, and fibrin. Along with an inflammatory erythema resulting at mikrotromboz due to the progression of inflammation, foci of necrosis were observed. In the area of diffusely infiltrated by neutrophils subcutaneous noted the presence of microabscesses and microphlegmon, which were isolated from the main defect of the wound and remained incomplete after surgical treatment. The use of «Vobenzim» led to the sequestration of necrotic foci of active soft tissue dissection and readjustment of micro abscesses and micro phlegmon, reducing infiltration and edema of the border areas and the elimination of secondary necrosis of soft tissues. According to pathological studies in the treatment of wounds shortened the period of purification for 2-3 days, compared with the control group. The use of «Vobenzim» eliminated major manifestations of acute inflammation in the wound at the time of its purification from necrotic masses and led to the wound cavity filled with granulation tissue at 4-5 days of treatment. Analysis of the individual dynamics of wound healing process with abscesses and purulent processes and comparison of these data show that regardless of the stage of wound healing, in which treatment is started, inflammation subsided under the influence «Vobenzim» is an average of 5 days of starting treatment, whereas in the comparison group to the same result occurs in 7-9 days or more. Filling the wound defect was carried out by young granulation, to be emanating from a more mature granulation tissue, which appeared in populations secreting glikozaminoglikanes fibroblasts. Thus, the results indicate a high efficacy of systemic enzyme therapy.

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**EAR OF THE RAT AS A MODEL
IN INVESTIGATION OF INFLUENCE
OF DIFFERENT DRUGS (PRO UNGUENTA)
UPON THE SKIN IN BIOLOGY
AND MEDICINE**

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In many studies of medicinal activity of preparations on biological models a skin is used as an indicator for intradermal introduction of a medication. Thereby a skin from an animal's back or stomach is used. Such impact often requires a careful shaving of a local skin area that disturbs skin and stresses an animal. As an alternative model of studying intra-

dermal impacts of medical and cosmetic agents we suggest studying ear skin of small laboratory rodents (rats, mice) that do not have that much hair on ears, compared to their back or stomach. Ear skin is relatively thin and is located over two surfaces that allows us to use one of them as a control. Besides, as an animal has two ears, we can receive another control organ or use it for another dose of the same agent as well as to study an impact of another preparation. In our work we used grown mature male rats of weight 250 grammes. The preparation was introduced as an ointment over one side of an ear. An animal was slaughtered under Nembutal narcosis, then an ear was removed and placed into 4% paraformaldehyde for no less than a day under the temperature of 4°C. Spirituous conducting of material and its placing into epoxide gum Araldite was carried out as in our previous publication [Pavlovich, 2008]. A cutting of mid-thin cuts (thickness of 1 mkm) of a rat's ear perpendicularly to its surface. Cuts were colored by a water solution of toluidine blue. It was shown that in the control an ear consisted of two skin plates that were separated by a thin layer of fat. The skin was represented by a multilayer flat cornific epithelium and nearby connective tissue that was relatively undeveloped, compared to human skin. The skin had a lot of hair that was differently directed in relation to the ear surface. Cornific skin layer was displayed unevenly along the epidermis. Hair follicles were found in hypoderm and cut on different levels, and fat glands. Microvascular channel in the studied material was presented moderately. Possibilities to use ear skin of small rodents as an object of impact of medical preparations in pharmacology and toxicology (as ointments or solutions for cutaneous and intradermal introduction), and also in cosmetology are discussed. The model allows us to reveal and remove possible allergic reactions and pathological impact of some preparations over skin. Thereby, animals of different sex and age can be used that allows us to carry out correct pre-clinical studies of preparations and cosmetic agents.

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**THE NECROTIZING ENTEROCOLITIS
TREATMENT EXPERIENCE
OF NEW-BORNERS
WITH THE INCREASED
INTRA-ABDOMINAL PRESSURE**

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Measuring of intraperitoneal pressure (IPP) among babies with necrotizing enterocolitis (NEC) in carried out in the clinic of children's surgery since 2007. Pressure monitoring was carried out

among 46 newborns, treated in Omsk regional children's clinical hospital (OCCH). Among those 15 with the 2nd, and 31 – with the 3rd and 4th stage if NEC. The measure of IPP among babies with the II stage of NEC was carried out in accordance with recommendations of Worldwide society of studying intraperitoneal hypertension (WSACS) through measuring pressure in bladder and stomach with a low-pressure monometer «Triton liND 500/75» (Russia). For babies with the 3rd and the 4th stage of NEC that were treated with laparocentesis, we additionally used the direct method of measuring intraperitoneal pressure.

For all patients intraperitoneal pressure was measured every 4 hours. An IPP that exceeded 12 mm of mercury was considered pathological. In all cases indexes of IPP exceeded normal values and oscillated between 15 to 51 mm of mercury. All babies with the 2nd stage of NEC were treated conservatively. IPP within this group of patients equaled $20,1 \pm 1,9$ mm of mercury during the first day, $17,3 \pm 2,1$ mm of mercury on the second day, and reliably lower than 15 mm of mercury on the third day of treatment.

Four babies with the 3rd stage of NEC were treated conservatively. Constant direct intraperitoneal pressure monitoring and laparocentesis was implemented for them. During the first day of treatment IPP equaled an average of $22,3 \pm 5,1$ mm of mercury, on the second day, due to the treatment in lowered to $19,2 \pm 4,1$ mm of mercury, and on the third day in equaled $15,3 \pm 2,6$ mm of mercury. By this time their condition improved, bowels motor functions started to restore, intoxication symptoms decreased, peritonitis signs were removed.

From the group of patients with NEC whose IPP was monitored, 27 children were operated. 4 patients were with the 3rd stage of the pathology, and the rest 23 – NEC with a perforation of genitals. All babies were treated with laparocentesis and direct measure of IPP prior to surgery. Initial pressure among these patients exceeded a value of 40 mm of mercury and equaled an average of $45,3 \pm 2,2$ mm of mercury. During the preparations that didn't exceed 3 hours, IPP never lowered down to 30 mm of mercury at least. Of all operated children 11 died. Their IPP didn't come lower than 30 mm of mercury. Among the rest patients IPP decreased reliably.

From 2010 all children with the 2nd and higher stage of NEC are treated with caudal anaesthesia that decreases the time of removing NEC symptoms, including showings of intraperitoneal hypertension. Thus, of 5 babies with the 2nd stage of NEC who were treated in 2011, negative dynamics was never observed, and a decrease in IPP lower than 15 mm of mercury was registered on the second day after surgery.

So, we see a clear dependence of IPP value from the condition of pathological process in abdominal cavity, therefore opportune diagnostics and correct treatment, considering possible correction of intra-

peritoneal hypertension syndrome is the foundation for successful therapy under such conditions.

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THE ROLE OF CELLS OF MONOCYTES-MACROPHAGES SYSTEM IN PATHOGENESIS OF ENTEROVIRUSES INFECTION

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The *Picornaviridae* family includes RNA-containing viruses with diameters of 22–30 nm. The viruses of this family are exciters of acute infections, e.g., the poliovirus attacks the neurones of the spinal cord, Coxsackie viruses of group V infect the central nervous system, Type 71 enteroviruses cause conjunctivitis, and Echo viruses cause intestinal infections [5]. In the enteroviruses infection pathogenesis study the discovery of the reproductions viruses foci at initial period of the disease fall into important and for this moment to undecided question. The role of the mononuclear and macrophages systems cells in pathogenesis these of infection has an especial meaning, escalated fact of the ubiquitous spreading of these cells in organism of the person. It is known that integrins (glycoproteins, consisting of various combinations of α - and β -chains) are involved in the adhesion of different types of viruses, and these receptors are also present in the membranes of macrophages [4].

The primary breeding of enteroviruses occurs in the tissues of the respiratory and intestinal channels. This process ensues from a primary viral infection of the blood and there is evidence that the enteroviruses may be isolated from mononuclear cells of the peripheric blood of infected people [1, 2]. Based on the abovementioned facts, the purpose of the present research is to define the probability of adhesion and penetration of an enterovirus into resident macrophages.

Materials and methods of research. Vaccines of the poliovirus strain, enterovirus Type 71, the Karimov strain of Echo11, and a Coxsackie viral strain from group B1 that is virulent for newborn white mice were used for the infection of primary culture of macrophages. In our experiments, we used a supernatant virus-containing cultural liquid that contained no less than 5 units multiplicity of infection on macrophage for a Type 71 enterovirus, Echo11, and Coxsackie B1 and at a low 3 MOI for poliovirus. The contact of virus with cells was for 60 min and then unadsorbed viral particles were