Проведені дослідження таксономічного складу, популяційного рівня та встановлення аналітичних показників (індексу постійності, частоти зустрічання таксону, видового багатства Маргалефа, видового різноманіття Уіттекера, видового домінування за Бергер-Паркером і Сімпсоном) дозволили виявити співіснування представників екосистеми "мікробіоти – макроорганізм жінки репродуктивного віку" та провідні збудники генітального кандидомікозу, якими виявилися *C. albicans* (основний збудник), рідше провідними збудниками є *C. glabrata*, *C. parapsilosis*, *C. krusei*, *C. tropicalis*, *C. guillermondii*, *C. pseudotropicalis* та *C. zeylanides*.

Для визначення інформативності та динаміки змін показників системної імунної відповіді організму, як можливих прогностичних факторів розвитку геніального кандидомікозу, визначений ступень імунологічних розладів. Вивчення динамічних змін показників клітинної і гуморальної імунної відповіді дозволило встановити особливості реагування імунної системи на запальний процес, локалізований у репродуктивних органах жінок дітородного віку, хворих на геніальний кандидоз. Крім визначення дисбалансу в клітинній ланці системного імунітету, нами встановлені характеристики вираженої поліклональної активації гуморальної імунної відповіді, що відбувається за рахунок підвищення концентрації в крові імуноглобулінів основних класів IgG на 17,34 %, IgA на 26,11 %, IgM на 47,38 %.

Andriychuk N.J., Vlasyk L.I.

PROTECTIVE EFFECT OF ALPHA-LIPOIC ACID IN CASE OF SUBACUTE SILVER DECAHEDRON NANOPARTICLES POISONING IN RATS

Department of Hygiene and Ecology
Higher State Educational Establishment of Ukraine
"Bukovinian State Medical University"

One of the main tasks of modern hygiene is the search of preventive measures of a negative effect of harmful factors. Alpha lipoic acid possesses antioxidative activity and detoxic effect. Its positive results are known in case of heavy metals poisonings. But its protective properties have not been studied in case of harmful effect of silver nanoparticles.

Subacute intoxication with nanosilver decahedrons (45 nm, in dosage 5 mg/kg) exposure in rats results in changes considering pro- and antioxidant balance, increasing of alkaline phosphatase and cholesterol. In addition, pathomorphological changes in kidneys, liver, lungs, heart, and brain are found as criteria of harmful effect.

The objective of the work was to study aprophylactic effect of Alpha lipoic acid (preparation Діаліпон, «Фармак») in case of subacute nanosilver poisoning designed on 4 month laboratory rats. First group of rats was biological control. The second was treated with nanosilver decahedrons (45 nm, 5 mg/kg). The third group got 12,5 mg/kg of Alpha lipoic acid two hours after the 5 mg/kg of decahedron silver nanoparticles treatment (intraperitoneal way of injections). The animals were observed for 14 days.

We have examined the state of indicators of free radical oxidation of lipids and enzymes activity of pro- and antioxidant protection, which changed reliably after the injection of 5 mg/kg of decahedron silver nanoparticles. Thus, Alpha lipoic acid injection leads to 15 % decrease of malonic aldehyde in the blood (p<0,05) and 12 % of malonic aldehyde in the liver. Catalase activity of blood decreases almost to control level up to 9-10 % (p<0,05). Catalase activity of the liver reliably increased up to 28 % (p<0,05). Glutathione peroxidase index reliably increased up to 31 % (p<0,05) in blood of rats. Glutathione peroxidase of the liver tissue decreased up to15 % (p<0,05) after Alpha lipoic injection. In addition, 0,5 times decrease of alkaline phosphatase activity was observed (p<0,05) and 2 times of cholesterol (p<0,05) content in the blood of rats.

Protective effect of alpha lipoic acid was identified with the help of pathomorphological examination. Prophylactic usage of intraperitoneal injections of alpha lipoic acid in the dosage of 12,5 mg/kg led to 2-2,5 times reduction of intensities of decahedron-shaped silver nanoparticles injury of the heart, liver, lungs, kidneys and brain.

Therefore, prophylactic usage of alphalipoic acid in the doses of 12.5 mg / kg resulted in normalization of prooxidant-antioxidant balance of blood and liver tissue of the examined rats, helped to reduce the level of cholesterol and alkaline phosphatase activity, reduced pathological damage to the internal organs.

Blinder O.O., Blinder O.V.*

INFLAMMATORY DISEASES ETIOLOGICAL STRUCTURE OF ENT-ORGANS AMONG RESIDENTS OF CHERNIVTSI TOWN

Department of Microbiology and Virology
HSEE of Ukraine "Bukovinian State Medical University"
*«L.I. Medved's Research Center of Preventive Toxicology, Food and Chemical Safety, Ministry of Health, Ukraine (State Enterprise)»**

Inflammatory diseases of upper respiratory tract remain an urgent problem of medicine.

The aim of the study was to reveal peculiarities the etiological structure of this pathology depending on its location.

Bacteriological examination of 632 patients with pathology in otolaryngology organs has been conducted. Of this amount 561 specimens of tonsils mucus, 56 specimens of nasal mucus and 15 specimens of secretions from the ear canal have been investigated with bacteriological method. Etiologically significant microorganisms spectrum was quite extensive and included bacteria and fungi strains belonging to: gram-positive cocci (*S. aureus, S. epidermidis, E.*

faecalis, S. pyogenes), *Enterobacteriaceae* (*E. coli, K. pneumoniae, P. rettgeri*), gram-negative not fermenting bacteria (*P. aeruginosa, A. calcoaceticus, A. twoffii*), microscopic fungi (*C. albicans, A. niger*). Etiologically significant microflora was isolated from almost every second sample material which has been examined by bacteriological method. The causative agents were being isolated of the outer ear canal slightly more often.

In most cases, when one sample was being investigated, only one etiologically significant strain was isolated. In the discharge study of from the outer ear canal two pathogens were isolated simultaneously in one case (12,5 % of all cases, when etiologically significant microorganisms isolated). During investigation of tonsils mucosa samples two pathogens were isolated simultaneously in 44 cases, and three pathogens in two cases (14,5 % of all cases, when pathogens were isolated). Of the nasal mucosa samples two pathogens simultaneously were allocated in two cases (8,7 %). The isolated etiologically significant microorganisms spectrum depends on the localization of the pathological process. Thus, lion share of the strains, isolated from tonsils, belongs to *S. aureus* species (55,8 %), the share of other gram-positive cocci compiles 1,9 %. *Enterobacteriaceae spp.* were revealed in 21,2 %, microscopic fungi - in 18,5 %, and gram-negative not fermenting bacteria were less often isolated – 2,7 % of all cases. The percentage of the *Staphylococcus spp.*, isolated of nasal mucos, made up 76 %, including 72,0 % of strains identified as *S. aureus*. *Enterobacteriacea spp.* were identified in 20,0 %. In one case strain of *A. niger* was isolated, which compiles 4 % of the total number of isolated pathogens. Unlike the above mentioned micro ecological niches in secretions from the outer ear canal strains of *S. aureus* were found much less – 33,3 % of the total number of identified pathogens. The strains of microscopic fungi accounted for 44.4 % and gram-negative not fermenting bacteria (*P. aeruginosa*) 22,2 % of all pathogens.

The obtained data indicate that the inflammatory diseases etiology of the ENT-organs depends on microecological conditions specific to each localization. It is obviously, the identified patterns should be considered in the treatment and prophylaxis of inflammatory diseases of ENT organs.

Blinder O.O., Blinder O.V.*, Rotar D.V., Humenna A.V.

SANITARY-HYGIENIC ASSESSMENT OF DRINKING WATER FROM THE WELL BY MICROBIOLOGICAL INDICATORS IN UKRAINE AND EUROPE

Department of Microbiology and Virology
HSEE of Ukraine "Bukovinian State Medical University"
*«L.I. Medved's Research Center of Preventive Toxicology, Food and Chemical Safety, Ministry of Health, Ukraine (State Enterprise)»**

The drinking water quality is the basis of epidemiological safety and public health. Benign water is an indicator of high health welfare and living standards. State health authorities of developed countries are paying special attention to the drinking water quality. The goal of regulating documents is protection of human health from the adverse effects of any water contamination intended for human consumption.

In Ukraine, the drinking water safety standards are fixed in the State sanitary norms and regulations "Hygienic requirements for drinking water intended for human consumption" (State Standards 2.2.4-171-10). Current national standards for drinking water are close to European ones. In Europe, regional standards are developed based on the Directive on the quality of water intended for human consumption 98/83/EC proposed by the Council of the European Union (EU) November 3, 1998, the requirements of which are binding for the EU members.

Drinking water from wells (private water supply) require special monitoring because of the each source peculiarities and the microbial contamination risk probability. Hardware requirements for such sources identified State Standards 2.2.4-171-10 in Ukraine and regional standards of developed Europe countries on the basis of Directive 98/83/EC (e.g. UK Private Water Supplies Regulations 1991). The local authority is responsible for monitoring private water supply in Ukraine and in EU. The essential difference is in the number of water sources in the country. In Ukraine has a sufficient level of public water services supply and sanitation in urban areas (where 90 % of the population use centralized water supply and sanitation). Meanwhile, 345 urban-type settlements, 95 % of villages are not equipped with centralized water supply and sanitation. In European countries, the vast majority of the population uses water from the water- supply network, and only a small portion (e.g. UK near 1 %) use private sources of supply.

The drinking water safety monitoring from wells requires consideration of the seasonal and weather conditions which should be into account wile the frequency of laboratory tests determining. State Standards 2.2.4-171-10 in Annexes № 11-12 the requirements for mine pit sanitation and the water disinfection in wells using dispensing cartridges were defined.

Microbiological indicators to determine sanitary assessment of drinking water vary depending on the category of water. According to Directive 98/83/EC the private water supplies are tested routinely by two indicators – coli-forms and *E. coli* / *E. coli* in 100 ml sample and colony counts. The requirement of calculating the total microbial number is determined for certain groups of private water sources (with water volume of more than 1,000 cubic meters to 5m cubic meters / per day, serving from 5000 to at least 25 people, respectively). In Ukraine, according to State Standards 2.2.4-171-10 water wells were identified: 1) the presence of coliforms ≤ 1/100 ml, 2) the absence of pathogenic enterobacteria in 1 cubic dm, 3) the absence coli-phage in 1 cubic dm (this index is the additional for water from surface sources in the field of income from sewage treatment plants to the distribution network, as well as groundwater), 4) the absence of enteroviruses in 10 cubic dm. In contrast to the European standard the colony counts is not required.