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**PECULIARITIES OF ACCUMULATION OF SILVER NANOPARTICLES IN THE
INTERNAL ORGANS OF RATS**

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Silver nanoparticles are widely used in our every day life, medicine etc, but a comprehensive understanding of how Silver nanoparticles are presently one of the most frequently used nanomaterials in consumer products because of their proposed antimicrobial properties. Silver in the form of Ag⁺ ions has toxic effects on many pathogens, including bacteria, viruses, and fungi. Because of its relatively low toxicity in humans, silver has been used in various medical applications. Silver nanoparticles distribute in the body and the induced toxicity remains largely unknown. The present study was designed to investigate the distribution and accumulation of silver nanoparticles in rats with intraperitoneal injection. The toxicology of silver and its compounds has been studied for decades.

The aim of the present study was to investigate the organ distribution and localization of silver in rats following 14 days repeated intraperitoneal injections of decahedron-shape silver nanoparticles via luminescence intensity in preparation of internal organs of experimental animals. Three groups of animals (8 rats in each group) were daily intraperitoneally administered with a silver nanoparticles solution (5 mg/kg, 1 mg/kg and 0.1 mg/kg concentration). Fourth group - biological control for 14 days. On 14th day, the animals were removed from the experiment by decapitation under mild ether anesthesia. Luminescence intensity in the green range was determined using computer microdensimetry on a scale of 256 gradations in a computer program GIMP on digital microphotographs obtained using a microscope and a digital camera.

It was observed increasing of luminescence intensity of definite preparations that testifies to dose dependence accumulation of silver nanoparticles in kidneys, liver, heart, lungs and brain. Besides these, gender-related accumulation of silver nanoparticles was revealed in kidneys, i.e. luminescence intensity was 6-8 reference units higher in epithelium of kidney's convoluted tubules of female rats than male rats.

Therefore, target organs: kidneys, liver, heart, lungs and brain. Gender-related accumulation of silver nanoparticles.

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**ADAPTATION PROCESS, LEVEL OF CELLULAR REACTIVITY AND NONSPECIFIC
REACTIVITY OF PATIENTS WITH ACUTE BRONCHITIS**

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An important task of clinical tactics and health economics is to stop the tendency of acute bronchitis occurrence through preventive measures, substantiation of factors and mechanisms of both nonspecific and specific immune protection. The key role in it is played by the levels of adaptive stress, cellular reactivity and associated nonspecific resistance of the body of patients with acute bronchitis.

Clinical and laboratory examination of 35 men with acute bronchitis was made in accordance with the recommendations of the Order of the Ministry of Health of Ukraine 128 dated 19.03.2007. "On approval of clinical protocols for medical care in the specialty "Pulmonology". Patients with acute bronchitis underwent a complete clinical and paraclinical study according to the protocol. The control group consisted of 17 healthy individuals of the appropriate age. The type of adaptive response (stress, response to training, reaction of quiet activation, increased activity, periaction) was determined by a relative amount of lymphocytes and

segmental neutrophilic granulocytes of the peripheral blood. In patients with acute bronchitis the adaptation index was 0.75 ± 0.07 u., which corresponds to the adaptive response with increased activation. It was higher than the control indicator by 10.29 %, which corresponds to an increased level of activation of adaptive processes. The final in the development of acute bronchitis is cellular reactivity, the level of which in patients increases by 87.44 %, which reduces intoxication by 64.14 %, and indicates a decrease in endogenous intoxication and the absence of tissue breakdown. Increase of the ratio of the total pool of leukocytes and erythrocyte clotting rate by 2.8 times confirms the presence of endogenous intoxication associated with infectious process rather than autolysis.

In patients with acute bronchitis, immunological reactivity is 5.36 times higher than nonspecific one, which is the evidence of the formed nonspecific resistance. The formed nonspecific anti-infective protection is in the final stage, and the specific immune response is in the early stages of formation.

The basis of nonspecific pre-immune anti-infection protection of the body is humoral (complement system, interferon, lysozyme, natural killers, monocytes / macrophages, etc.). The key role in nonspecific anti-infection protection belongs to neutrophilic granulocytes – the largest population of immunocompetent cells in patients with acute bronchitis. The activity of the complement system is 2 times reduced and the titer of natural antibodies by 23.68 % increased, which inhibits granulocytes by 7.41 %, and the exciting ability of phagocytes decreases by 44.56 %. Phagocytosis disturbance was found at the final stages. The natural bactericidal activity of phagocytic cells is reduced by 17.06 %, and stimulated by 25.33 %. At the same time, the secretory activity of neutrophilic granulocytes against preimmune proinflammatory cytokines increases: tumor necrosis factor - , interleukins - 1,6,8.

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PREVALENCE OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS AMONG AMBULANT PATIENTS WITH PURULENT SKIN DISEASES

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Despite a slight decrease in the prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA) strains in most high-income European countries in recent years, these bacteria belong to the group of pathogens with acquired antibiotic resistance that pose the greatest threat to hospitalized patients. These strains are: *Enterococcus spp*, *Staphylococcus aureus*, *Klebsiella pneumonia*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter species*. At the same time, in recent years, the spread of MRSA was associated not only with medical institutions (hospitals acquired / HA MRSA), but also outpatient departments, so-called community acquired / CA MRSA. Staphylococci, as representatives of the skin microbiome, are very often the cause of various inflammatory processes in this biotop.

The aim of our study was to study the prevalence of MRSA among clinical strains of staphylococci, that were isolated from ambulant patients with purulent skin diseases of Chernivtsi city.

Material and methods. 48 clinical strains of *S. aureus* from outpatients with purulent skin diseases were studied. The presence of methicillin-resistance in isolated strains was determined by a surrogate test with ceftazidime. In all the strains, sensitivity to β -lactam antibiotics, aminoglycosides, fluoroquinolones, macrolides, clindamycin, tetracycline and co-trimoxazole was determined as well. Technique for antibiotic sensitivity determination was conducted according to the CLSI recommendations, 2017. Discs with antibiotics, manufactured by Oxoid, were used.

Results and discussion. In our studies, *Staphylococcus aureus* was isolated from the purulent content on an average in 12.53 %. As we think, the nature of the lesion determines the frequency of detection of this pathogen. In our work this figure in outpatients with purulent skin diseases was close to the frequency detection of *S. aureus* in healthy people. Whereas, according to the literature, in patients of surgical hospitals, the incidence of *S. aureus* is from 18 to 26 %, and in the case of