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ORIGINAL RESEARCHES

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THE EFFECT OF BIOCIDAL PRODUCTS (MIRAMISTIN AND HILAK) ON THE BIOFILMFORMATION PROCESS OF S.AUREUS

Introduction. Recent studies confirm the important role of biofilms in infectious processes development. The bacteria that are found planktonic form become less accessible to various factors, including antibiotics, aseptic, disinfectants, and so on. The effectiveness of antimicrobials should be evaluated according to their ability in inhibiting the bacteria growth inthe biofilm state. The formation of biofilms are influenced by numerous factors, most of them still have notbeen researched.

The aim of the study was to determine the characteristics and application ofMiramistinand Hilakfor the treatment of staphylococcal etiology diseases.

The main task ofthis work was experimental study of the asepsis Miramistin and prebiotics Hilakeffect on the process of biofilms formation by meticillin-sensitive (MSSA) and meticillin-resistant (MRSA) strains of Staphylococcus and their effectiveness due to biofilms cultivation of Staphylococcus.

Materials and methods. Study of the different doses ofMiramistinand Hilakinfluence on intensityof biofilm formation carried out in relation to Staphylococcus aureus (ATCC 25923, MSSA, MRSA) by using the cultivation plates method. Optical density of the formed biofilm was evaluated according to the intensity of acetic acid coloring by Safranineon the photometer (Lisa Scan EM) at a

wavelength of 492 nm. Biocides action was studied both atthe making test with Staphylococcus cultivation (on the "young", just formed biofilms) and on 24-hour ("mature") biofilms. Antibacterial activity of the drugs on the Staphylococcus biofilms cultivationwas evaluated by the growth (CFU/ml) as a result of dissemination from the sockets after mechanical destruction of biofilms. The research results were treated by statistical methods (with the computer programme MS Excel 2003) using the criteria and $\chi 2$.

Results. At a dilution of 1:32 and more Miramistin stimulated biofilms formation. At the action of "mature" biofilm in high doses (dilution 1: 1 - 1:16) it caused their destruction. MRCof the drug on Staphylococcus cultivation in biofilm grew in 2 - 4 times.

Regardless of the dose Hilakdid not stimulate biofilm formation by MSSA strains, but it significantly increased the index of biofilm OD which were formed by MRSA strains ($\chi 2 < 0,05$). High doses of prebiotic can destroy "mature" biofilm, but at 1:16 dilution and> reliable reducing of OD wasnot found. MRCof Hilakon biofilm cultivationraised in 8 - 16 times.

Conclusion. Miramistin has high bactericidal activity and contributes to the destruction of biofilms formed both by MSSA and MRSA strains, if its concentration is maintained at a sufficiently high level. At lower doses biofilm formation stimulation take place, that fact is important to take into account in its practical application. High concentrations of Hilak can destroy already formed staphylococcal biofilms. The medicine retains activity against cultivations at the state of biofilms, although its MRC increases 8 - 16 times.

Key words: Biofilm, Staphylococcus, Miramistin, Hylak.

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A STUDY ON BIOLOGICAL ACTIVITY OF 2-AMINOTHIAZOL-4(5*H*)-ONE DERIVATIVES

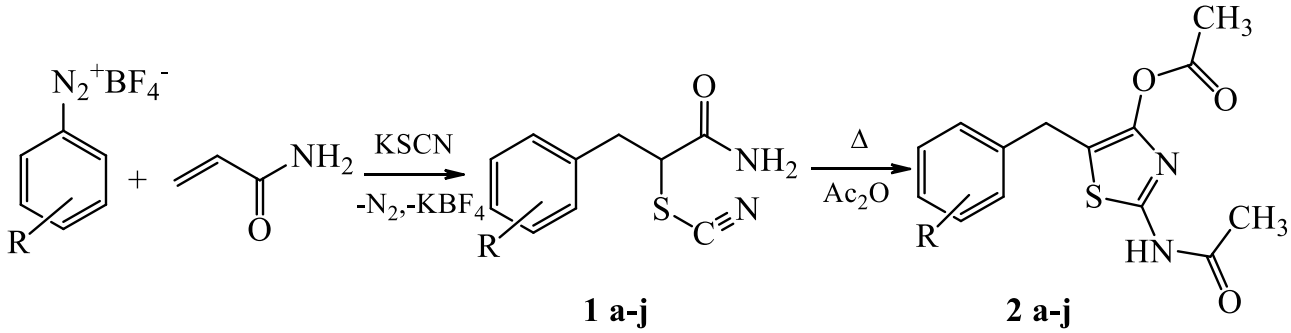
Introduction. 2-aminothiazoles and their derivatives have a wide range of therapeutic action. Compounds in this class exhibit bronchodilator, anti-inflammatory, analgesic, antioxidant, antiviral, antibacterial, antituberculosis, hepatoprotective, antiproliferative, neuroprotective and other activities.

The *aim* of the work is the synthesis of new 2-aminothiazole derivatives and the study of their biological activity.

The main objectives were the preparation of 2-acetamido-5-benzylthiazol-4-yl-acetates by cyclization of 3-aryl-2-thiocyanatopropanamides and testing their antimicrobial, antitumor and antituberculosis activity.

Materials and methods. The antimicrobial activity of the synthesized compounds was determined by the method of serial dilutions in liquid medium (peptone broth). As test objects Gram-positive (*S. aureus*), spore-forming (*B. cereus*), Gram-negative (*E. coli*, *P. aeruginosa*, *S. typhimurium*) bacteria and yeasts (*C. albicans*) were used. Determination of compounds against strains of *M. tuberculosis* was performed by Canetti method. Antitumor activity were studied as part of the international scientific program of the National Institutes of Health. Screening studies conducted *in vitro* for 60 lines of cancer cells that cover virtually the entire range of human cancers.

Results.



1 a-j **2 a-j**

1, **2**: R=H (**a**), 2-CH_3 (**b**), 3-CH_3 (**c**), 4-CH_3 (**d**), 2-CH_3O (**e**), 4-CH_3O (**f**), 4-Br (**g**), 2,5-Cl_2 (**h**), 4-COOH (**i**), 4-C_2H_5O (**j**).

Antimicrobial activity of 2-acetamido-5-benzylthiazole-4-yl-acetates **2a-j**

Compound	Microorganism strains					
	S. aureus 6538	*E. coli* 25992	*S. typhimurium* 55	*C. albicans* 885-653	*B. cereus* 10702	*P. aeruginosa* 9027
	Minimal Inhibitory Concentration (MIC), (μg/mL)					
2 a	62,5	62,5	125	3,9	125	250
2 b	250	125	125	3,9	125	125
2 c	62,5	125	125	3,9	125	62,5
2 d	62,5	125	125	3,9	62,5	125
2 e	62,5	62,5	125	15,6	125	125
2 f	62,5	125	125	3,9	125	125
2 g	62,5	125	125	3,9	125	250
2 h	125	125	125	31,2	125	250
2 i	62,5	31,2	125	3,9	62,5	62,5
2 j	125	125	125	7,8	125	125

Antimycobacterial effect of 2-acetamido-5-benzylthiazole-4-yl-acetates **2a, 2g**

Drug	*M. tuberculosis* H37RV	*M. tuberculosis* Clinical Strains		
		1	2	3
	Minimal Inhibitory Concentration (MIC), (μg/mL)			
2a	32,0	32,0	20,0	32,0
2g	16,0	16,0	8,0	16,0

Antitumor activity of compounds **2 d, 2 e, 2 f, 2 h** (drug concentration $1 \cdot 10^{-5}$ Molar)

Drug	Mean Growth Percent for 60 lines, %	Range of Growth Percent for 60 lines, %	The most sensitive cells lines and their activity, %
2d	98,44	66,73÷116,72	A498 (*Renal Cancer*): 66,73 NCI-H522 (*Lung Cancer*): 76,27 TK-10 *(Renal Cancer*): 78,25
2e	100,55	77,53÷115,80	T-47D (*Breast Cancer*): 77,53 PC-3 (*Prostate Cancer*): 89,76

			NCI-H522 (*Lung Cancer*): 89,79
2f	99,72	75,41÷117,02	HL-60(TB) (*Leukemia*): 75,41 PC-3 (*Prostate Cancer*): 81,71 HOP-92 (*Lung Cancer*): 82,59 NCI-H522 (*Lung Cancer*): 85,34
2h	95,89	67,13÷122,95	SNB-75 (*CNS Cancer*): 67,13 HOP-92 (*Lung Cancer*): 74,13 HL-60(TB) (*Leukemia*): 78,77 TK-10 (*Renal Cancer*): 78,57

Conclusions. A series of new 5-aryl substituted 2-aminothiazole-4(5*H*)-one acyl derivatives were synthesized and their antimicrobial, antituberculosis and antitumor activity were experimentally studied. Some patterns of "structure-activity" relationship of these compounds were found. 2-Acetamido-5-benzylthiazole-4-yl-acetates **2a-j** are perspective synthones for construction of new bioactive thiazole derivatives with effective pharmacological properties and selective action on these based.

Key words: 2-aminothiazole, 2-acetamido-5-benzylthiazole-4-yl-acetates, antimicrobial, antitumor and antituberculosis activity.

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CHARACTERISTICS OF THE ABILITY TO BIOFILM FORMATION AMONG MICROORGANISMS ISOLATED FROM GUNSHOT AND BLAST WOUNDS OF EXTREMITIES

Introduction. Relative abundance of major bacterial groups differ during wound healing. Battle wounds are characterized by a long course to healing, followed by addition of infectious complications. Established that chronic infectious complications caused by bacteria that are able to form biofilms. Evaluation of the ability to form biofilms by flora isolated from combat wounds was the aim of the study.

Materials and methods. In 2014 from males who were wounded in eastern Ukraine and were treated at the Military Medical Clinical Centre of the Central Region 100 strains of microorganisms has been cultured. The bacteria obtained from 39 wounds of the 49 patients. There were 8 soft tissue wounds and 41 gunshot fracture wounds. Seventy-seven strains that can cause nosocomial infectious complications and re-cultured from wounds during the treatment period were selected for the study. Among them, 41 strains of Acinetobacter ssp., 13 strains of Pseudomonas spp., 8 members of the family Enterobacteriaceae, 9 Enterococcus spp. and 6 Staphylococci including 2 strains of S. aureus. The ability to form biofilm was determined by the formation of biofilms in 96-well plates, followed by staining with krystallviolet and definition of optical density (OD) in the microtitleplate reader Humanreader, Germany. OD of each strain was determine three times in three repetitions, the results averaged. The strain was considered positive for film formation, if the mean OD value was greater than the mean optical density of negative control increased by three standard deviations (SD) (OD negative control + (3 * SD negative control). OD negative control calculated separately for each plate.

Results. Among the seventy seven 57 starins (74%) were found positive for biofilm formation. All Pseudomonas strains, 30 Acinetobacter spp strains (73%), 5 strains (66%) Enterococcus spp formed biofilms. The average indexes of formed biofilm biomass were 0,29±0,14; 0,19±0,16 and 0,15±0,1 OD at 620nm respectively. Enterobacteria and staphylococcus proved to be the weakest biofilmproducers. Among Pseudomonas and Enterobacteriaceae relationship between the formation of biofilms and multidrug resistance to antibiotics was absolute. The ability to form biofilm to ensure conditions for the survival of the bacteria in the wound, shown the dominance of film-forming bacteria in the general range of wound isolates.

Conclusions. It was established that the vast majority of microorganisms isolated from combat wounds, has the ability for biofilm formation. But the power of this feature varies between different strains. Damage, presence of a rigid substrate (bones fragments) in soft tissue, contributes biofilm formation by microorganisms. Film forming strains of A. baumannii often showed resistance to aminoglycosides, carbapenems. Among Pseudomonas and Enterobacteriaceae relationship between the formation of biofilms and antibioticresistance was absolute.
Key words: battle wounds, microbial flora, biofilm.

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THE DYNAMICS OF THE OF BIOFILMS ON THE SURFACE OF ENDOTRACHEAL INTUBATION TUBES PSEUDOMONAS AERUGINOSA END ACINETOBACTER BAUMANNII

Introduction. In the majority of natural biocenoses bacteria are known to exist in the form of organized consortia which are superficial biofilms where they function considerably differently as compared to that in the planctonic form.

The formation of biofilm brings about new properties of microbial population which are little known as of now. Research of principles of film-formation by bacteria is being at the stage of establishment: no universal research methods have been developed, there no basis for systemic knowledge related to principles of the development of these processes. The purpose of our research was to increase the effectiveness of prophylaxis of complications which arise in patients during artificial lung ventilation through the studying of principles of films formation by clinical strains gram-negative non-enzymatic bacteria on the surface of respiratory tubes.

Materials and methods. Ii the article, we present the results of the research of biofilms formation velocity on the surface of intubation tubes in artificial conditions by clinical strains Pseudomonas aeruginosae and Acinetobacter baumannii which were released from the surface of these products which were for over 96 hours were in the patients' airways. The biomass of bacterial film I the surface of EIT of standard size was evaluated by the number of colony-form units of microorganisms in suspension after ultrasonic disintegration of biofilm in incubation with a gradual increase of exposition.

Results. The data analysis shows that film-formation on the investigated text-objects during the first 24 hours of cultivation on pseudomonades takes place in a decelerated way: in the time period from 6 to 12 hours of incubation, the increase of the number of viable cells in film made from lg 5,08 CFU /ml to lg 5,15 CFU/ml. Just by the end o the first 24 hours of cultivation we noted the increase of the number of microorganisms by more than 50 times (lg 6,85 CFU/ml). The number of bacterial cells in biofilm reached the maximum number be the end of the 96 hours of cultivation, during the next 24 hours it remained unchanged. During the 144 hours we noted a slight decrease of the number of viable cells in bacterial biofilm.

The absolute indexes of the number of viable cells in biofilm for various strains of acinetobacteria were a bit lower that those for pseudomonades. For example, while the number of pseudomonades disintegrated from films which formed on the surface of EIT during the 12 hours of incubation reached lg 5,15 CFU/ml, in acinetobacteria this index was by one order lower and made lg 4,15 CFU/ml. The tendency like this was persisting during the second 24 hours of cultivating. However, after the fourth 24 hours of cultivation were over, the indexes of the number of microorganisms in film in acinetobacteria an pseudomonades became even and reached the level of lg 8,94 – 8,95 CFU/ml. As well as in pseudomonades, the index in acinetobacteria during the fifth 24 hours of observation remained stable, while in the sixth 24 hours we observed its insignificant decrease. As a result of the experiments carried out we found out that the dynamics of the formation of biofilms by non-enzymatic gram-negative bacteria on the surface of polymeric endotracheal tubes resembles curves of the growth of planctonic forms of microbial populations with the presence of phases of

development similar to those of periodical culture of bacteria: lag phase, exponential, stationary, dying off. However, the temporal scale of realization of these phases are considerably larger than those of planctonic culture.

Conclusions. As a result of the experiments carried out we found out that the dynamics of the formation of biofilms by non-enzymatic gram-negative bacteria on the surface of polymeric endotracheal tubes resembles curves of the growth of planctonic forms of microbial populations with the presence of phases of development similar to those of periodical culture of bacteria: lag phase, exponential, stationary, dying off. However, the temporal scale of realization of these phases are considerably larger than those of planctonic culture. The process of film-formation of P. aeruginosa exceeds in terms of velocity the analogical process in A. baumannii. In pseudomonades, the greatest growth of the cells' number in biofilm is observed during the second 24 hours of an EIT specimen's being in the culture of bacteria. In acinetobacteria the period of the greatest intensity of cells' accumulation occurs during the third 24 hours. The process of bacterial film-formation by non-enzymatic gram-negative microorganisms finished in the end of the fourth 24 hours of an EIT specimen's being in the culture of microorganisms.

The sensitivity of microorganisms impressed into the structure of biofilm to antibiotics and antiseptics can considerably differ from that of planctonic forms. In perspective, it is necessary to find out principles of these dissimilarities. In this, one will take into account that the structurization of the biofilm of non-enzymatic gram-negative bacteria in experiment is over after the test-object's 144-hour being I the culture of microorganisms.

Key words: endotracheal untubation tubes, biofilm, non-enzymatic gram-negative bacteria.

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PECULIARITIES IN LEVELS OF HORMONES IN GIRLS WITH UTERINE BLEEDING AND ON DIFFERENT PHASES OF MENSTRUAL CYCLE

Introduction. Menagement of pubertal period in practical public health service does not include of teenagers with different morphotype considering future motherhood. Endocrine connections in hypothalamic-pituitary-ovarian system are formed during puberty and regulated by neuroendocrine processes. Hypothalamus, pituitary gland, gonads, thyroid, adrenal glands play the major role in this regulation

The *aim* of the study – to establish the patterns of dynamics of sex hormone levels in uterine bleeding in girls, depending on their body structure features which will give the possibility of more accurate prediction and diagnostics of ovario-menstrual cycle in girls with various anthropo-somatic-typological characteristics.

To achieve this goal the following tasks should be solved:

1. To investigate the indicators of sexual maturation characteristics in girls-adolescents with pubertal bleeding.
2. To investigate the basic anthropometric indices, somatotype, composition of body weight in girls-adolescents with pubertal bleeding.
3. To examine the sonographic parameters of uterus and ovaries at different phases of menstrual cycle in girls-adolescents with pubertal bleeding having various structural features and body size.
4. To study the level of sex hormones in different phases of menstrual cycle in girls-adolescents with pubertal bleeding having various structural features and body size.
5. To build a discriminant model for predictingthe risk of bleeding in girls of puberty age with different structural features and body size.

Materials and methods. A comprehensive survey of 120 girls with juvenile uterine bleeding was conducted. 58 girls had no concomitant pathologies. A control group consisted of 230 healthy girls. In general 288 girls were studied. After questionnaire survey detailed clinical and laboratory investigation was carried out (ultrasound diagnostics of abdominal organs, kidneys, uterus and ovaries, chest radiography and biochemical blood tests). Ultrasound examination of ovaries and uterus was

conducted with apparatus "Vivid 7" (QE Medical Systems, USA). The length, width, thickness, anteroposterior size of uterus and ovaries at different phases of menstrual cycle were determined.

The analysis of received data was done by the program"STATISTICA 5.5" (it belongs to STC of Vinnitsa National Pirogov Memorial Medical University, license №AXXR910A374605FA) using nonparametric methods for assessing the results.

Results. The results of the study 288 girls with different morphotypes, of which 58 – are girls with uterine bleeding, and 230 –are practically healthy girls. We studied level of hormones in different phases of the menstrual cycle. The obtained data make it possible to assess the condition of the reproductive system of the young generation and timely predict abnormalities in sexual development.

Conclusions. The level of follicle-stimulating hormone is lower in 2 phases of the menstrual cycle in girls with abnormal uterine bleeding having ektomorphic somatotype, compared with healthy representatives of this somatotype. The level of testosterone and prolactin is statistically higher in girls with abnormal uterine bleeding having mesomorphic somatotype compared with healthy girls of this somatotype. The level of progesterone and estradiol is higher in girls with abnormal uterine bleeding having ektomorphic and mesomorphic somatotype, compared with girls of similar somatotypes.

Key words: follicle-stimulating hormone, luteinizing hormone, prolactin, testosterone, estradiol, progesterone, girls with uterine bleeding, menstrual cycle, luteal and folikulin phases.

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ETIOLOGICAL STRUCTURE AND SENSITIVITY OF PATHOGENS OF PURULENT-INFLAMMATORY DISEASES TO ANTIBIOTICS AND ANTISEPTICS

Introduction. According to modern aspects, antiseptics and antimicrobial materials play great part in effective prophylaxis and treatment of anterior eye segment infectious diseases and postsurgical complications of eye microsurgery.

Materials and methods. Etiological structure of purulent-inflammatory diseases of the eye surface and eyelids, sensitivity of the stains to antibiotics (disc-diffusion method) were investigated. Antimicrobial activity of antiseptics decametoxin (DKM), opthalmodec (OD), antimicrobial composition based on decamethoxin (AMC), ocomistin (OM) were studed against museum, clinical clinical stains of *S. aureus* (n 48), *S. epidermidis* (n 16), *E. coli* (n 30), *P. aureginosa* (n 15), *C. albicans* (n 12) *in vitro* using the serial dilutions' method. We studied antimicrobial activity of antiseptics in conditions of different concentration of serum proteins.

Results. In the etiological structure of purulent-inflammatory diseases of the eye and eyelids the firs position occupy *S. epidermidis* stains. We found high resistance to antibiotics and high antimicrobial activity of antiseptics DKM, OD, AMC, OM against museum and clinical strains *S. aureus*, *S. epidermidis*, *E. coli*, *P. aureginosa*, *C. albicans*. It was determined, that providing the effective antimicrobial action of OM on this spectrum of pathogens, high concentrations of antiseptic should be used. High sensitivity of *S. aureus*, *S. epidermidis*, *E. coli*, *P. aureginosa*, *C. albicans* to AMC, DCM, OD in unfavourable conditions (high concentrations of proteins) was held.

Conclussion. *S. aureus*, *S. epidermidis*, *E. coli*, *P. aureginosa*, *C. albicans* are very sensitive to antimicrobial composition, decamethoxin, ophthalmodec in normal conditions and in high concentrations of proteins.

Key words: antiseptics, decamethoxin, ophthalmodec, antimicrobial composition, ocomistin.

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THE IMPACT OF LOW INTENSITY LASER RADIATION ON ANTIBIOTIC SENSITIVITY OF MICROORGANISMS – CAUSATIVE AGENTS OF PURULENT INFLAMMATORY DISEASES

Introduction. Despite the considerable efforts in the fight against the formation and spread of antibiotic-resistant microorganisms should be noted that today, antibiotic resistance has gained global proportions and has become a challenge for the twenty-first century medicine.

Along with the development of traditional ways to create new antibiotics and methods of genetic engineering and modern biotechnology, more and more alternative ways, including the use of low-intensity laser radiation is increasingly taking place in solving the problem of antibiotic resistance.

Materials and methods. The effect of low-intensity laser radiation (LILR) red (wavelength 635 nm) and near infrared (wavelength 870 nm) spectrums were studied on antibiotic sensitivity of clinical isolates of *S. aureus* (n = 73) and *P. aeruginosa* (n = 40), cultivated from inflammatory processes areas in diabetes mellitus type II diabetic foot syndrome patients and reference test strains of *S. aureus* ATCC 25923 and *P. aeruginosa* ATCC 27853.

Irradiation of bacteria was performed using quartz-fiber polymer monofibrous continuous laser beam from a distance of 1 cm from the suspension of microorganisms that were in vitro immediately prior to replanting nutritious Mueller-Hinton medium in a Petri dish. We used the exposure of 180, 360 and 600 seconds at a power density of 15 mW / cm^2. Source LILR - certified domestic laser "Lika - terapevt," which generates laser radiation with wavelengths of 635 and 870 nm.

The sensitivity of strains of *S. aureus* was determined to ampicillin, oxacillin, cefotaxime, gentamicin and tetracycline; *P. aeruginosa* - to cefotaxime, polymyxin, and nethilmicin.

In order to establish algorithm of conducting complex antibiotic therapy using NILV, separate series conducted with irradiation of disks with antibiotics and further studied their effects on not irradiated culture.

Results. Evaluating the results of the research indicated that LILR red and near-infrared bands led to increased sensitivity as clinical isolates of *S. aureus* and *P. aeruginosa* and reference strains of test data for all types of antibiotics studied. The most significant effect was observed photo modifying exposure for 180 seconds.

Sensitivity exposed LILR red spectrum with an exposure of 180 seconds strains of *S. aureus*, cultivated from wounds increased by 21-61% compared to control. 180-second exposure of clinical isolates of *S. aureus* LILR infrared spectrum increased their sensitivity to antibiotics at 16-36%.

The 180-second exposure LILR with a wavelength of 635 nm strains of *P. aeruginosa*, cultivated from wounds, their antibiotic sensitivity increased by 30-69,5%. Exposure duration of 180 seconds clinical strains of *P. aeruginosa* LILR infrared increased their antibiotic sensitivity to 31-59%.

Analyzing the results of experiments on standard commercial discs exposed to antibiotics, noted that LILR completely (exposure of 360 and 600 seconds) or partially (exposure of 180 seconds) inactivated.

Conclusions. Irradiation of low intense laser radiation with wavelengths of 635 and 870 nm leads to a significant increase of antibiotic sensitivity as for clinical isolates and collection of test strains of *S. aureus* and *P. aeruginosa*. The most significant effect was observed in photo modifying exposure of 180 seconds, which corresponds to a dose density of 2.7 J / cm^2.

Irradiation of antibiotics LILR completely or partially inactivate them as irradiating of the locuses of inflammatory process recommended to conduct according to the pharmacokinetics of antibiotics, preferably before the next administration of the antibiotic.

Key words: *Staphylococcus aureus*, *Pseudomonas aeruginosa*, laser, resistance.

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COMPLEX ACTIVITY OF LED EMISSION WITH ANTISEPTIC PREPARATIONS CONTAINING DISODIUM EDETATE, ON DAILY BIOFILMS OF PSEUDOMONAS AERUGINOSA CLINICAL STRAINS

Introduction. The increase of localized purulent-inflammatory processes caused by gram-negative bacteria is marked lately and *Pseudomonas aeruginosa* plays an essential role among agents. The acquired resistance of clinical strains of microorganisms to the existing remedies is connected in particular with the formation of biofilms. The goal of the given investigation is the study of the effect of LED emission with antiseptic preparations containing disodium edetate, on daily biofilms of *P.aeruginosa*.

Materials and methods. The ability to form biofilms was defined in polystyrene pads with preceding synchronization of periodic strains culture being under study. Synchronization of bacterial culture was carried out after the asynchrony culture growth determination in the way of selection after Mitchinson and Vinsent method. Optic density of biofilms and plankton cells were measured on spectrophotometer «Multiskan EX 355» wave length 540 nm. The exposition in vitro was carried out by luminodiode (LED) sources of photon matrix by Korobov apparatus «Barva Flex». The studies were carried out with antiseptic preparations containing 0,02% of disodium edetate (DNE), exactly with decametaxine solution, miramistin solution, benzalkonium chloride solution, cetilperidynium chloride solution and *P.aeruginosa* isolates excreted from venflons and drainage constructions (n=10) and from the patients with localized purulent-inflammatory processes (n=10). During the results processing statistic programs «Statistica» and «Biostat» were used.

Results. As the result of the carries out investigation it was stated that the density of daily biofilm decreases minimally in 4,8 times under the red spectrum activity and maximally in 40 times under the violet spectrum activity in comparison with the control (without exposition) under the influence of LED emission and decametaxine

solution with DNE. The complex use of LED emission and antiseptics containing disodium edetate allowed to define that *P. aeruginosa* plankton cells production by the daily biofilm is essentially suppressed by the activity of LED emission of blue and violet spectra antiseptic activity and in 28 times in comparison with control meaning without antiseptic).

Optic density of secondary biofilms formed by plankton cells after LED emission on primary *P. aeruginosa* biofilms was decreased under the activity of blue and violet luminodiodes with decametaxine containing disodium edetate and cetilperidynium chloride containing disodium edetate in average in 90 times.

Conclusion. Thus, it was stated that both biofilm formation and *P.aeruginosa* plankton cells production are suppressed under the influence of LED emission of blue and violet spectra. It was proved that LED emission of all spectra under study, contribute to the reinforcement of sensitivity of *P.aeruginosa* polyresistant cells strains to cationic antiseptics.

Key words: biofilms, *Pseudomonas aeruginosa*, LED emission, antiseptic preparations, containing disodium edetate.

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EXPERIMENTAL INVESTIGATION OF THE HEALING OF TRAUMATIC INJURIES OF THE ORAL MUCOSA OF RATS IN VIOLATION OF THE FUNCTION OF THE HEPATOBILIARY TRACT

Introduction. One of the most common injuries of the mucous membrane in the traumatology of the maxillofacial area are wounds. The concomitant pathology takes an important place in the treatment of traumatic injuries of soft tissues of the maxillofacial area. Among these diseases the most common are diseases of the

cardiovascular system, diseases of the digestive system (DDS), diseases of the endocrine system. The biggest tendency to increase are digestive diseases, including diseases of the hepatobiliary tract (HBT), cholelithiasis, chronic hepatitis, cirrhosis, cholecystitis, cholangitis.

The *purpose* of the study – experimentally explore the effect of the dysfunction of hepatobiliary tract on the conditions of healing of traumatic injuries of oral mucosa of oral cavity of rats

Material and methods. The experiment was conducted on 20 male rats Wistar, the age of animals - 5 months and weighing 240-270 g, that were in the general diet, had free access to food and water and on the standard conditions of stay in the cells of the vivarium VNMU named after Pirogov. The animals were wounding the oral mucosa and conducted the dysfunction of the bile duct by its transection.

Clinical evaluation of the wound surface of the cheeks was performed everyday starting from 3 days of experience. To evaluate the healing was used this description: "ulcer" - wound surface is a typical ulcer with traumatic edema, wound inflammation and leukocyte infiltration; "epithelization" - the restoration of the epithelial layer of the connective tissue of mucous membrane ; "healing" - a full recovery of defect of cheek mucosa .

Results. As a result of the dynamic observation of the wound healing of the oral mucosa of rats showed a significant deterioration of the healing process in rats with transection of the common bile duct. In violation of the function of the hepatobiliary tract wound healing of the oral mucosa of rats deteriorating for 3-4 days, it is important to consider when drawing up a complex plan of the treatment of such injuries.

Complete healing (100%) of standard traumatic wounds of cheeks in the control group of animals occurred on the 12th day, in the first experimental group - on the 16th day. Obtained results of daily observations of the dynamic of the processes of healing of traumatic wounds of the buccal mucosa, proving that at the animals, which had not dysfunction of the common bile duct, the rate of epithelialization and regeneration was significantly higher than that of the control group.

Conclusions. Dysfunction of hepatobiliary tract negatively effect on the healing processes of injuries of the oral mucosa of rats. On the background of the hepatobiliary tract dysfunction healing processes of soft tissues of the oral cavity of rats deteriorated and the healing time reduced to 3-4 days. In drawing up the plan for the complex treatment of wounds of the maxillofacial area is expedient to consider the hepatobiliary tract dysfunction.

Key words: rat, oral mucosa, maxillofacial region, wound, trauma, pathology of the hepatobiliary tract.

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THE INFLUENCE OF ELECTROMAGNETIC IRRADIATION AND GAS COMPOSITION OF CULTIVATION CONDITIONS ON THE ABILITY OF STAPHYLOCOCCI AND CORYNEBACTERIA TO BIOFILM FORMATION

Introduction. At the modern stage of science development special attention is paid to the ability of microorganisms to form biofilms, and the study of factors affecting this process. The efficiency of low-intensity electromagnetic fields (microwave radiation) in technological processes is proved by the number of studies. The received biological effects of microorganisms can later become the basis for creation of new methods for vaccines development or increasing biotechnological processes productivity. However, the number of publications devoted to the study of microwave radiation influence on various microorganisms is limited.

The *aim* of this research was to study influence of microaerophilic cultivation conditions and electromagnetic fields in 61,0 and 42,2 GHz frequency ranges on the ability of Staphylococcus aureus and pathogenic corynebacteria test-strains to biofilm formation.

Materials and methods. Corynebacterium diphtheriae test-strains (n=8), reference strains S.aureus ATCC 25923 and S.aureus 209 P (ATCC 6538-P), and S.aureus strains (n = 10), isolated from healthy carriers were used as test-cultures. The wave-form generators G-4-141 (f1 = 37,5-53,57) GHz and G4-142 (f2 = 53,57-78,33) GHz were used for irradiation of bacterial suspensions. Microaerophilic cultivation conditions were created using a *microair* atmosphere generating system GENbox microaer (bioMerieux, France) or gas composition consisted of 5% O_2, 10% CO_2 та 85% N_2. The method for assessment of biofilm formation on polystyrene microtiter plates was based on the techniques described by Stepanovic et al. with modification.

Results. It was experimentally proved that electromagnetic waves in the frequency range of 42.2 GHz were able to stimulate Staphylococcus aureus test-strains biofilms formation and inhibited biofilms formation of pathogenic corynebacteria. It was shown the significant increase of corynebacteria test-cultures biofilm formation and the tendency to increasing of the properties in some strains of S. aureus under the influence of irrradiation in 61.0 GHz frequency range. For microaerophilic cultivation conditions ability of Staphylococcus aureus to the formation of biofilms increased, but for pathogenic corynebacteria it was unchanged.

Conclusion. Since the main mechanism for bacterial persistence, including pathogens of infectious diseases, is the ability of microorganisms to adhere and form biofilms, studies related to the search for methods of influence on these properties, are promising. In connection with this fact, the effect of electromagnetic fields of millimeter range on microorganisms require more in-depth and comprehensive study.

Key words: electromagnetic irradiation, microaerophilic conditions, corynebacteria staphylococci, biofilms.

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PROSPECTS OF CREATION OF SOFT MEDICINAL FORMS BASED ON INORGANIC ANTISEPTICS

Introduction. On the modern stage the problem of distribution of infectious diseases can be examined as a global world problem. Among effective antimicrobial facilities, besides antibiotics, it is necessary to name antiseptics. To date the special attention it is necessary to spare to the group of antiseptics of inorganic nature. Creation of preparations of this group is the basis of, foremost the use of iodine, silver, copper, zinc. In most cases therapies of local infectious processes advantage it is necessary to give to the antiseptics, as compared to antibiotics, because for antiseptics more slow forming of medicinal stability, high bioavailability of preparation is characteristic in the hearth of infection, conditioned by a specific medicinal form and method of application. With the *purpose* of treatment offestering complications of wound processes, by actual direction in a fight against a local infection there is creation of soft medicinal forms. Became a research aim to study antimicrobial activity of the complex antiseptic iodinated ointments on the basis of polyethylene oxide.

Materials and methods. To study the antimicrobial activity of three samples obtained iodine ointment (1%, 3%, 5%).

As microbiological models in accordance with WHO guidelines used by the test strains (10^2 CFU/ml) S. aureus ATCC 25923, E. coli ATCC 25922, P. aeruginosa ATCC 27853, B. subtilis ATCC 6633, C. albicans ATCC 885-663.

To determine the antibacterial activity of prototypes using Mueller-Hinton agar, antifungal activity - agar Saburo. Every culture medium series qualitatively and quantitatively monitored in accordance with the regulations. Antimicrobial activity was determined in the agar diffusion method (method "wells"). To each well (size 6-8 mm) were administered drug petri dishes were placed in an incubator. Crops bacteria were cultured for 24 hours at 37^0C, the fungal genus Candida - 48 hours at 25^0C. The

degree of susceptibility of microorganisms to investigated samples was assessed by growth inhibition zone size.

Results. The results of the studies show that all samples are represented ointments have a broad spectrum of antimicrobial activity against gram-positive and gram-negative bacteria, fungi. The greatest activity was all the test samples had a relatively cultures S. aureus (stunting 27-30 mm zone), P. aeruginosa (zone stunting 23-30 mm), B. subtilis (growth inhibition zone 24-27 mm). With respect to the culture of the fungus C. albicans growth inhibition zones were the same and amounted to 26-27 mm.

It should be noted that an increase in the content of crystalline iodine is accompanied by increased antimicrobial activity. Thus, the antimicrobial activity of iodine ointment 3% on average 1.1 times higher than the activity of 1% iodine ointment. However, in the case of 5% iodine ointment marked decrease in the level of antimicrobial activity (zones of growth inhibition compared with 3% in average, less ointment of 1.2 times) that can be associated with administration of the formulation in castor oil, which degrades the diffusion of the active substance agar.

The best result was detected in the sample "iodine ointment 3%".

Conclusions. The results showed the dependence of the antimicrobial activity of the quantitative content of crystalline iodine in an ointment samples. The studies lead to the conclusion about the prospects of creating a soft dosage form as an ointment based antiseptics inorganic nature. Obtained on the basis of formulation and technology complex combination of antiseptic ointment composed of crystalline iodine, potassium iodide, dimexide recommended to study pharmacological properties with appropriate environmental modeling localized purulent-inflammatory infections by gram-positive, gram-negative pyogenic microorganisms, their associations, as well as mixed with the added attraction of C. albicans.

Key words: antiseptics, antimicrobial activity, iodine-containing ointments.

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RESEARCH OF ETHANOL PLANT EXTRACTS ANTIMICROBIAL PROPERTIES AND SYNERGY WITH ERYTHROMYCIN AGAINST SKIN ISOLATES OF MLS-RESISTANT STAPHYLOCOCCI

Introduction. Despite the widespread use of antimicrobials in clinical practice, pyoderma remains an important problem of modern medicine. Pyoderma is most often caused by *Staphylococcus aureus*, *Streptococcus pyogenes and* CNS in outpatients, enterococci, *E. coli* and *P. aeruginosa* in hospitalized patients. The main among them are Staphylococcus aureus and CNS. Treatment of skin infections involves topical and systemic administration of antibiotics. Macrolides are the most frequently used drugs; they are inhibitors of the bacterial cell protein synthesis by binding to the 50S subunit of the ribosome. MLS comprises three unrelated groups of antibiotics (macrolide, lincosamide and streptogramin B) that share the same binding site in bacterial ribosome.

In recent years concern is caused by increasing amount of antibiotic resistant skin isolates of microorganisms. Bacteriostatic mechanism of macrolides action causes the formation of resistance in the representatives of pathogenic microorganisms. Resistance to the macrolides usually results in coresistence to lincosamide and streptogramin B antibiotics (MLS-resistance). The main mechanisms of MLS-resistance are – specific modification of the antibiotic target (ribosomal resistance) and active efflux of antibiotic by efflux pumps. Modification of the ribosomal 23S rRNA causes a high level of resistance to macrolides. There is a direct connection between genetic determinants of staphylococci MLS-resistance and their phenotypic manifestation.

Such increase in antibiotic resistant skin strains drives research discovery of new antimicribial agents and the development of alternative theraputic strategies. To overcome the problem of antibiotic resistance, medicinal plants have been

extensively studied as alternative treatments. Herbal therapies have been used successfully in treating dermatologic disoders for many years in Europe and Asia.

Synergic interaction has become a key tool in phytomedicine research in recent years and antibiotics in combination with herbal products have been investigated as antimicrobials for resistant strains. Some studies have been used erythromycin, as a representative drug to evaluate combinatory effect of plant-derived products. The *purpose* of this study was to investigate antimicrobial activities and synergic action with erythromycin of 48 ethanol organic extracts.

Materials and methods. Obtaining extracts of Ukrainian flora medicinal plants and complexes of BAC from plant material by extraction with 90% ethanol. Screening study of 48 plant extracts and their active components antimicrobial activity and synergic action with erythromycin by agar diffusion method. Determination of selected plant extracts and their active components minimum inhibitory (bacteriostatic) and minimum bactericidal concentration by agar serial dilution method. Statistical analyses by Microsoft Office Excel 2003 and UTHSCSA ImageTool 2.0.

Results. Strong antimicrobial activity of *Betula verrucosa L*. and *Populus nigra L*. buds, *Polygonum bistorta L*. rhizomes, *Punica granatum L*. fruit pericarp, *Biota orientalis L*. needles and fruits extracts against all tested strains was established. *Betula verrucosa L.* buds and *Alnus incana L.* fruit extracts showed synergic action with $^{1}/_{4}$ and $^{1}/_{64}$ MIC (minimal inhibitory concentration) of erythromycin against all tested strains of staphylococci. 23 extracts showed antimicrobial activity against strain with phenotype Neg (MIC ERY – 125 μg/ml, MBC ERY – 250 μg/ml)(45%), 10 extracts proved strong antimicrobial activity (d of ihibition>10mm). Dose-dependent synergistic antimicrobial action with 1/64 and 1/4 MIC of erythromycin against this strain was observed in the following extracts: *Juniperus communis L.* fruits (d of inhibition increase 31% and 52% respectively), *Juniperus sabina L.* aerial parts (16% and 25%), *Betula verrucosa L.* buds (44% and 89%), *Polygonum bistorta L.* rhizomes (85% and 90%), *Biota orientalis L.* fruits (101% and 128 %), *Alnus incana L.* fruit (27% and 90%), *Punica granatum.L.* pericarp of fruits (10% and 54%), *Glycyrrhiza glabra L.* rhizomes (22% and 89%) and *Laurus nobilis* L.

leaves(10%). The ability to reduce inducible (ribosomal) and full MLS-resistance of 2 strains with phenotype D (MIC ERY – 4000 μg/ml, MBC ERY – 8000 μg/ml) and R (MIC ERY – 2000 μg/ml, MBC ERY – 4000 μg/ml) showed extracts of *Betula verrucosa L.* and *Populus nigra L.* buds, *Polygonum bistorta L.* rhizomes, *Punica granatum.L.* fruit pericarp. Synergic antimicrobial action with 1/64 and 1/4 MIC of erythromycin against both strains showed only extracts of *Betula verrucosa L.* buds(D - 9% and 18%, R - 61% and 66%) *Alnus incana L.* fruit (D - 90% and 120%, R - 28% and 115%). Credible synergy with erythromycin in both concentrations (1/4 and 1/64 MIC) against *S.aureus* strain was observed in *Peucedanum ruthenicum Bieb*. leaves, *Juniperus communis L.* needles and juniper extracts.

Conclusions. Biologically active substances of medicinal plants effectively restore sensitivity to erythromycin in staphylococci with low-level MLS-resistance by blocking of efflux pumps. High-level MLS-resistance has been modified significantly weaker. The research has scientific novelty and practical importance for the development of new antibacterial drugs for the treatment of pyoderma. The results indicated that BAC of some Ukrainian medicinal plants extracts showed significant antimicrobial activity against different phenotypes of MLS resistant skin isolates. Also, our study establishes that organic extracts from some Ukrainian medicinal plants induce the synergistic effect with erythromycin.

Key words: plant extracts, erythromycin, antibiotic resistance, synergistic action.

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RELATIONS SONOGRAPHIC PARAMETERS OF THYROID GLAND WITH INDICATORS OF STRUCTURE AND SIZE OF THE BODY IN HEALTHY MEN AND WOMEN UP TO 25 YEARS

Introduction. *Aim* of this work – establish features relations sonographic parameters of thyroid with anthropometric and somatotypological indices in healthy men 22-25 years and women 21-25 years, urban residents Podilskiy region of Ukraine.

Materials and methods. Accordance with the purpose and objectives of the study primary sonographic parameters of the thyroid gland and anthropometric indicators and somatotypological in practically healthy urban men and women Podilskiy region of Ukraine obtained together with a group of performers planned scientific work Scientific and Research Center Vinnitsa National Medical University named after Pirogov.

Ultrasound examination of the thyroid gland was performed using ultrasound diagnostic system "CAPASEE" SSA-220A (Toshiba, Japan) convex transducer with an operating frequency of 3.75 MHz according to conventional methods. We determined the volumetric and linear dimensions of the left and right particle (length, width and thickness) of the thyroid gland, and the thickness of the isthmus. Also defined area of a longitudinal section of the right and left lobes, the total area of longitudinal section and acoustic density of the thyroid gland parenchyma of each of its particles.

Anthropometric survey conducted by the scheme of V. Bunak. Somatotype components were determined by the method of J. Carter and B. Heath, a performance component of body weight - by the method J. Matiegka and the American Institute of Nutrition.

The analysis of the links between sonographic parameters of the thyroid gland and indicators of structure and body size of men (n = 70) aged from 22 to 25 years and women (n = 55) aged from 21 to 25 years was carried out in licensed software package "STATISTICA 6.1" with using statistical Spearman.

Results. In women 21-25 years, the number of reliable links sonographic parameters of the thyroid gland with anthropometric and somatotypological indicators in three times reduced compared to the total group of women (under 196 connections in the total group of women, compared with 64 links in women's 21- 25), but their strength increases (in women of the total the vast majority of significant correlations is weak force - 82.5% of credible links, and women 21-25 years the vast majority of

significant correlations of moderate strength - 73.4% of the total number of credible links); in men 22-25 years, the number of reliable links sonographic parameters of the thyroid gland with anthropometric and somatotypological indicators almost in twice as decreased compared to the total male group (respectively 133, preferably direct, links in total group of men against 67, almost evenly forward and backward, ties for men 22-25 years), but their strength increases (in men total the vast majority group of significant correlations is weak force - 94.0% of significant links, and men 22-25 years the vast majority significant correlations is almost uniformly weak and medium strength - respectively 53.7 and 46.3% of the total number of credible links).

The largest number of reliable and unreliable medium strength correlations with anthropometric and somatotypological indices is in women 21-25 years with installed thickness and volume of the left lobe (32.8% of significant correlations, most of which in the relations with covering body size - 18.8% of significant correlations); in men 22-25 years - with densitometric density shares (22.4% of significant correlations, most of which in the relations with TSFF - 11.9% of significant correlations) and the thickness of the isthmus (20 9% of the total number of reliable connections, the vast majority of which occur in connection with covering the body size and cephalometric size - respectively 7.5 and 4.5% of significant correlations). Almost does not have significant correlation with anthropometric and somatotypological indices: women 21-25 years - with a width of shares (1.6% of the total number of credible links); in women 26-35 years - with densitometric density particles (2.3% of the total number of credible links); in men 22-25 years - the length with particles (3.0% of the total number of credible links).

Conclusion. The greatest number of significant correlations with anthropometric indices and somatotypological set: for men 22-25 years – with densitometric density of particles (most of which are installed with thick of skin and fat folds) and the thickness of the isthmus (most of which are installed with covering body size and cephalometric dimensions); in women 21-25 years – with the thickness and volume of the left lobe (most of which are installed with covering body size).

Key words: correlation, thyroid gland, sonography, structural features of the body, practically healthy men and women.

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DEVELOPMENT ANTIVIRAL ACTIVITY OF BENZODIAZOLS' DERIVATIVES AGAINST INFLUENZA

Summary. Benzodiazols' derivatives with high level of predicted antiviral activity were created by using QSAR-technology. Compounds 1160 and 1166 showed higher influenza activity than was predicted in the culture chorio-allantoic membranes 11-14-day-old chick embryos. Their experimental antiviral activity was the same as that of the reference drug Tamiflu. Therefore, these compounds may be selected as promising for the further creation of influenza drugs.

Key words: influenza chemotherapy, development of new antiviral drugs, benzodiazols' derivatives.

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LEVETIRACETAM ANTIEPILEPTIC EFFICACY INCREASING USING RECOMBINANT INTERLEUKIN-1 RECEPTORS ANTAGONIST IN CONDITIONS OF EXPERIMENTAL CHRONIC CONVULSIVE SYNDROME

Introduction. *Aim* of this work – research the intensity of chronic convulsive activity in conditions of picrotoxin (PCR) – induced kindling and postkindling in conditions of use levetiracetam (LEV) against the blockade of interleukin-1 (IL-1) receptor administration of recombinant antagonist interleukin-1 (RAIL).

Materials and methods. To play back chronic convulsive syndrome in male rats Wistar weighing 180-250 g were used kindling chemical models that reproduce by

24-day PCR administration ("Sigma-Aldrich", Germany) subthreshold dose ranging from 0.9 to 1.1 mg/kg, and also postkindling that reproduce by holding kindling rats without convulsive effects within 14 days after modeling kindling.

LEV (Tokyo Chemical Industry Co. Ltd, Japan) was administered intraperitoneally (i/p) in doses of 100 and 200 mg/kg to rats with formed kindling and postkindling. The doses of the compounds were selected based on data.

RAIL (Institute of Highly Pure drugs, Petersburg) in conditions of specified models of chronic convulsive syndrome was administered to rats i/p in doses of 7.5 and 10.0 mg/kg for 30 minutes before entering the substance that caused the epilepsy (were selected only effective doses).

Studied the effect of RAIL and LEV separately, and the impact of their joint introduction on the severity of PCR-induced seizures in rats with formed kindling and postkindling and its influence on the formation of PCR-induced kindling.

After injection PCR rats were placed in individual transparent plastic chamber (10 cm x 25 cm x 30 cm) and observed for 30 minutes. Seizures were determined visually and assessed by a 6-point scale. Calculated also a number of rats with hindlimb tonic extension (HTE). In each experimental group were at least 9 rats.

The obtained results were calculated using statistical parametric test ANOVA, accompanied as compliance with the criteria Newman-Kullz and parametric test Krushkal-Wallis.

Results. When the activity of interleukin receptor blockade going on inhibition of chronic convulsive syndrome, which reproduced in conditions of kindling and postkindling.

By this will be interesting to add obtained data regarding the preventive effects of the blockade of IL-1 receptors on the formation PCR kindling that provides effect of blockade of cytokine receptors on different mechanisms appearances epilepsy.

Entering LEV on the background of blockade activity of IL-1 receptors in experimental chronic convulsive syndrome causes a more pronounced anticonvulsant effects and provides anticonvulsants influence in conditions of postkindling.

Conclusion. Thus, block the activity of IL-1 receptor is the process, against which qualitatively implemented anticonvulsant effect, LEV firstly, highlights the prospects

for its comprehensive clinical use in patients with resistant forms of epilepsy and, secondly, confirms the pathogenetic justification blockade of IL-1 receptor in the preparation of integrated scheme of antiepileptic treatment.

Key words: recombinant interleukin-1 receptors antagonist, levetiracetam, kindling, postkindling, chronic convulsive syndrome.

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SIMULATION USING DISCRIMINANT ANALYSIS CAPABILITIES PYOGENIC SKIN INFECTIONS DISEASE IN MEN AND WOMEN DEPENDING ON THE CHARACTERISTICS OF STRUCTURE AND SIZE OF BODY

Introduction. *Aim* of this work – develop a discriminant model pyoderma risk in men and women of the first mature age residents of Western Ukraine, depending on the characteristics of anthropo-somatotypological body options.

Materials and methods. At the Department of Ambulatory Care, Family Medicine and Dermatology, Venereology, and Human Anatomy Lviv National Medical University named after Danylo Galickii conducted clinical and anthropological examination of 45 patients with pyoderma men aged 22 to 35 years, and 48 patients with pyoderma women aged 21 to 35 years, and 24 healthy men and 43 healthy women of similar age in the third generation residents of the western regions of Ukraine. From database Scientific and Research Center Vinnitsa National Medical University named after Pirogov taken primary anthropometric indices 61 healthy men and 92 healthy women of similar age in the third generation residents of Rivne, Ternopil and Khmelnytsky regions of Ukraine.

Anthropometry held by the scheme V. Bunak. Somatotype components were determined by the method of J. Carter and B. Heath, a performance component of body weight - by the method J. Matiegka and the American Institute of Nutrition.

For modeling the possibility of pyoderma in men or women based on anthropometric indices and somatotypological used method step discriminant analysis in license package «STATISTICA 6.1».

Results. Identified coefficients of classification discriminant functions make it possible to calculate the index of classification (Df), through which may include indicators that were studied, to "standard" for healthy men or to "typical" for patients with pyoderma men, that allows to predict the occurrence of this disease. Built model of capabilities diseases pyoderma depending on the characteristics of anthropometric and somatotypological parameters of body in men and women have the appearance of these equations:

Df (*for healthy men*) = – thickness of skin and fat folds (TSFF) on the side × 1,459 – TSFF under the lower angle of the scapula × 0,765 + TSFF on the front of the shoulder × 0,976 – TSFF on the shin × 3,416 + anthropometric height swivel point × 1,255 + the distance between the ridge of the pelvis × 4,364 + height pubic anthropometric point × 0,861 – TSFF on the stomach × 1,232 – circumference of the chest with a deep exhalation × 0,493 + circumference of the chest with a deep breath × 2,913 + TSFF on the hip × 2,012 – 264,7;

Df (*for patients with pyoderma men*) = – TSFF on the side × 1,232 – TSFF under the lower angle of the scapula × 1,123 + TSFF on the front of the shoulder × 1,401 – TSFF on the shin × 3,994 + anthropometric height swivel point × 0,935 + the distance between the ridge of the pelvis × 4,723 + height pubic anthropometric point × 1,079 – TSFF on the stomach x 1,083 – circumference of the chest with a deep exhalation × 0,752 + circumference of the chest with a deep breath × 3,154 + TSFF on the hip × 2,274 – 266,9;

Df (*for healthy women*) = – TSFF under the lower angle of the scapula × 0,079 + mesomorphic somatotype component × 1,501 + height anthropometric points finger × 0,592 + TSFF on the hip × 0,198 + the distance between the ridge of the pelvis × 0,031

– anthropometric height swivel point × 0,030 – height pubic anthropometric point × 0,592 – TSFF on the chest × 0,541 + shoulder height anthropometric point × 3,935 + width distal epiphysis forearm × 11,32 + shoulder width × 1,923 – 327,6;

Df (*for patients with pyoderma women*) = – TSFF under the lower angle of the scapula × 0,485 + mesomorphic somatotype component × 1,922 + height anthropometric points finger × 0,766 + TSFF on the hip × 0,423 + the distance between the ridge of the pelvis × 0,388 – anthropometric height swivel point × 0,406 – height pubic anthropometric point × 0,185 – TSFF on the chest × 0,345 + shoulder height anthropometric point × 3,782 + width distal epiphysis forearm × 12,92 + shoulder width × 1,747 – 334,5.

The obtained results indicate the low correct model as in men (Statistics Wilks' Lambda = 0.618; F = 11.6; p <0.001; correctness in practical inspection in 45.0% of cases) and in women (statistics Wilks' Lambda = 0.646; F = 11.5; p <0.001; correctness in practical inspection in 50.0% of cases) western regions of Ukraine.

Conclusion. Proven low correctness of model capabilities pyoderma disease in men and women of Western Ukraine.

Key words: discriminant model, pyoderma, men and women of Western Ukraine.

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THE EFFECTION OF ANTIMICROBIAL ACTION OF COMBINATION OF FLUOROQUINOLONES WITH ANOTHE ANTIBIOTICS AGANST POLIANTIBIOTICS-RESISTANT STRAINS OF PSEUDOMONAS AERUGINOSA AND ENTEROBACTERIAE

Introduction. The rapid decrease in sensitivity of pathogens of septic infections to antimicrobial agents has led to significant difficulties in the treatment of

antibioticresistant infections. One solution of this problem is the method of combining of antimicrobial medications from different pharmacological groups. Antimicrobial synergy resulting from antibiotic combination therapy is often important in the treatment of serious bacterial infections. The aim of the study is investigation of combined antimicrobial action of fluoroquinolones with other antibiotics against polyantibioticresistant strains of *Pseudomonas aeruginosa* and enterobacteria.

Materials and methods. The polyantibioticresistant strains used in this study were isolated from patients hospitalised in the Hospital of Kharkov. The study of combinations of antibiotics efficacy was carried out by determining the minimum inhibitory concentrations using routine in vitro “checkerboard” method.

Results. Calculation of the fraction inhibitory index showed that the combination of ciprofloxacin with ceftazidime demonstrated synergistic inhibitory activity against 76,92 % of *P.aeruginosa* and 66,67 % of enterobacteria strains tested. Three other two-component combinations: ciprofloxacin with tobramycin, ofloxacin with ceftazidime and ofloxacin with tobramycin result in summation or indifferent effect against polyantibioticresistant strains of *Pseudomonas aeruginosa* and enterobacteria. Thus the studies have shown the indifferent or summation effects of another combinations on the multiresistant strains.

Conclusion. Thereby combination of ciprofloxacin with ceftazidime may be considered as synergistic and perspective for further experimental *in vivo* studies and studies of their clinical effectiveness against polyantibioticresistant strains of *Pseudomonas aeruginosa* and enterobacteria – causative agents of pyoinflammatory diseases.

Key words: combinations of the antibiotics, polyantibioticresistant strains, "checkerboard" method.

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ANTIBACTERIAL ACTION OF CHITOSAN AND COPPER NANOPARTICLES COMPOSITES

Introduction. Infections are still a major cause of morbidity and mortality worldwide. In view of ineffective antimicrobial agents, there is need to seek new alternative and safer antimicrobial agents against of viruses, bacteria, fungi and protozoa. With the development of biomedical nanomaterials, new antimicrobial agents have begun to emerge either as novel and/or augmenting the activities of the current conventional antimicrobials. Inorganic antibacterial agents such as metal and metal oxides are advantageous compared to organic compound due to their stability.

The aim of this work is to study antibacterial action of the chitosan and copper nanoparticles composites on pathogenic microorganisms.

Materials and methods. The chitosan/Cu nanoparticles composites were prepared with different additional components and were tested against *Escherichia coli*, *Staphylococcus aureus* and *Pseudomonas aeruginosae* for their antimicrobial activities.

Results. All test samples showed antibacterial activity against multidrug-resistant strains of microorganisms. A solution of chitosan inhibited the growth of the microorganisms at a concentration 3 μg /ml and above. The chitosan/Cu nanoparticles have shown the increasing of the antibacterial action (growth of microorganisms was suppressed at concentration 0.75 μg/ml). MIC of the chitosan/Cu nanoparticles composites for S. aureus (0,75-1,5 μg /ml) was 2 times lower compared to the MIC for E. coli and P. aeruginosae (3-6 μg /ml). The most effective was the chitosan/Cu nanoparticles composites with the use of lactic acid and oxalate.

Conclusion. Chitosan/Cu nanoparticles composites exhibit a stronger antimicrobial effect than the pure gels of chitosan and the copper ions. Use as a solvent for chitosan of the lactate or oxalate reduces MIC of chitosan nanoparticles and copper doubled. Staphylococci are more sensitive to the complex preparations of chitosan and nanoparticles of copper compared with *E. coli* and *P. aeruginosae*.

Key words: microorganisms, chitosan, copper nanoparticles, antibacterial action.

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MINFLUENCE OF NON – STEROIDAL ANTI – INFLAMMATORY DRUG NAPROXEN ON THE INTESTINAL MICROFLORA IN EXPERIMENT

Introdaction. Non-selective COX inhibitors (aspirin, ibuprofen, indomethacin and naproxen) that suppressing as enzyme COX-1 and the enzyme COX-2, providing effective decrease of pain at inflammation, have a high ulcerogenic potential and a significant risk of gastrointestinal bleeding as one of the systemic adverse effects. However, naproxen in its diverse medicinal forms is still one of the most commonly used of non-steroidal anti-inflammatory drugs.

Materials and methods. For investigate of the effect of naproxen on intestinal microbiocenosis 30 white not purebred male rats were used which have been introduced drug at the rate of 10 mg.

For the microbiological studies had used the classical culture method. Identified and established quantitative index of the following groups of microorganisms in the duodenum, ileum, proximal and distal parts of the colon: *Enterococcus*, *Staphylococcus*, *Escherichia*, microaerophilic bacteria - lactobacilli and bifidobacteria; clostridial anaerobes groups, *Candida*.

In addition, was carried out before screening examination on the activity of naproxen standard in vitro culture of microorganisms by diffusion method in the agar. For this

purpose, standard strains of *Escherichia coli ATCC 25922., Staphylococcus aureus ATCC 25923(F - 49), Candida albicans ATCC 885-653* were used. The layer of nutrient agar (10 ml), poured into a petri dish wells, in which the drug inoculated in an dose of 75 mg. For study the effect of the drug on *C. albicans* was used Saburo media. Then bacterial suspension of 1 McFarland was made from the pure culture and the petri dishes were incubated for 24 h at 37 °C for *C.albicans* – 48 h. After incubation the growth of inhibition zone were recorded around the wells with drug. The experiment was then repeated five more times. It has been established that for *S. aureus* growth inhibition was 39,7± 3,7 mm, C.albicans 22,0±5,7 mm. *E. coli* no growth inhibition.

Results. The results of microbiological investigation of various part of gastrointestinal tract allowed to claim that a single injection of naproxen causes some increase of the quantitative levels of enterococci (within%) in the proximal parts of the digestive tract and the appearance of *E. coli* in 12-duodenum, microbiocenoses that in a healthy organism are characterized by low levels of colonization of nonpathogenic microorganisms.

Conclusion. It was established that inhibition of Staphylococci and C.albicans of all parts of intestine should be associated with a straight activity of naproxen to such microorganisms. It has been shown that in vitro experiments the biological activity of naproxen, that are influences on the morphological, kinetic and secretory functions of the digestive tract.

Key words: naproxen, antimicrobial activity, white rats, intestinal microbiocenosis.

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FEATURE OF ORAL MICROFLORA IN PATIENTS WITH UNCOMPLICATED FRACTURES OF THE MANDIBLE

Introduction. The microflora of the oral cavity, takes an active part in the processes of digestion, metabolism, synthesis of vitamins, formation of immune status and overall non-specific resistance. The course, the result and forecast consolidation uncomplicated fracture of the mandible depends on changes in the microflora.

Materials and methods. 20 male patients with complicated forms of fractures of the lower jaw in the early stages of treatment (first stage of reparative osteogenesis) were examined and treated. Patients aged 18-49 years were in the department ofaxillofacial surgery of Vinnitsa Region Clinical Hospital.

Material for the study was fasting. Patient was washing his mouth with a sterile saline solution (10 mL). Then prepare dilutions of 1:10, 1: 100. 0.1 ml of the contents of each dilution plated on blood agar, yolk-salt agar, Endo agar, Saburo agar, medium for lactobacilli. They were incubated from 24 to 48 hours at 37 ° C. The number of colonies that grew on the medium multiplied on dilution to determine the number of bacteria in 1 ml of the material. The bacteria were identified by morphological, cultural, enzymatic properties.

Individuals with uncomplicated fractures of the lower jaw have changes in the composition of oral microflora since three days after surgery. They become more visible for 10 days. This can lead to many undesirable results.

Results. Bacteriological study of oral cavity marked decrease in the total number of streptococci, a significant decrease in the number of lactobacilli and neisseria slight decrease on the third day. There is an increase in the number of staphylococci, actinomycetes in oral fluid.

Conclusions. Individuals who have had uncomplicated fractures of the lower jaw, observed disturbance microbiota of the oral cavity since the third day.

To comprehensive treatment of patients after uncomplicated fractures of the lower jaw we recommend prescribe drugs normalizing microbiocenosis mouth.

Key words: microbiocenosis, uncomplicated fracture of the mandible.

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SEPTOMAKS - NEW CHLORE SINGLING OUT DISINFECTANT PROLONGED ACTION. COMPARATIVE EVALUATION OF ACTIVITY .

Introduction. Search of new disinfectants that have a stronger detrimental effect on pathogenic and opportunistic microorganisms, harmless on human body is an urgent problem in the fight against nosocomial infections. The greatest attention is attracted to chlorine containing disinfectants, as the most potent and least toxic. The study of 3th chlorine containing preparations is conducted: septomax, dezactine, and chlorantoine. The determination of chlorine activity containing preparations indicator medium are applied: IM1 and IM4. At the same time, aqueous solutions of disinfectant in a concentration of 1% for 1 min. destroyed test-culture of microorganisms. Storage disinfectant in 14 days at room temperature does not reduce its disinfection activity.

Materials and methods. The tests of disinfection facilities were conducted: septomax, chlorantoine and dezaktine, method of display the microorganisms in a liquid with a 1% concentration of disinfectants in a flow for 14 days. In-process used museum bacterial cultures: E. coli K-12, S.aureus 906, B.subtilis 168, B.cereus 96. Also, for determination the action of disinfectants used in the wild cultures of microorganisms isolated from biological secrets. For visualization oxidation and antagonistic action of disinfectants were used two modifications of indicator mediums, reactive on oxidants. As basis for an indicator medium (IM) it had next composition (gram on 1 l of water): potassium iodide 26,0; soluble starch 10,0; the nourishing medium 30,0.

On the surface of IM1 was sow the test-cultures of microorganisms, whereupon in the center of cup was placed a cylinder and 0,2 ml of 1% disinfectants was brought. Cups

were placed in a thermostat on 24 hours at 37^0C. It was determined diameter of area of suppression of growth the test-cultures. For the account of indicator reaction (IR) on the surface of cup was poured 5 ml 10% H_2SO_4. Through 3-5 min was account of IR as appearance of dark-violet areas round cylinders. For visualization of oxidative activity of disinfectants without an after treatment by sulfuric acid in composition IM1 the concentration of KJ was increased to 26-30 gram on 1 l of IM.

For the estimation of oxidative ability of septomax, chlorantoin and dezaktin was used indicator medium (IM4), containing an agar, potassium iodide and soluble starch. At diffusion of active chlorine the ring of the dark-violet coloring, the diameter of which depends on his concentrations. The account of results was produced in 12 hours.

Results. Evidently, that reactive areas had 2 constituents: a dark ring and slightly colored that depends on the gradient of concentration of the selected chlorine. For the septomax diameter of dark area of color was 20 mm, and dimeter of the poorly painted area reached 35 mm. For desactin accordingly: 14 mm and 20 mm, for chloratantoin: 18 mm and 30 mm. The use of IM4 for determination of chlorine activity containing antiseptics was described firstly and shows efficiency of using this method. This method can be widely applicable in medical establishments for control after chlorine containing disinfectants.

One of the tasks of the research was to estimate the maintenance of antibacterial activity of probed disinfectants after preparation working solutions. As a working concentration was chosen 1% solution of preparation, and term which the maintenance of activity was determined during – 14 days. It was testified to dependence of diameters of areas of suppression from the kind of examinee microorganisms and about independence of antibacterial activity of septomax, chlorantoin and desactin from storage during 14 days.

Conclusions. The indicator medium (IM1) allows to visualize oxidative and antibacterial activity of chlorine containing disinfectants with the estimation of this activity in the process of storage of preparations. The minimum indicator medium (IM4) can be used in medical practice for the comparative analysis of activity of disinfectants without the account of neutralization of active Cl_2 by organic

compounds, that takes place at the use of IM1. The gradient of indicator reaction is exposed on oxidizing activity of septomax, chlorantoin and dezactin as falling of intensity of the violet coloring of rings at diffusion of disinfectants that depends, presumably, from the decline of concentration of active chlorine. All three tested disinfectant ("Septomax", "Chlorantoin" and "Dezaktin") demonstrated equivalent antibacterial activity, continued with 14-day storage of aqueous solutions at room temperature. By oxidative drug "Septomax" capacity somewhat larger "Chlorantoin" and "Dezaktin". The use of means "Septomax" as a stabilizer nutrient taurine leads to increased stability of the disinfecting solution and reduce the environmental burden on the environment, which distinguishes it from "Chlorantoin" and "Dezaktin".
Key words: Disinfection, sterilization, hospital infections, sterilization technology, opportunistic and pathogenic bacteria.

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COMPARATIVE SESITIVITY OF CELL CULTURES TO ENTEROVIRUSES CLINICAL ISOLATES

Introduction. The most commonly different cell cultures are used for enteroviruses isolation. Together with that present grounding about the maximum sensitivity and the effectiveness of the different using cell cultures have not formed completely. Selection of optimal combinations of different cell cultures can be used for enteroviruses isolation from clinical material is the aim of this research.

Materials and methods. Fecal masses are the clinical material. Prototypical vaccine strains of poliovirus I type (strain Lsc2ab) and Coxsackie viruses B6 (strain

Hammon), also clinical isolated enteroviruses obtained from patients with dysbiotic disorders are used in research.

Results. Continuous types of cell cultures like RD, HEp-2, Vero, HeLa, L20B, L41 (mouse fibroblasts) are studied with comparison. Present genetic methods based on the selection and amplification of viral RNA are used in this work.

It is identifined the optimal combination of cell cultures for monitoring of enterovirus infections spreading with the context of the polio eradication program: cell culture L20B – for polioviruses detection and HEp-2 – for polio and another enteroviruses specieses detection. It is determined the retardation of cell culture cytopathic effect after infection with viral clinical isolate. This should be considered during enteroviruses isolation from patient material and environment.

Conclusion. The sensitivity of each cell culture to different enteroviruses, isolated from clinical material is not the same. Because of this it is rational to use combinations of different cells. The cell cultures L20B were found to the most optimal for isolation of polioviruses and HEp-2, that can be used for rapid isolation and identification of enteroviruses from faecal masses. In the majority of studied cultures cytopathic action when laboratory strains of viruses of poliomyelitis and Coxsackie B6 results earlier in comparison of clinical strains, and should be tacken into account during virologic diagnostics.

Key words: enteroviruses, sensitivity, cell cultures.

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SOME VARIANTS OF BLOOD SUPPLY AND INNERVATION OF THE GLUTEAL AND POSTERIOR FEMORAL AREAS IN FETUS

Introduction. *The aim* is to establish variants of topography of vessels and nerves of the gluteal and posterior femoral areas of fetus in age 6-7 months.

Material and methods. Macroscopic research of intramuscular nerves and blood vessels in a deepness of the external pelvic muscular groups and posterior muscles of thigh held on 12 preparations of human fetuses 186,0-270,0 mm of parietal-coccygeal length (PCL).

Results. According to our research the branching of the superior gluteal nerve is located primarily within the upper and middle thirds of minimus gluteal muscle. Thin nervous fibers pass to the intramuscular arteries and they are situated along these vessels. Branches of superior gluteal nerve are located evenly in the different layers of middle gluteal muscle, also there were found additional sources of innervation. Branching of inferior gluteral nerve is concentrated in the upper and lower parts of the gluteus maximus muscle. Superior gluteral artery on its way pays 1-2 branches to the piriform and internal obturatory muscles, and after leaving the pelvic cavity is divided into superficial branch that supplies gluteus maximus and medius muscles and deep branches, feeding gluteus medius and minimus muscles and tensor fasciae latae muscle. Also lateral circumflex femoral artery participates in the blood supplying of gluteus medius and tensor fasciae latae muscles. Inferior gluteal artery supplies gluteus maximus muscle and gives off an accompanying artery of schiatic nerve.

In fetuses of 205.0 mm and 240.0 mm of PCL muscular branches of the sacral plexus are located in the lower part of inferior gemellus muscle. In fetuses of 230.0 mm and 260.0 mm of PCL nervous fibers of sciatic nerve are involved in innervation of gemelli muscles. Branch of the obturator nerve innervates the external obturator muscle, nerves branches in medial parts of the muscle. Front twig of obturator artery passes on external obturator muscle downward, supplies it and upper parts of adductors muscles. Posterior branch of obturator artery goes dorsocaudally on the outer surface of obturator membrane and supplies the external and internal obturator muscles. Lateral branches of lateral sacral arteries supply piriform muscle. Deep branch of the medial circumflexa femoral artery is placed between the external obturator muscle and quadratus femoris muscle and is involved in the blood supply of

the mentioned muscles. It should be noted that the biceps femoris muscle - a muscle that lost metameric structure and metameric intramuscular distribution of nerves, segmental arterial blood supply was observed only in short belly. 3-5 muscular branches pass from the sciatic nerve to the long head of the biceps femoris muscle, one or sometime two branches of common peroneal nerve pass to the shot belly. Nerves and arteries enter the biceps femoris muscle on front surface of muscle, and the place of entering of the arteries into biceps femoris do not coincide with places of nerves entry. Intramuscular artery of the long head of biceps femoris are fan-shaped and give the ascending, transverse and descending branches, nervous stems placed in front of the arteries. Arteries in short belly have downward direction, and nerves are located posteriorly. Blood vessels and nerves enter the semimembranosus muscle along the outer edge of the muscle and direction of nervous stems that exit from sciatic nerve, coincides with the direction of arteries. It should be noted that more arterial branches than nerves penetrate the thickness of the external pelvic muscles and the rear muscles of the thigh, and the nerve entry gates do not always coincide with the places of arteries.

Conclusions. The source of the innervation of muscles of the external pelvic and back thigh muscles are branches of the sacral plexus. In fetus gemelli muscle and quadratus femoris muscles are innervated by sciatic nerve; gluteus medius muscle – by the branches of sacral plexus; internal obturatory muscle – by branches of the sciatic and pudendal nerves. The sources of the innervation of the biceps femoris muscle are sciatic, tibial and common peroneal nerves.

Muscles of gluteal and posterior thigh areas are supplied by branches of internal iliac, femoral and popliteal arteries. In the thickness of the muscles more arteries enter in compare with nerves, and the nerve entry gates do not always coincide with the entry of places of arteries. Arteries in the thickness of gluteal muscles and posterior femoral muscles anastomose each other and form vessel net.

Key words: skeletal muscle, blood vessels, nerves, fetus.

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CHARACTERISTIC OF KIDNEYS STRUCTURAL PECULIARITIES IN THE CONDITION OF THYROID GLAND DEPRESSION

Introduction. Thyroid gland hypofunction is known to be one of the risk factors of the atherosclerosis development as a result of the increased level of cholesterol in blood. Lipids change disturbing causes the morphological as well as the functional changes in kidneys, and promotes the atherosclerosis progress. In the present study, *our purpose* was to establish the role of thyroid gland function depression as the risk factor of the experimental atherosclerosis development in rats.

Materials and methods. The research involved 20 white mature male rats that were kept in vivarium conditions of M. I. Pyrohov VNMU with free access to water and food. The experiment was conducted in compliance with the 'General ethical principles in experiments with animals' and were consistent with the provisions of the 'European Convention for the protection of vertebrate animals used for experimental and other scientific purposes'. The animals were divided into 2 such groups as the intact animals, and the rats that had thyroid gland function depression by 4(6) methyl-2-tiouracil in such dosage as 12mg/kg during 30 days. Sampling was performed under general thiopental anesthesia by cervical dislocation, fixation of morphological material was carried out by the conventional method. The study of the histological structure of the rats kidneys was performed in the middle part of kidney. The resulting material was fixed in 10% neutral formalin. After a standard procedure, it was embedded in paraffin, histological sections 5 microns thick were made in microtome. The sections were stained with hematoxylin and eosin. Obtained specimens were examined with a microscope at different magnifications and photographed. In renal arteries of small diameter we measured the eternal as well as the internal diameter, and defined the wall's thickness, the squares of arterial section as well as arterial empty space, and calculated indexes according to Vogenvort and

Kernogan. In renal cortex we defined squares of renal corpuscles, glomeruluses, and Bowman's capsule space as well as diameters of proximal and distal convoluted tubules of nephrons, squares of their section as well as their empty space, diameters of cells and their nucleuses, and we calculated nuclear cytoplasmic ratio.

Results. The decrease of animals' masses in 5.31% in comparison with the intact group was observed, and it equaled (179.2±10.32) g. In the rats that had thyroid gland function depression in comparison with the intact rats were discovered such mass and linear changes as decrease of the right kidney mass in 25.47% as well as the left one in 22.28%, they equaled (0.64±0.04) g and (0.61±0.03) g. The decrease of kidneys length and thickness in comparison with those indicators of the 1st group of animals were defined. In the right kidney its length and width reduced in 8.94% (14.41±0.29) мм ($p < 0.05$), and 5.54% (8.36±0.28) mm; and in the left one those parameters reduced correspondingly in 3.72% (14.90±0.30) mm, and in 9.99% (8.06±0.13) mm. Such decrease of kidneys indexes in the rats of the 2nd group was defined as the right kidney index in 23.83% (0.00358±0.0001), and the left kidney index in 16.28% (0.0036±0.0001) in comparison with the data of intact rats. The height of renal gates in the right kidney of the animals of the 2nd group decreased in 5.73% (3.70±0.13) mm, but the width of renal gates in that kidney increased in 24.92% (4.06±0.10) mm ($p<0.001$). In the left kidney both linear parameters of renal gates increased, the height of gates in 10.01% (3.93±0.12) mm, and the width of the gates in 23.24% (4.07±0.11) mm ($p<0.01$). In the renal cortex the square of renal corpuscles increased in 6.74% (6020.4±268.5) mcm²; the square of the glomerulus decreased in 3.55% (4351.7±194.1) mcm²; the square of Bowman's capsule space increased in 47.77% (1668.7±83.4) mcm² ($p<0.001$) in comparison with those indicators of the 1st group of rats. The external diameter of the proximal convoluted tubules of nephrons increased until (45.01±1.04) mcm, but diameter of their section reduced in 11.28% (19.34±0.82) mcm; square of section increased until (1561.0±68.4) mcm²; square of free space in proximal convoluted tubules decreased in 7.1% (342.7±28.5) mcm² in comparison with data of the intact rats. The height of epithelial cells increased in 4.3% (11.89±0.53) mcm, and their width decreased in 6.73% (12.48±0.41) mcm; and their square decreased in 2.68% (148.41±5.35) mcm² in comparison with data of

the 1st group of rats. The diameters as well as the squares of epithelial cells nucleuses decreased in 6.74% (5.95±0.11) ($p<0.05$) mcm, and in 9.67% (27.37±1.00), and nuclear cytoplasmic ratio decreased in 11.69% in comparison with those parameters in the intact rats. In the distal convoluted tubules of nephrons decrease of such parameters as their diameter in 2.14% (31.04±0.78) mcm, and square of their section in 3.63% (747.76±29.88) mcm², and diameter of their free space in 4.59% (15.80±0.47) mcm, and square of free space in 13.5% (183.4±8.8) mcm² ($p<0.05$). The square of epithelial cells (102.7±5.1) mcm² decreased in 8.95%, and the width of those cells decreased in 10.29% (13.35±0.56) mcm, and the height of the cells in 8.95% (102,7±5,1) mcm. But diameter of cell nucleus increased in 4.89% (5,58±0,13) mcm, and square of cell nucleus increased in 3.35% (24.7±0.9) mcm²; and nuclear cytoplasmic ratio decreased in 7.06% in comparison with those parameters in the intact rats. In comparison with the intact rats the animals that had thyroid gland function depression square of section of renal arteries of small diameter decreased in 2.49% (398.46±31.07) mcm²; and square of free space of renal arteries of small diameter decreased in 10.44% (94,67±4,02) mcm²; and the wall's square as well as the wall's thickness increased in 0.28% (303,79±31,03) mcm² and in 7.97% (10,16±0,66) mcm; and the external diameter increased in 2.29% (37,93±1,41) mcm; but the internal diameter decreased in 3.5% (17,62±0,56) mcm; and indexes according to Vogenvort and Kernogan increased in 26.96% (363,76±36,54) and in 5.51% (0.27±0.02).

Conclusion. The compensative and adaptive changes of linear as well as mass parameters of rats' kidneys, and the qualitative indicators of nephron's components and the renal arteries of small diameter, and the absence of the ultrastructural changes of nephron's components in condition of the experimental depression of thyroid gland function have been discovered.

Key words: kidney, thyroid gland depression, nephron, arteries.

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MORPHOMETRIC CHARACTERISTICS OF MICROVASCULATURE BY PATIENTS WITH TRAUMATIC BRAIN INJURY CONSEQUENCES

Introduction. *Aim* of the thesis: to research the morphometric characteristics of microvasculature by the patients with traumatic brain injury consequences.

Material and methods. By 103 patients with traumatic brain injury consequences with the help of Capillaroscopy method with Angio Pro software there was performed evaluation of microvasculature structural characteristics (total capillary length; length, caliber, tortuosity factor and tone of arteriolar and valvular units; value of perivascular edema). Neurological status was evaluated by Neurological Outcome Scale for Traumatic Brain Injury (NOS-TBI), cognitive sphere status – by Montreal scale for cognitive deficits (MoCA), the level of anxiety and depression – by HADS scale. With the method of ductal cyto- fluorophotometry there was researched percentage of peripheral blood leukocytes at the stage of apoptosis (AnV^+) and necrosis (PI^+), as well as the level of active oxygen forms (AOF^+).

Results. By the patients with traumatic brain injury consequences of varying severity there was diagnosed growth of the tortuosity factor of arterioles and venules, increase of arteriolar tone and tendency to expand of venules lumen with formation of venous stasis phenomena and moderately pronounced signs of perivascular edema. Growth of the arterioles tortuosity factor is combined with an increase in the proportion of leukocytes in the stage of apoptosis and necrosis.

Upon condition the large-type microangioarchitectonics, there was found significantly lower cognitive functioning under MoCa-test. Value of MoCa-test was correlated with the venules calibre ($r = -0,525$, $p = 0.001$) and their tortuosity factor ($r = -0,382$, $p = 0.026$).

Conclusion. With Capillaroscopy method there was stated peculiarities of microvasculature state by the patients with traumatic brain injury consequences,

connection between capillary morphometric characteristics and the level of cognitive functioning.

Key words: microcirculation, capillary, traumatic brain injury, consequences.

CLINICAL RESEARCHES

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LATE FATE OF CHILDREN WITH INBORN KEELED CHEST DEFORMITY USING NONRESECTIVE FRONTAL THORACOPLASTY

Introduction. The increasing prevalence of inborn keeled chest deformity (8-22% of all chest deformities), functional changes and concomitant diseases at the level of major body systems, cosmetic and socio-psychological problems not only of teenagers, but also adults bring this disease into the line of pressing ones. Experience of using classic surgeries proved high injury rate of resection methods of surgical treatment for inborn keeled chest deformity in children, the severity of postoperative period, its complications (12,8-31%) and disease recurrence (7,05-15%), which in 3 - 10% of cases require repeated surgeries. *The purpose* is to improve the results of surgical treatment of children with inborn keeled chest deformity by developing minimally invasive nonresective method of frontal thoracoplasty.

Materials and methods. From 2009 to 2015 we operated on 92 children. Surgical correction of inborn keeled chest deformity was conducted for the patients with second and third deformity degree, using proposed by us minimally invasive method of frontal thoracoplasty using T-shaped metal plate of our own design. All children

were operated in age from 7 to 18 years. Average age of the operated children was 12.5 years. Among the operated children there were 78 boys and 14 girls. 18 (19.57%) children had the second deformity degree. Other 74 (80.43%) patients had third deformity degree. A corrective plate was removed 1-3 years after the surgery. Follow-up period after the surgical correction of pathology made 5 years.

Results. Excellent result of surgical correction of keeled chest deformity was obtained in 89 (96.74%) patients. Good results were obtained in 3 (3.26%) children. Index of keeled deformity of operated patients before the surgery was 1,26587 ± 0,082, and after the surgery - 1,0025 ± 0,011. Test of significance p <0,005. Indicators of goniometry of the sternum and parasternal area in each measurement point before the surgery: 1 - 32,95˚ ± 3,53; 2 - 26,5˚ ± 2,85; 3 - 21,72˚ ± 2,38; 4 - 19,75˚ ± 3,45; 5a - 28,45˚ ± 2,23; 6a - 28,73˚ ± 3,89; 5 - 24,709˚ ± 3,32; 6 - 25,37˚ ± 3,28. Indicators of goniometry of the sternum and parasternal area in each measurement point after the surgery: 1 - 23,05˚ ± 0,62; 2 - 13,76˚ ± 0,42; 3 - 8,310˚ ± 0,29; 4 - 7,06˚ ± 0,27; 5a - 15,58˚ ± 0,35; 6a - 16,30˚ ± 0,36; 5 - 11,32˚ ± 0,31; 6 - 12,185˚ ± 0,28. Test of significance p <0,005.

Conclusions. Surgical correction of keeled chest deformity by proposed method of frontal thoracoplasty using the T-shaped titanium plate of our own design allowed us to obtain excellent results in 96.74% and good in 3.26% of cases. When applying this methodology of miniinvasive correction of keeled chest deformity there is no disease recurrence in a long term follow-up period within five years.

Key words: keeled chest deformity; children; frontal thoracoplasty; nonresective method.

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THE ROLE OF ANTIMICROBIAL THERAPY IN THE TREATMENT OF PATIENTS WITH LIVER ABSCESS.

Introduction. In recent years, there is an increase of frequency of detection of purulent liver diseases. Liver abscesses are extremely serious diseases with complex clinical course of illness and high mortality rates. The objective of this research is to analyze the effectiveness of antibacterial therapy in a complex treatment of patients with liver abscesses.

Materials and methods. From 2004 to February 2016 the retrospective analysis of treatment results of 71 patients with liver abscess was conducted in surgical clinic №1 of Vinnitsa National Medical University by M. I. Pyrogova. Among them there were 56 men and 15 women, aged from 18 to 82. The cephalosporins of III-IV generation, and lincosamide-related drugs or nitroimidazole were prescribed before the operation in 98% of cases. The effectiveness of post-operational treatment was assessed by following criteria: clinical absence of disease progression, the absence of infectious complications of post-operational wound, normalization of leukocytes level, normalization of body temperature.

Results. The most credible results of liver abscess diagnostics are achieved by USD and CT, which allowed in about 100% of cases to diagnose the disease correctly. About 94% of patients did not suffer from suppuration of post-operational wound or drainage counterpunctures, intestine peristalsis restored for 1-2 days, pus did not come out of drainage for 2-4 days. Satisfactory post-operational period was associated with fast normalization of indexes of endogenous intoxication. No lethal cases were detected, all patients recovered.

Conclusion. The use of antibiotic therapy to cure liver abscess provides a positive antibacterial effect and is highly effective clinically, that proves the significance of antibacterial drugs in treatment of purulent liver diseases. Before the surgery the antibiotic therapy must be based on the use of drugs that possess a wide range of antimicrobial activity, further correction of antibiotic therapy depends on clinical dynamics of the disease or on the data of bacterial sensitivity to antibiotics.

Key words: abscess of liver, antibioticotherapy.

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THE SIGNIFICANCE OF ULTRASOUND IN REHABILITATION OF PATIENTS WITH MYOCARDIAL INFARCTION WITH CONCOMITANT CERVICAL OSTEOCHONDROSIS

Introduction. It is known that cervical osteochondrosis is one of comorbid conditions slowing down the recovery process in patients with myocardial infarction (MI). The vertebral artery syndrome and segmental autonomic deregulation of myocardial activities can be developed due to spondylogenic irritation of the stellate ganglion and the spinal nerve, the sympathetic plexus of the vertebral artery and cardiac sympathetic nerves. At the same time, the upward flow of pain impulses creates the preconditions for the formation of emotional maladjustment, which is manifested by a psycho-vegetative syndrome with cardialgia [Potimkov, 2001]. In these cases the verification of optimal rehabilitation program is difficult. The prescribtion of NSAIDs in patients with cardiovascular disease is not always desirable. This treatment can lead to decrease of the activity of ACE inhibitors or increase of the sodium and water retention in the body. Also, intake of antiplatelet agents increases the risk of drug gastropathy. Therefore, one of the possible options to optimise the treatment is to include the ultrasound (Ultra) with analgesic and anti-inflammatory effects.

According to the research, the actions of Ultra is not widely studied. However, it is controlled by the local and systemic reactions, enhancing trophic function of tissues, accelerating the regenerative and reparative processes in them [Zubkov, 2005].

The *purpose* of work is to study the effects of ultrasound on the emotional status and the functional state of the cardiovascular system of patients with myocardial infarction in the sub-acute stage of the disease with concomitant cervical

osteochondrosis and on the basis of the results, to justify possibility to include Ultra in the complex rehabilitation of post-infarction.

Materials and methods. The study included 60 male patients aged 45-65 in the sub-acute stage of Q-MI. The patients were taken on rehabilitation program on 25-28 day of the acute stage. The interventional cardiac effects were not practised. The study excluded patients with post-infarction angina, persistent atrial fibrillation, left bundle branch block and left ventricular aneurysm. ECG changes were typical of the subacute stage Q- MI; single beats were recorded in 14 (23.3 %) patients, normosystolic variant of permanent atrial fibrillation - in 6 (10.0%). All patients were determined signs of CHF I-IIA clinical stage. According to the classification, hypertension of 1-2 stage identified as the arterial pressure was increased in 24 (40.0 %).

All patients were identified clinical symptoms and radiographic signs of cervical degenerative disc disease. Patients complained of pain in the cervical spine and during movements as well as in long-term lying and sitting leaning forward. Palpation revealed painful muscular dystonic and muscular dystrophic nodes in the occipital area, neck and at the medial angle of the scapula in 42 (70.0 %), tenderness and induration of the anterior scalene muscle in 11 (18.3 %), signs of shoulder periarthritis in 7 (11.7 %) patients. The asymmetrical manifestations were noticed. The vestibular disorders were observed in 22 (36.7 %) patients. The intensity of pain experienced by patients was classified according to the rating scale of pain VAS [Yevtushenko et al., 2015]. Self-assessment of the pain severity ranged from mild (2 points) to severe (6 points). X-rays of the cervical spine have detected signs of osteoarthritis.

Psycho-emotional status of patients was characterized by anxiety, anxiety and phobic states formed on the background of such powerful stressors as acute disorder of the coronary circulation, a change of life stereotype, forced physical inactivity and persistent pain. For a differentiated assessment of the degree of anxiety patients completed questionnaires of B.H. Spielberg and Y.L. Hanina [Batarshev, 2005].

The effectiveness of the rehabilitation program was evaluated based on the dynamics of exercise tolerance such as veloergometry. The initial tolerance was low - none of the examined fulfilled the estimated sub-maximal level.

To carry out differentiated regenerative therapy, patients were divided into 2 groups of 30 people each. The complex of therapy included physical rehabilitation (dosed walking, climbing stairs, and therapeutic exercises), beta-blockers, ACE inhibitors, antiplatelet agents, statins and neck massage. The first group of patients (control) received a non-steroidal anti-inflammatory drug Nimesil (Nimesulide) «Berlin-Chemie» 100 mg 2 times a day for intensification of pain. The second group (main) had Ultra (power 0, 2- 0, 4 W/cm^2) in a continuous mode by a labile technique of 10 min duration on the occipito-collar area; in total, 10 procedures were taken per course.

The results were processed statistically with the assessment of the significance of differences based on Student's test.

Results. The ability to perform dosed physical activities by patients depended on the severity of pain and the formation of cardiophobia. The effectiveness of massage in this case was low, as the intensification of the impact caused pain. Sometimes, the pressure on the muscle-dystonic neck area led to headaches and dizziness. The transitory increase of arterial pressure after the procedure was observed in 29 (48.3%) patients that caused cessation of massage.

On the contrary, ultrasound is well tolerated. Its analgesic and anti-inflammatory effect was manifested after 3-5 procedures. The intensity and frequency of cervicalgia, cephalgia, cardialgia decreased gradually until the clinical symptoms disappeared completely. The reverse development of muscle dystrophic nodes in the neck area was in 22 (73.3%) and a partial improvement was in 8 (26.7%). The cessation of cardiophobia had also a significant reduction in the level of anxiety by the scale of B.H. Spielberg and Y.L. Hanina from 39.15 ± 3.43 to 27.91 ± 3.39 points ($p < 0.02$). According to the self-assessment, the pain disappeared from 4.13 ± 0.30 to 0.80 ± 0.09 points ($p <0.001$). The bicycle stress test indicated a significant increase of exercise tolerance from 49.2 ± 4.1 W to 72.8 ± 4.9 W ($p < 0.001$). On an average, this index rose by 23.6 ± 0.9 watts. Nimesil was not prescribed and the dosages of

beta-blockers and ACE inhibitors were reduced. Assessment of the severity of pain by VAS score showed non-significant decline from 4.13 ± 0.32 to 3.33 ± 0.26 points ($p < 0.1$). The index of anxiety in the psychodiagnostic testing reduced from 39.85 ± 3.44 to 33.60 ± 3.41 points and was unreliable ($p > 0.5$).

Conclusions. The inclusion of Ultra in the complex post-infarction rehabilitation therapy of patients with concomitant cervical osteochondrosis had an analgesic effect, improved psycho-emotional state of patients and optimized physical rehabilitation. The Ultra treatment of patients in the control group was less effective in comparison with the main group. In the control group the assessment of the severity of pain by VAS score showed non-significant decline from 4.13 ± 0.32 to 3.33 ± 0.26 points ($p < 0.1$). The analysis of the dynamics of mental and emotional status of patients in the same group had only tendency to normalization. Moreover, the index of anxiety reduced in the psychodiagnostic tests from 39.85 ± 3.44 up to 33.60 ± 3.41 points and was unreliable ($p > 0.5$).

Key words: Myocardial Infarction, cervical osteochondrosis, post Infarction rehabilitation, ultrasound.

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INDICATORS SANITIZING THE EFFECTIVENESS OF NEW ANTISEPTIC AGENTS FOR TREATMENT OF THE MUCOUS MEMBRANES

Introduction. Mucous membranes of all cavities of the human body are densely populated by numerous species of micro-organisms ecological niche. The stability of the microbiocenosis of the mucous membranes is controlled by a complex relationship of symbiosis and antagonism between microorganisms. An important protective factor for mucous membranes is a hydrolytic enzyme, lysozyme, is able to

destroy peptidoglicanov layer of the cell membranes of bacteria. This substance plays an important role in regulating the composition of microbiocenosis of the mucous and its insufficient number secret mucous can provoke the development of pathological processes. In modern medical practice to cleanse the mucous membranes from pathogens and treatment of inflammatory diseases of microbial origin are used a variety of drugs local action. However, these drugs have some limitation in the spectrum of antimicrobial action. In some of them the enzyme lysozyme does not provide a complete snowco operation, as it does not show the sensitivity of some bacteria (Escherichia colli, Proteus, etc.), allocatively include Staphylococcus that often cause inflammatory lesions of the mucous membranes. Therefore, the primary task of creation of means of influence on the mucous membranes of the oropharyngeal, strengthening local protective mechanisms and, at the same time, release the mucous membranes from harmful bacteria. . We have developed a new formulation of the antiseptic preparation, which included in addition to lysozyme, an antiseptic broad-spectrum antimicrobial action of decamethoxin. The aim of our study was to examine the indicators sanitizing the effectiveness of a new medicines.

Materials and methods. Aqueous solution for irrigation, which includes a 0.02% decamethoxinum, of 0.25% crystalline lysozyme. To ensure the physiological action of antiseptics on mucous membranes, the composition satanophany sodium chloride. Material for bacteriological research was the secretion of the mucous membrane of the oropharynx, which took in children who were treated in Vinnitsa regional children's infectious hospital with symptoms of tonsillopharyngitis. A study of 30 patients.

Results. In 93.6% of mucosa is colonized by members of the genus Streptococcus. In 38% of cases that were monocultures, in other cases in the composition of microbial associations: 20,7% with staphylococci. Staphylococcus isolated in 34.5% of cases. 13.8% colonized by enterococcus in association with gram-negative bacteria or yeast fungi. Gram-negative facultative aerobic flora in association with cooks and candiani microflora isolated in 24%. From their number by 3,4 per cent were representatives of the Escherichia, Enterobacter and Alkaligenes. With a frequency of 6.9% were identified bacteria of the kind Pseudomonas and Klebsiella. The bactericidal activity

of lysozyme against Staphylococcus aureus in the presence of subacetate the concentration of decamethoxin has increased in 8 times. Sensitivity of streptococcus to lysozyme increased more than 31 times, and streptococcus and Candida in 156 and 64 times, respectively. After irrigation of microorganisms in mucous secretion of the decreases in 50-1000 times.

Conclusions. In the development of inflammatory processes in the mucous membranes of the oropharyngeal participates bacterial pathogenic and conditionally pathogenic microflora that colonizes the mucous tight throat tonsils. In the species composition of pathogens are dominated by microorganisms of the genera Streptococcus (93,6%), Staphylococcus (34,5%) and Candida fungi (38%). Appointment antiseptic does not contribute to full rehabilitation of mucous membranes of the oral cavity, so, given the high level of sensitivity of the causative agents of sore throats and pharyngitis to lysozyme when added to the decamethoxinum, dosage forms drug appropriate to include in the scheme of complex treatment of inflammatory processes of the mucous membranes.

Key words: bacterial microflora, susceptibility to antimicrobial agents, antiseptics.

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CRITICAL LIMB ISCHEMIA IN PATIENTS WITH DIABETES AND ATHEROSCLEROSIS

Introduction. Occlusive arterial disease of the lower extremities takes the second place in the structure of cardiovascular diseases after coronary heart disease. Constrictive process in 30% of patients is localized in the abdominal aorta, and in 70% of patients - in the femoral artery, hamstring segment. Diabetes in 20 - 80% leads to complications - diabetic foot syndrome, which in 50 - 75% necessitates amputation.

Purpose - to improve immediate results of surgical treatment of vascular atherosclerosis and diabetes with critical limb ischemia by improving measures of prevention of postoperative complications and methods of implementation of surgery.

Materials and methods. The results of treatment of 1682 patients managed from 2014 to 2015 in the surgical clinic №2 of Vinnytsia National Pirogov Memorial Medical University on the base of septic surgery department. In the study group there were 139 (8%) patients with type II diabetes mellitus and diabetic foot syndrome, complicated by infected necrotic wounds, the development of cellulitis and chronic arterial insufficiency of stage IV. With atherosclerosis of lower extremities, complicated by critical ischemia - 32 (2%) patients were managed. The combination of diabetic microangiopathies with atherosclerotic lower limb macroangiopathies was found in 32%. In 8 (6%) patients diabetes was found for the first time.

The second stage of diabetic foot according to Wagner F.W. was diagnosed in 25 patients, the third - in 38, fourth - 31, the fifth - 43. All patients had stage IV according to R. Fontaine classification and category 5-6 according to the classification of the European consensus on the treatment of peripheral arteries . Acute arterial insufficiency of the III degree (V.S. Savelieva) in the form of thrombosis of major arteries on the basis of atherosclerosis was found in 12 patients. In 94% of patients the condition, except diabetes, was complicated by two or three comorbidities, 62% suffered from angina and atherosclerosis, 56% - hypertension, 38% - obesity. Among the patients 64% were women and 36% - men. The average age was 68 years.

For the assessment of perfusion we used the ratios of systolic blood pressure in different parts of the blood circulation, ankle-brachial index, finger-brachial index, systolic blood pressure on the fingers, transcutaneous partial pressure of oxygen. The presence or absence of macroangiopathies was a major factor in the development of ischemic changes and disease course. Duplex investigation of vessels defined functional state, morphological changes, the location of stenotic lesions, the nature of collateral circulation. The severe limb ischemia occurred in the case of occlusion at the sites of branching of the main collateral arteries - the internal iliac and the deep femoral artery.

Absolute indications for reconstructive surgery were - ischemic pain at rest, ulcer-necrotic tissue changes of the distal limb, limited gangrene of foot, toes. As the absolute contraindications for performing of the reconstructive operations on these vessels, decompensated diabetes in case of obliterating atherosclerosis of the abdominal aorta and peripheral arteries were considered. In this group a set of measures aimed at eliminating the phenomena of decompensation of diabetes were performed.

The volume of surgery was determined personally (surgical treatment of infected wounds, necrectomy, sequestrectomy, opening and drainage of cellulitis, resection of the anterior foot by Haranzho or Sharp, amputation on the verge of upper and middle third of the shin, amputation on the level of the middle third of the thigh). For the vacuum therapy Heaco REF NP32P device with negative pressure range from -125 to - 165 mm was used

The level of amputation was determined taking into account the circulation of the lower extremities, prevalence and localization of atherosclerotic process, the status of collateral circulation, with systolic blood pressure within resection that had to be below 50 mm Hg, transcutaneous partial pressure of oxygen is not lower than 30-40 mm. hg.

The primary indications for amputation of the lower extremities were the changes caused by severe ischemia and gangrene, secondary - due to complications of reconstructive operations on vessels. When performing shin amputations we preferred creating the stump at the level of upper and middle third of shin with Burzhes myoplasty. Amputation at the hip was performed using patch method with nerve processing by Albrecht, myoplastic closure of the bone section and formation of diaphyseal reference layer.

Results. 72 amputations of the lower extremity at the level of the middle third of the thigh and 11 - at the shin level were completed. In nine patients at admission amputations were performed simultaneously on both lower extremities. The main cause of death was acute cardio-pulmonary and renal insufficiency on the background of endogenous intoxication caused by metabolic and circulatory changes.

Conclusions. In pathology, which necessitated the amputation of the lower extremities, purulent necrotic complications of diabetes and atherosclerotic lesions of lower limbs dominated. Measures for the conservation of the lower extremity should be aimed at limiting purulent necrotic process, correction and elimination of critical ischemia. Method of myoplastic amputations and reamputations is optimal for enhancing the functionality of stumps and subsequent prosthesis. Amputation of the lower extremities, as the primary operation, was performed in 64 (75%) patients during the first day, indicating on a significant amount of purulent lesions at the time of hospitalization.

Development and implementation of new methods of prevention, diagnosis and treatment of critical lower limb ischemia is an urgent need and challenge in the field of vascular surgery and endocrinology.

Key words: critical ischemia, diabetic foot syndrome, atherosclerosis of the lower extremities.

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INFLUENCE OF THE PROTEIN LOAD ANTIMICROBIAL ACTIVITY ANTISEPTIC PREPARATION

Introduction. Inflammatory diseases of the upper respiratory tract constitute the about 80% of all calls to doctor of otolaryngology, of which 87% - refers infectious and inflammatory diseases of the oral cavity and throat. Appointment of rational antimicrobial therapy are the a very topical issue. The successful solution of which depends on a number factors causing an undeniable concern practical medicine. Appointment of systemic antimicrobials can promote the spread of strains with multiple resistance to them outbreaks intra - hospital infections and increased risk of

serious complications. Local antibiotic therapy of inflammatory diseases of the mouth and throat are relevant and encouraging. The use of effective antiseptic with high bioavailability due to optimally selected formulations are preferred by improving the difficult situation prevailing in medical practice.

Data analysis of scientific literature indicates that the world is quite effective for the prevention and treatment of infectious lesions using local antiseptics belonging to the quaternary ammonium derivatives. Among this group of drugs noteworthy domestic dekametoksyn® antiseptic preparation, which has high antimicrobial activity, a wide spectrum of antimicrobial activity, a positive effect on the immune status of man.

An important characteristic of antimicrobials (antibiotics, antiseptics) should recognize their ability to keep antimicrobial action in biological fluids of the human body. Blood proteins capable of binding drugs in culture medium, which can lead to inactivation of activity of antimicrobial agents. Therefore, considered appropriate to determine the antimicrobial activity of antiseptic agents septefryl, cebedyn, septolete in the presence of 5%, 10% serum in culture medium.

Materials and methods. A study of antimicrobial properties of tablets antiseptic agents septefrylu, sebedynu, septolete 40 clinical strains Staphylococcus aureus. Clinical strains were isolated from patients with purulent - inflammatory diseases of the mouth and throat that were treated in Vinnytsia Clinical Hospital before the beginning of antibiotic therapy. Antimicrobial activity of different drugs in terms of protein load was determined on media with the addition of 5%, 10% serum. Domestic antiseptic preparation of septefril in the composition contains the antiseptic of dekametoksin®. He is adsorbed on the cytoplasm membrane of bacterial cage where unites with the fosfatidnimi groups of lipidiv of membrane which results in violation of its penetrating. Basis of preparation of sebedin is khlorgeksedin, which shows mikrobocidnu or mikrobostatichnu operate on a bacterium, Candida. Basis of preparation of septolete is a benzalkoniyu chloride.

Results. Results and their discussions it is possible to draw conclusion As a result of the conducted researches, that all experimental preparations had high enough antistaphylococcus activity. Yes, antiseptic preparation of septefril operated bactericidal on a goldish staphylococcus in the concentrations of 30,5 ± 2,46 mkg/ml,

preparation of sebedin, – 21,87 ± 6,7 mkg/ml, septolete – 24,37 ± 3,2 mkg/ml. Adding to the nourishing environment of a 5% whey of blood influenced on antistaphylococcus activity of antiseptic preparations.

The least decline of antistaphylococcus activity in 2,3 times was looked after at preparation of septefril. MBcK of preparation made 69 ± 6,72 mkg/ml. MBcK of septefrilu for six cultures a staphylococcus did not change, for other 34 cultures increased in 2 – 8 times. Activity of preparation of septolete diminished in 3 times and made 71,67 ± 7,24 mkg/ml ($r < 0,01$). Multipleness of change of activity to control for ten cultures a staphylococcus evened 2, for sixteen – 4, for ten – 8, for four clinical cultures of staphylococcuss antimicrobial activity of the drug has not changed. The largest decrease in activity observed at 6 times the drug sebedyn. Multiplicity change activity to control for eight strains of staphylococcus equal to 2 - 4 for six - eight to twenty-two equal 16 - 32, four clinical strains of staphylococci antimicrobial activity of the drug has not changed. Subsequent studies have investigated antimicrobial activity of antiseptic agents septefryl, sebedyn, septolete at 10% protein load. Compared with the control, antistaphylococcal activity significantly decreased in septefrylu 3.5 times and amounted to 106 ± 9.3 pg / ml ($p < 0.01$) in septolete 4,1razy - 100 mg / ml ($p < 0, 01$). The largest decrease was observed in 10.7 times sebedyn activity, which amounted to 234,37 ± 34,42 mg / ml ($p <0.01$). Serum proteins influence the activity antistaphylococcal tablet antiseptic agents septefryl, sebedyn, septolete.

Conclusions. Clinical strains of Staphylococcus aureus, which cause purulent - inflammatory diseases, show high sensitivity to the antibacterial drug septefryl, sebedyn,septolete. Antimicrobial activity of antiseptic agents septefryl, sebedyn, septolete in the presence of serum proteins decreased, but remained at a high level relative to the clinical strains of Staphylococcus. In the future, further studies will be used to study the effect of microbial load on the activity of antiseptic agents.

Key words: antiseptics, septefril, sebidin, septolette.

Demchuk A. V.

PHARMACOECONOMIC ABC- AND VEN-ANALYSES OF TREATMENT OF COMMUNITY-ACQUIRED PNEUMONIA PATIENTS WITH COMORBIDITIES

Summary. The estimation of economic rationality treatment costs of community-acquired pneumonia patients with comorbidities was performed using ABC- and VEN-analyses. It was established financial resources use is partial rational, because most of expenses are used for vital medicines, but non-essential pathogenical drugs for treatment of CAP patients with comorbidities are included into group A. These medicines increase treatment cost in average 108,5 UHR/patient without improvement of clinical effectiveness of therapy.

Key words: community-acquired pneumonia, ABC-analyses, VEN-analysis, costs.

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DISTINCTIVE FEATURES OF BRAIN NEUROIMAGING CHARACTERISTICS IN PATIENTS WITH ACUTE STROKE AGAINST THE BACKGROUND OF LACUNAR INFARCTIONS AND BRAIN ATROPHY. INTERACTION BETWEEN DIFFERENT CEREBRAL SMALL VESSEL DISEASE SIGNS

Introduction. Interest of the scientific society in such signs of cerebral small vessel disease (CSVD) as lacunar infarctions (LI) and brain atrophy (BA) increasing every year. Considering high frequency of this signs in patients with acute stroke, investigation into their modifying influence on stroke pathogenesis and interaction between different CSVD signs is topical.

The purpose of our investigation was to study the distinctive neuroimaging features of brain tissue and main lesion focus in patients with acute stroke against the background of LI and BA and to study the frequency of co-expression and interaction between leukoaraiosis, LI and BA.

Materials and methods. Neuroimaging data of 163 patients of stroke unit of Vinnytsia Regional Psycho-Neurological Hospital with acute stroke has been analyzed. The number of patients with LI is 45, and the number of patients with BA is 42. Data has been obtained by computer tomograph "General Electric CT/e". The average age of the patients was 64,7±11,3, with 44,8% of the patients being female. The data has been analysed by means of the Statistica 8.0 programme.

Results. The average age was higher in group with BA, than in group without it (69,4±10,3 against 63,4 ± 11,3; $p<0,01$). The rate of small lesion focuses (<10 ml) was higher in group with LI and in group with BA than in groups without this signs (66,7% against 43,6%; $p<0,01$ for groups with and without LI and 67,5% against 43,4%; $p=0,034$ for groups with and without BA). The average of main lesion focus volume was higher in group with BA, than in group without BA (16±36,4 ml against 39,3±59 ml; $p<0,01$). The average of brain oedema in group with BA was lower, than in group without it (2,4±1,56 (n=33) against 2,9±1,7 (n=89); $p=0,064$ for groups with ischemic stroke and 3,37±1,9 (n=12) against 4±1,86 (n=26); $p=0,22$ for groups with hemorrhagic stroke). The percent of patients with leukoaraiosis was higher in groups with LI and BA and in groups, where this signs manifested simultaneously, than in groups without this signs (55,6% against 29,3%; $p<0,01$ for groups with and without LI; 50% against 33,3%; $p=0,03$ for groups with and without BA; 77%(n=13) in group with co-expression of LI and BA against 27,9% (n=86) for group without LI and BA; $p<0,01$). The average leukoaraiosis degree was higher in group with LI than with group without it (3,8 ±1,6 against 2,6±1,6; $p<0,01$). The percent of patients with LI was higher in group with leukoaraiosis and without BA (36,5%), and in group with co-expression of leukoaraiosis and BA (100%) than in group without leukoaraiosis and BA (21,5%), the accuracy of the statistical difference between groups: $p<0,05$. The average Evans index was higher in group with co-expression of leukoaraiosis and LI than in group without this signs (0,29±0,031 against 0,268±0,036; $p<0,01$).

Conclusions. Obtained data indicates the LI's and BA's influence on cerebral susceptibility to ischemia, distinctive features of cerebral oedema and functioning of blood-brain barrier, which emphasizes the importance of taking into consideration presence or absence of such CSVD signs as LI and BA on CT-scans of patients with acute stroke. In addition the investigation results shows some kind of linkage of this signs of CSVD and theirs` mutual potentiation in the case of theirs` co-expression, what we can consider as an evidence of the existence of some points of coincidence in the etiology and pathogenesis of different CSVD signs.

Key words: Cerebral small vessel diseases, stroke, lacunar infarctions, brain atrophy, leukoaraiosis, cerebral oedema, computed tomography.

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THE SPECTRUM OF MICROORGANISMS ISOLATED FROM PATIENTS IN THE DEPARTMENT OF ANESTHESIOLOGY AND INTENSIVE CARE

Introduction. The list of nosocomial infections pathogens in recent years constantly expands. The most dynamic process occurs in resuscitation and intensive care unit (ICU). Over the past 5 years in a lot of ICU number of multiresistant strains of Enterobacteriaceae, particularly Klebsiella pneumoniae, non-fermented Gram-negative bacteria, and MRSA S. aureus.

The *aim* and tasks of investigation. To carry out comparative monitoring of species spectrum of microorganism sisolated from patients treated in ICU of Ternopil University Hospital fin 2013-2015 for elaboration and choice the following directions of adequate antibiotic therapy.

Materials and methods. The examination of 227 strains isolated from patients with different pathology treated in ICU in 20130-2015 were made. As investigated smears

there were nasal swabs, swabs from oral mucus, wounds, sputum, tracheal aspirate, eat.). The study of samples and interpretation of the results was performed according to generally recognized guidelines. Identification of isolated strains of microorganisms was performed according to Bergey's classification by use of appropriate test systems and automatic analyzer Vitek- 2 Compact 15. Comparative microbiological monitoring (2013 – 2015) of strains isolated from patients in 2013-2014 was done.

Results. Enterobacteriaceae were prevalent bacteria among causative agents isolated and from the pastients treated in anesthesiology and intensive care department in 2015. Almost half of them (43%) belonged to *Klebsiella pneumonia. E.coli* was isolated in 6% of cases, mainly from urea. Hemocultural strains were represented by 4 isolates. To *Enterobacter cloaceae* and *Enterobacter aerogenes* belonged 5% and 3% of strains accordingly. друге місце за частотою висівання належало Non-fermenting gram-negative bacteria –*Acinetobacter spp.* (14%) and *Pseudomonas aeruginosa* (13%) took second place in the structure of isolated microorganisms. Among isolated bacteria there were only 9% of coagulase-positive *Staphylococcus aureus* and 7 % of coagulase-negative *Staphylococcus epidermidis and Staphylococcus saprophyticus*.

Making comparing spectrum of bacteria isolated in 2-13-2015 it is necessary to pay attention to negative tendency of Enterobacteriaceae domination, especially Klebsiella spp. Thus, Klebsiella in spp. part among isolated strains fluctuated between 29,8% in 2013-52,3%, in 2014, and 42,3% in 2015.

It was approximatly similar level of *Acinetobacter spp* during investigated period-13,7% (2013) - 14,1% (2015). But part of Частка P. aeruginosa decreased in 1,8 рази – from з 24,2% in 2013 to 13,2% in 2015.

The part of *E. aerogenes* decreased in 3,4 times in 2015 in comparing with 2013 The parts of *i E. C. cloaceae* and *E.coli* were approximately the same during period of investigation - 5,6-4,4% (E. cloaceae) and 5,2-6,7% (E.coli).

The increase of coagulase negative *S. epidermidis and S. saprophyticus* pool among isolated bacteria last three years in 2,9 times was observed. Fraction of *S. aureus* increased imperceptibly in 2015 in comparing with 2013 (9,3% 7,5 % in 2013).

Conclusions. Gram-negative bacteria, mainly Enterobacteriaceae– 56,4%, mostly – *K. pneumoniae* (43.2%). Were dominated in etiological structure of pathogens isolated from of patients treated at ICU in 2015. About 27,3 % among isolated strains belonged to Nonfermented Gram-negative bacteria – *Acinetobacter spp*. and *P. aeruginosa and* 16,3% to Staphylococcus spp.

The Enterobactericeae 3general level persists in recent years at the same level: – 52.2% in 2013 and 59,6% in 2014. Domination of K. pneumoniae increased in 1,4 times in 2015 in comparing with 2013. However, the similar reduction of non - fermenting bacteria is observed.The Staphylococcal level of has tendency to increasing. In 2015 it increased in 1,8 times in comparing with 2013.

Key words: microorganisms, intensive care department.

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THE CHARACTERISTICS OF STRUCTURAL CHANGES OF INTERNAL REPRODUCTIVE ORGANS IN WOMEN WITH CHRONIC PELVIC PAIN SYNDROME

Introduction. In modern medicine there are about 100 gynecological and extragenital diseases, where the chronic pelvic pain is the main symptom in the clinical picture. Physiological characteristics of the female body determine that chronic pelvic pain on one side can be a symptom of any gynaecological, physical and mental illnesses, and on the other – to have quite independent and even nosological meaning, being the most important part of the peculiar symptom "pain disease", known in world literature as a chronic pelvic pain syndrome. The progress of modern medicine stipulates the appearance of new methods of diagnosis, which not only facilitate the detection of the disease, but also change our understanding about their prevalence.

Materials and methods. The study involved 350 women of the main group of reproductive (18 – 45) age with chronic pain syndrome in the lower abdomen and 100 healthy women of the control group. The aim of the study was to determine the structural changes of organs in women with chronic pelvic pain syndrome by means of ultrasonographic and endoscopic examination.

Results. Thus, in women with chronic pelvic pain syndrome according to ultrasound and endoscopy the presence of pathologies, mostly associated with hormonal imbalance, fibromatous changes in the body of the uterus, functional ovarian cysts, multifollicular structure of the ovaries, hypoplasia of the uterus are revealed. This fact may indirectly indicate the presence of dishormonal disorders that lead to dynamic changes in the size of uterus and ovaries and have a significant role in the genesis of the formation of chronic pain in the lower abdomen. The studies indicate a high information content and availability of ultrasound in patients with chronic pelvic pain syndrome to exclude or confirm the morphological changes of the genitals, the degree of organ damage and involvement of adjacent structures, which can explain the corresponding pain. Along with this, polymorphism of ultrasound semiotics signs of pathological changes in the pelvic organs in examined patients confirms the difficulty of identifying the main and related etiological factors in the occurrence of chronic pelvic pain in women, development of reproductive disorders, and causes the necessity of implementation to study other methods.

Conclusions. The comparison of data of different methods of examination in women with chronic pelvic pain suggests that laparoscopy is the most informative method of diagnosis, which allows to establish the presence of certain functional and organic gynecological pathology based on anatomical and morphological characteristics of the internal genitalia and allows to diagnose the initial and minimum course of the pathological process of the pelvic organs, which are not available in using other diagnostic methods, to definitively verify the final diagnosis and prescribe the pathogenetic treatment.

Key words: chronic pelvic pain syndrome, structural changes of internal genitalia, ultrasonography, laparoscopy.

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CHARACTERISTICS OF BIOLOGICAL PROPERTIES OF MICROFLORA ISOLATED FROM WOUNDS OF INJURED VICTIMS IN ATO ZONE

Introduction. During anti-terrorist operation (ATO) in east Ukraine it is noticed prevalence of blast and mine-blast injury that causes change in characteristics of shot trauma. There are some features of this injury, such as massive affection of soft tissue, great contamination of wounds, presence of secondary foreign bodies, pieces of military shells, and micro- and macrocirculation failure. Infectious complications in shot wounds arise in 6-18% cases. Prevalence of blast and mine-blast injury causes change in spectrum of microorganisms, spreading of antibiotic resistant strains, which induce infectious complications in wound.

Materials and methods. There were examined 19 victims of mine – blast and blast machines, 25 strains of microorganisms were isolated from them. We studied susceptibility of strains to antibiotics and antiseptics (decasan, miramistin, chlorhexidine bigluconate, and povidone-iodine).

Results. Among causative agents, which were isolated from wounds, prevalent microorganisms were Acinetobacter (53%), Pseudomonas (15%). Cefaperazone/sulbactam was effective against gram-negative bacteria. Isolated strains of Acinetobacter spp. were multiresistant to antibiotics, but it was important that doxycycline and rifampicin were estimated as effective against those strains. It could be used for recommendation of those antibiotics for alternate treatment. All clinical isolates had high susceptibility to medical antiseptics such as decasan and chlorxedine bigluconate.

Conclusion. Isolated microorganisms had high level of resistance which demonstrated to most antibacterial preparations, that should be noticed at choice of

medicines for treatment. Gram-negative microflora had highest susceptibility to antiseptics decasan which could be recommended for wound sanitation.

Key words: Microbiota of suppurative wounds, antibiotics, antiseptics, susceptibility.

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UDC: 616.9-022.36

THE EFFECT OF DECACAN IN COMPLEX TREATMENT OF PATIENTS WITH ESCALATION OF CHRONICCYSTITIS

Introduction. In clinical practice, the actual problem is antibiotic resistance agents of UTI, which dictates the need to search and introduction into circulation of new highly effective antimicrobial agents.

The aim. The study to the efficiency of using antiseptic dekasan for intravesical introduction in patients with acute exacerbation of chronic uncomplicated bacterial cystitis.

Materials and methods. The first group of 32 patients with acute exacerbation of chronic cystitis, who received basic therapy and intravesical introduction antiseptic dekasan. Group 2 - 25 patients with chronic cystitis, who received basic therapy and intravesical introduction of furacilinum. The control group consisted of 30 patients with chronic cystitis who received only basic therapy. Prescribe antibiotics therapy respectively sensitivity to antibiotics, which is determined by disk diffusion.

Results. Dominating representatives were E.coli (50%), S.aureus (22,5%), Pseudomonas aeruginosa (10%), C.albicans (5%), P.vulgaris (3%), Enterococus faecalis (2,5%), K.pneumoniae (2,5%). Isolated microorganisms were susceptible to ofloxacin - 66,7%, ciprofloxacin – 65,5%, furamag – 60%, doxycyclin – 53,5%, amikacin – 46,7%. After using dekasana half the crops were sterile urine, in patients after using furatsilin and without installations sterile inoculation were only

24% and 20% of cases. After using an antiseptic dekasan microorganisms isolated in urine no more than 102-103 CFU/ ml.

Conclusion. Using the integrated treatment of uncomplicated chronic bacterial cystitis with intravesical introduction antiseptic dekasan installations was effective in 97% of cases.

Key words: decamethoxin, dekasan, chronic cystitis, intravesical instillation, bladder, microbial contamination.

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SANITATION OF ORAL CAVITY - OPTION FOR PREVENTION OF VENTILATOR-ASSOCIATED PNEUMONIA IN NEWBORNS

Introduction. Ventilator-associated pneumonia (VAP) is a separate form of hospital-acquired pneumonia with high incidence and degree of lethality. Mechanisms of VAP development are considered to be hospital flora in the respiratory tract by aspiration of oropharyngeal secretions and contaminated gastric contents, inhalation of contaminated aerosol hematogenous spread of microorganisms, direct microbial migration into the respiratory tract. In newborns, there are a number of anatomical and physiological characteristics that contribute to the development of VAP.

Materials and methods. The dynamic analysis of 329 examinations of microbiological material from oral and tracheobronchial tree in 207 newborns who were treated at specialized neonatal in-patient departments with consequences of perinatal hypoxic damage was performed. Out of them 117 infants were at the intensive nursing departments (IND), and 90 – at the intensive care units (ICU). In all ICU patients, orotracheal intubation was prolonged for respiratory therapy

management. In the last 50 cases, regular sanitation of oral cavity with decamethoxin 0,02% was conducted.

Results. At the time of the first examination at admission, the microflora of oral cavity in patients was dominated by opportunistic representatives of the families Enterobacteriaceae, Streptococcaceae, Staphylococcaceae, in ICU patients – autochthonous flora was manifested mainly by facultative anaerobes.

The analysis of microbial flora content at the 5th day of hospitalization at IND demonstrated stable prevalence of Enterobacteriaceae. The microbial spectrum of the oral cavity in ICU patients who did not undergo oral sanitation was dominated by the genus Staphylococcaceae with pathogenic properties and pathogenic strains of P. aeruginosa, which are definitely associated with nosocomial infection. In 52,5% of cases, the microbial flora found in the oral cavity coincided with that of the endotracheal tube, and 30% were diagnosed by pneumonia which had not been previously observed.

In newborns who underwent oral sanitation with decamethoxin solution it has been found that in most cases the increase of microflora did not occur at all, the incidence of Staphylococcaceae family and representatives of P. aeruginosa was effectively low.

The detection rate of oral microflora migration in the airways of infants was 12%, and the development of pneumonia was ascertained in 10% of cases.

Conclusions. In newborns at ICU: At the time of hospitalization, the oral microflora was dominated by autochthonous flora, unlike in patients at IND, which was dominated by representatives of Enterobacteriaceae family; During the 5 days from the moment of hospitalization at ICU, the mouth cavity is actively contaminated by representatives of Staphylococcaceae family with pathogenic properties and hospital strains of P. aeruginosa, unlike patients at IND, in whom the microflora virtually did not change; During the 5 days of hospitalization at ICU, in intubated patients the migration of oral microflora in the lower respiratory tract is ongoing, which in 30% of cases provokes the development of VAP; Regular oral sanitation with decamethoxin 0,02% demonstrates high efficacy against the main types of

microorganisms that are dangerous from the standpoint of nosocomial pneumonia, and it reliably reduces the frequency of its occurrence.

Key words: newborns, ventilator-associated pneumonia, prevention, oral cavity.

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PRIMARY CRYPTOCOCCOSIS OF SKIN IN HIV-INFECTED PATIENT: ASPECTS OF DIAGNOSIS AND TREATMENT

Introduction. Opportunistic infections are most often fungal and bacterial origin in HIV-infected patients. The main position is occupied oportunystyc fungal infections. Mycoses caused by microorganisms of the environment (fungi, Aspergillus, Mucor, penicillum) or endoinfection (candidiasis). cryptococcosis brought to The group of HIV-associated fungal infections. Extrapulmonary form of Cryptococcosis is AIDS indicator diseases. Cryptococcosis - deep mycosis that caused by yeast fungi Cryptococcus neoformans. Cryptococcosis - infection with inhaled route of infection through mucosa of the mouth, gastrointestinal tract, damaged skin.

Aim. Preview of the clinical course of the primary case of skin cryptococcosis in HIV-infected patients during antiretroviral and antifungal therapy.

Materials and methods. Patient A., 35 years old located at the dispensary of January 2014 with a diagnosis of HIV infection, III clinical stage, Cryptococcal infection, cutaneous form. The patient was experience deterioration of general condition, weakness, muscle pain, low-grade fever; rash on the skin of the left ear two months ago. HIV-antibodies found with help of ELISA.

Results. On the basis of the studies was isolated and identified culture fungi Cryptococcus neoformans (presence capsules, cultural properties, etc.). Installed high sensitivity selected fungi to amphotericin B, flucytosine, dekasan, fluconazole,

mykonazol; moderate sensitivity to intrakonazol, weak sensitivity to kaspofunhyn, ketoconazole. Cryptococci had resistance to iodates.

The diagnosis of patients: HIV, III clinical stage. Cryptococcosis, cutaneous form.

Conclusions. The clinical course of primary skin cryptococcosis in HIV-infected patients had specific characteristics. Cryptococcosis looked like a different skin damage. Treatment of fungal infection should be combined with local antifungal drugs in HIV-infected patients. The criterion of effectiveness of the treatment is repeated negative results of mycological research.

Key words: HIV-infection, opportunistic infection, cryptococcosis.

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THE STUDY OF THE CLINICAL EFFICACY OF THERAPEUTIC COMPOSITIONS WITH DECAMETHOXIN IN PATIENTS WITH CHRONIC GENERALIZED CATARRHAL GINGIVITIS AND CHRONIC GENERALIZED PERIODONTITIS

Introduction. Treatment of chronic generalized catarrhal gingivitis and chronic generalized periodontitis relates to actual problems in dentistry, despite many existing methods and schemes of their treatment. *The aim* of clinical trials was to study the clinical efficacy of the therapeutic compositions (TC) with decamethoxin to treat gingivitis and periodontitis.

Materials and methods. Comprehensive examination of the course of treatment covered 181 patients with chronic generalized catarrhal gingivitis (CGCG) and chronic generalized periodontitis (CGP) I and II degrees of severity using appropriate sampling and indices. In the presence of clinical pockets treatment composition was applied in the pocket. In the case of inflammation treatment composition and application spoons was applied directly to the gums. Patients of control group were

treated using chlorhexidine digluconate 0.02% solution by the aforementioned method. Treatment compositions with decamethoxin and chlorhexidine digluconate used in a day. Efficiency treatment was evaluated after 10-15 days and 6 months.

Results. Using the conventional and special methods of clinical research proved that the application of the aforementioned is more efficient than traditional treatment, it has reduced term of treatment of patients and prolonged remission was achieved.

Conclusion. The results allow to recommend investigated therapeutic composition for the treatment of inflammatory and dystrophic inflammatory forms of periodontal diseases.

Key words: gingivitis, periodontitis, therapeutic composition, decamethoxin.

METHODS

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THE ROLE OF THE TEST CONTROL IN THE IMPROVEMENT OF THE STUDY OF MICROBIOLOGY

Introduction. The included of Ukraine in the European system of higher education accompany transformation processes. Higher school of our country has a goal to prepare competitive specialists. The pedagogical collectives of medical institutes of higher enter modern educational technologies of studies with the use of analytically-searching work and scientific information. An important task is introduction of new technologies of studies, presentation of them on a new high-quality level, embodiment of them in practice of collectives of departments. *Research purpose*. A ground of application of test control is for the estimation of quality of knowledge of future doctors.

Materials and methods. Study of microbiology in preparation of doctors it is necessary for a fight against infections. Knowledge from microbiology are base for clinical disciplines, as assist logical perception of clinical data, form clinical thought without which it is impossible to become a highly skilled specialist.

For the improvement of quality of preparation of specialists there is a necessity of application of modern methods of studies, control, which provide the increase of creative activity of students, sent to forming and development of professional thought.

Results. According to an executable code from microbiology on the study of discipline 8 credits are taken, 240 hours. During the course of study 3 modules are foreseen: module №1 - 90 hours/3 credits, module №2 - 90 hours/3 credits, module №3- 60 hours/2 credits. On completion of course of study students fold final module control which is examination.

The continuous checking of knowledge of students system is widely used . To that end test tasks geared-up on the topic of every practical employment (current control of initial level of knowledge). Writing test control is conducted at the beginning of employment, occupies 7-10 minutes and allows to define the initial level of preparation of every student.

Final control is conducted for to the tests which include task different to the type.

Test control provides simultaneous verification of knowledge of students of all group and forms for them motivation for preparation to every employment.

Main advantage of tests is the fully automated verification of knowledge of students, which provides maximally possible her

Current verification is this studies, повязане with fixing, reiteration and analysis of educational material. With the purpose of exposure of end-point of studies it is necessary to apply final control on which it is possible to judge students about general achievements.

Conclusion. For the choice of method of control of knowledge it is necessary to take into account both advantages and lacks of different methods. The study of microbiology mortgages the important base of fundamental knowledge, to estimate which one method it is impossible. Therefore test control it one of modern and

optimal methods. The prospects of further developments is a necessity to estimate knowledge and ability not only by means of tests, and in a complex with other methods.

Key words: microbiology, virology, immunology, test control.

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COMPARATIVE CHARACTERISTICS OF THE EFFECTIVENESS OF SURGICAL TREATMENT OF PATIENTS WITH FEMORAL NECK FRACTURES USING A LOCKED INTRAMEDULLARY RODS AND TOTAL HIP REPLACEMENT

Introduction. Fractures of the proximal femur and their consequences every year cause enormous damage to the economy of any state. Thus, according to statistical studies, fractures of the proximal femur account for 17 % of injuries to the musculoskeletal system, of which hip fractures account for 50-55 %. In world practice have long recognized the advantage and high efficiency of operational treatment of fractures of the femoral neck over a conservative. But sometimes it is difficult to determine the time and volume of surgical treatment (use of a proximal femoral stem, or prosthesis). Despite recent advances, remains a fairly high percentage of unsatisfactory results of treatment of fractures of the femoral neck. In most cases, this is due to the development of avascular necrosis of the femoral head (8 to 35 VDC %), nonunion (7-33 %), the development of a false joint (10-20 %), secondary displacement (10 %). Received complications usually lead to repeated surgical intervention, in most cases, total hip replacement surgery. Primary hip replacement has been developed due to the large number of unsatisfactory results of primary osteosynthesis. Long-term results of total hip arthroplasty allow us to optimize the development of this method of treatment of patients in elderly and senile

age with adverse reparative osteogenesis prognosis and deficiency of mineral density of bone tissue. Positive results within 3-5 years after surgery reach 89-95 %. However, there remains a degree of failure in the form of infection and instability of endoprosthesis components that require revision surgery. The number of early postoperative complications such as deep venous thrombosis and pulmonary embolism, disorders of bowel and bladder remains high and is in 45-70 % of cases. Pulmonary embolism, which ends in death in patients after arthroplasty is noted in 2.4% of cases Interesting in scientific and practical terms, consider the analysis of the effectiveness of treatment results of femoral neck fractures using a locked intramedullary stem and total hip joint in order to determine the optimal tactics of surgical treatment of this severe category of patients.

Purpose – based analysis of the effectiveness of treatment outcomes to determine the optimal tactics of surgical intervention in patients with fractures of the femoral neck.

Materials and methods. The material of the research was the analysis of medical records, radiographs, and clinical examination 100 patients with femoral neck fractures who underwent operative treatment on the basis of the traumatological Department of the Poltava regional hospital in the period from 2006-2015. Were made rosrob table, which took into account the following clinical, anamnestic and radiological signs: a name, a history number, home address, residence, gender, age, duration of surgery, intraoperative blood loss, type of fracture according to the classification of Gardner and stage of deforming arthrosis of the hip joint according to the classification of J. H. Kellgren and J. S. Lawrence.

All patients were divided into two groups, depending on the operating procedure. The first (control) group consisted of 50 patients with femoral neck fractures who underwent total hip arthroplasty. The second (experimental) group consisted of 50 patients with femoral neck fractures, which was performed mainly minimally invasive osteosynthesis using a locked intramedullary osteosynthesis. Defined postoperative complications which included: purulent complications and mortality for the control and experimental groups, suichi head of the prosthesis requiring repeat surgical intervention for the control group observations and aseptic necrosis of the head and false joints of the femoral neck in patients of the experimental group.

The efficacy of surgical treatment was evaluated 1 year after surgery. The results of treatment of patients with femoral neck fractures can be rated as positive only if the patient survived for 1 year after the injury, does not need assistance and do not performed the second surgical intervention and has returned to its previous levels of activity.

Results. Determined that patients in the control group, where he performed a total hip arthroplasty most often intraoperative blood loss was 400 to 800 ml (54 %) and 40 % more Blood loss 800 ml. to 400 ml in this group of patients was only 6 %. Cases with minimal blood loss (200 ml) were observed. These data are statistically significant ($p \leq 0.01$). Patients of the experimental group, where were carried out mainly minimalnaya surgery with fixation of bone fragments blocked the rod statistically significantly ($p \leq 0,01$) prevailed patients with minimal blood loss to 200 ml (70 %).

Analyzing the duration of surgery was determined that patients in the control group statistically ($p \leq 0,01$) prevailed, compared with cases with a minimum duration of surgical intervention (up to 1 hour), the cases from 1 to 2 hours – 62 % and more than 2 hours for 36 %. In contrast to the control group patients experimental group where the surgery was carried out mainly minimally invasive, statistically significantly ($p \leq 0.01$) were prevalent cases with a minimum duration of surgery – 66 %.

Analyzing it can be noted a significant decrease in comparison with the control group of septic complications and mortality in patients who underwent primarily minimally invasive surgery with the use of intramedullary locked rods. So suppurative complications and mortality was only 2 %, in comparison with patients of control group – 8 and 6% respectively. Performing total hip arthroplasty in persons is predominantly elderly with low muscle tone has caused the emergence of spontaneous postoperative zvav of the femoral head, which in turn was required in 4 % of cases of repeated surgery. Aseptic necrosis of the femoral head false joints of the femoral neck was observed in 8 % of cases, patients of the experimental group, it should be noted that in all these cases, the observed unstable femoral neck fractures (Gardner III-IV).

Analyzing not determined statistically significant difference in the efficiency of surgical treatment of patients with fractures of the femoral neck control and

experimental groups of observations, which in turn proves the feasibility of developing a differentiated approach to the tactics of selection metaloxa, depending on the stability of fractures, concomitant stage of coxarthrosis, and other factors.

Conclusions. Conducted comprehensive research identified a statistically significant ($p \leq 0.01$) reduction of blood loss and duration of operative intervention in patients who underwent osteomyelitis blocked intramedullary rods, which is especially important in elderly and senile age. Performing total hip arthroplasty in patients with femoral neck fractures should be performed for certain indications, which include an accompanying 4-stage coxarthrosis and in unstable fractures (Gardner III-IV) in injured players. Locked intramedullary fixation can be recommended as one of the main methods of surgical treatment of patients with fractures of the femoral neck.

Key words: trochanteric fractures of the femur, operative treatment algorithm.

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EPIDURAL ANESTHESIA AS AN EFFECTIVE COMPONENT OF MULTIMODAL ANALGESIA TREATMENT ALGORITHM FOR PANCREATIC INJURY AND POSTTRAUMATIC PANCREATITIS

Introduction. The injury of the pancreas (SMI and post-traumatic pancreatitis (PP - one of the most severe, prognostically adverse and often threatening conditions abdominal surgery. The consequences of the defeat of the pancreas threat of severe a pancreatonecrosis and a high risk of death. Essential in the medical treatment of pancreatic injury has a reduction or elimination of pain, because it is an important link of the pathogenic mechanisms and disease progression.

The aim - explore the clinical efficacy of multimodal analgesia in the complex algorithm of treatment of patients with pancreatic trauma.

Materials and methods. Results of treatment of 52 patients with pancreatic trauma. The patients' age - from 18 to 78 years. Women were 11 (21%), men - 41 (79%). 82.7% of the victims were hospitalized during the first days after the trauma. By the classification of AAST pancreatic trauma the 5th degree was 7.7% of patients. In 13.5% of patients in trauma has led to the death. In the main group (with the use of multimodal analgesia) were 20 patients and in the control group - 32 patients.

Results. The use of multimodal analgesia techniques promoted the elimination blolevogo syndrome within the first 3 hours from the start of treatment, 16 (80%) of the 20 patients of the main group and in the control group - three hours of observation.

Died 2 (4%) patients in the main group and 5 (10%) in the control group.

Analysis of the levels of cortisol in the blood showed that at elevated initial indicators observed decrease in cortisol from the second day, and its normalization - on the seventh day, and in the control group - on the fourth day.

Conclusions. Multimodal analgesia is effective and pathogenetically substantiated component of the algorithm of complex treatment of patients with pancreatic injury.

The use of multimodal analgesia in pancreatic trauma significantly reduces lethality in this injury. Multimodal analgesia leads to minimizing the use of opioid drugs, or even their expulsion, according to the principle of fast track.

Key words: multimodal analgesia, pancreatic trauma, posttraumatic pancreatitis, epidural anesthesia, "Depiofen."

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UDC: 615.8 + 616-03

NEW APPROACHES IN THE DETECTION OF THE DIFFERENT PATHOGENES AND PROGNOSING OF DEVELOPMENT INFECTIONS DISEASES

Introduction. Today the problem of struggle with the most dangerous infections acquires a greater importance, as well as at the international scope. The first and one of the most important stages in the struggle with viruses and bacteria, is the stage of early detection of causative agent in real carriers, infected ones and in the objects of environment. The *purpose* of research is to study a possibility of detection of presence of pathogens in the infected objects with complex of spectral correction "CSC-BARS" ("CSC-BARS") on the basis of new approaches to the fuzzy variables processing under conditions of object's noise.

The next **tasks** were set:

1. To develop a new algorithm of nosological markers data processing, which were recorded from hardware and software complex of spectral correction «CSC-BARS", with the use of Fuzzy-technology processing, with the purpose of recognition of different types of pathogens in the infected objects.
2. To study a possibility of application of the developed data processing algorithm for detecting the pathogen in the studied object, type of pathogen and degree of object infection.

The article presents the general formal task definition of diagnosing pathogens, the approach to solving the task and a number of obtained results with using the given approach.

Materials and methods. The offered approach was tested on detection of type of pathogen in infected experimental mice. In particular researches were conducted for two cases:

1. Research of possibility of detection of infection of the virus of the mouse influenza A/PR/8/34 in different dilutions — 10^{-3}–10^{-7}.
2. The second research set a task of determination of pathogen type in mice. As examined pathogens there were considered strain of virus A/PR/8/34 influenza in dilution – 10^{-3}-10^{-7} and pathogenic strain *Francisella tularensis* in dilutions 10^{-1}-10^{-3}.

Results. For conducting researches pathogen detection algorithms were realized as a Fuzzy Diagnostics software. The given software allowed realizing technology of decision making analytical task on the basis of Fuzzy-technology of the fuzzy variables processing under conditions of nonstatistical uncertainty. For the fuzzy variables processing there were used theory of fuzzy measure and fuzzy-integral calculation.

Conclusions. The application of the developed algorithms for nosologic markers data processing, which were obtained while recording with the hardware-software complex of spectral correction “CSC-BARS” using Fuzzy-technology processing of fuzzy data, allows detecting different types of pathogens in infected objects. Our method allows to determine not only the presence of pathogen, but also to determine its type, and the level of infection of the object. The use of new algorithms of nosological markers data processing allows using hardware-software complex of spectral correction "CSC-BARS" to detect the presence of various pathogens in living and non-living objects.

Key words: “CSC-BAR”, infectious agents, markers nozologic processing algorithms.

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MICROBIOLOGY TEACHING METHODOLOGICAL ASPECTS IN I. HORBACHEVSKY TERNOPIL STATE MEDICAL UNIVERSITY

Ukraine's integration into Europe foresees higher education reforming and future entrance into the European educational space.

This one requires new approaches to the educational process organization in higher education establishments, which consists in introduction of innovative training

technology and assessment of students' knowledge. The aim of investigation was to bring to European educational standards teaching methods, to adapt microbiology teaching to the realities of today's medical practice, to future professional activities of graduates.

At Microbiology, Virology and Immunology Department educational process takes place under the new curriculum. To optimize the training of students before classes at department WEB-site necessary for them microbiological curricula, schedules of classes and lectures, lectures' multimedia presentations, materials for self-dependent work before practical classes, examples of quizzes' for practical classes, and quizzes' base for future test part of exam are presented.

Special workbooks (protocols) for students` in Ukrainian and English, which include main questions of class topic, shot important information for memorization, instructions for practical activity etc. were made. Any practical class consists of introductory part which includes initial students' knowledge assessment, their readiness to practical work fulfillment and assistant's instruction on practical skills carrying out, effectuation of practical work under assistant supervision properly, seminar discussion according the main theoretical questions of the topic, and final control of students' knowledge. Test questions from Step1" quizzes base and all inclusive situational tasks are used in this part of lesson. From our view of point this approach are needed for students, because it really present them true integration of their theoretical knowledge with future medical practice. For English-speaking students there special methodical materials devoted to main parts of Microbiology: "General Microbiology", " Immunology", " Virology", and" Special Microbiology" were printed.

Conclusion. Microbiology, Virology, and Immunology Department contributes to training future highly competitive medical professionals. Department staff works hard to create opportunities for students to get basic knowledge in Microbiology, Virology, and Immunology which will be necessary for future study of clinical disciplines – surgery, infectious diseases, therapy, pediatrics gynecology etc.

Key words: microbiology methodological support, practical skills, knowledge control.

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METHODOLOGICAL APPROACHES TO TEACHING THE NOSOCOMIAL INFECTIONS AT MEDICAL FACULTY OF NATIONAL MEDICAL UNIVERSITY

Introduction. Hospital infection is a form of infection which arises because of medical care. Most often they arise in intensive care units (about 25% of all nosocomial infections), but also they affect surgical, burnt and other patients.

Material and methods. The aim of our report is reasoning of microbial spectrum choice at studying causative agents of nosocomial infections topic by 2^{nd} - 3^{rd} year medical students. We made a review of clinical and scientific reports and screening of main pathogens, which were most often isolated at suppurative wound infections, infections of soft tissue, blood infections, and others. Based on analyzed material we recommend a range of species for studying.

Results. According the latest data the great attention should be paid to etiological role of staphylococci, enterococci, enterobacteria, and non-fermentative gram-negative rods in hospital infections, their features and laboratory diagnostics methods. Special questions for discussion are biological features of these bacteria that are responsible for their ability to be hospital pathogens such as antibiotic resistance and high surviving under influence of unfavorable environmental factors. Practical student work is based on detection of microbial identifying features (morphological, cultural and biochemical testing), testing of their antibiotic sensitivity. Final knowledge is tested with multiple choice questions and situation tasks.

Conclusion. Any specialist may face with microbial complications which remain a great up-to-date problem in many kinds of hospital departments. The topic "Nosocomial infections" introduce medical students with branch of clinical microbiology and make their knowledge about infectious pathology deeper. Studying of this topic make students acquire wider look at significance of opportunistic bacteria in human pathology and necessity of control of antimicrobial preventive measures in different kinds of hospital departments. We invite colleges from microbiology and clinical departments for introduction of their experience for improving methodological and scientific approaches to learning nosocomial infections.

Key words: nosocomial infection, pathogens inflammatory complications, diagnosis.

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EXPERIMENTAL BASIS THE EFFECTIVENESS OF THE COMBINED TREATMENT OF BACTERIAL CORNEAL ULCER

Introduction. Among the inflammatory diseases of the eye special difficulties in treating bacterial keratitis represent that often occur as corneal ulcers and almost always end up clouding of the cornea and loss of vision. The conventional conservative treatment of bacterial corneal ulcers is not always effective and in some cases require urgent surgical intervention. Recently, domestic and foreign ophthalmologists amniotic membrane is widely used in diseases of the anterior segment of the eye.

Materials and methods. Spent two series of experimental studies. Chinchilla rabbits were used rocks weighing 1.5-2 kg, aged 6-8 months, which were kept in standard vivarium conditions VNMU them. Pirogov.

The first study examined the eye tolerance for implantation of amniotic membrane in the cornea pocket. Rabbits were divided into group III (10 eyes each). In the first group implanted corneal pocket fresh AM square, measuring 2x2 mm, in the second group - a preserved in decamethoxin AM same size, and III - 2 mm silk thread. At the top of the corneal flap imposed nodal nylon (10/0).

Watched as the eyes of rabbits for 30 days. Evaluated the reaction of the eye to implantation.

In the second study after implementation, according to our method, the experimental bacterial corneal ulcers (BCU) studied the effectiveness of various treatments on the course of ulcerative keratitis. The model of ulcerative keratitis reproduced on 64 eyes of 32 rabbits. Drug treatment BCU started on the second day of the experiment, after identification of corneal ulcers. Previously, before treatment, carried out surface sampling swabs from ulcers and conjunctival cavity for microbiological studies.

Results. In the first study, inflammation of the eye for implantation of fresh and canned in decamethoxinum AM registered. Amniotic membrane in the corneal pocket completely resorbed and a group of 9 -12 (10,5 ± 0,8) day of the experiment, the second group - 9 - 11 (9,9 ± 0,7) days after implantation. Silk suture kept the entire period of observation.

Treatment of Experimental BCU different methods showed the best results in the combined treatment using canned in decamethoxinum (DCM) AM. In this group, ulcer epithelization was completed on 8 - 9 (8,7 ± 0,5) day of the experiment, the combined treatment using fresh AM also at 8 - 9 (8,8 ± 0,4) day ($p = 0.028$) when conservative treatment in 16-17 (16,5 ± 0,6) days ($p = 0.028$). The intensity of corneal opacity on day 21 was lower in the groups where they spent a combined treatment (group I and III) and was 0,6 and 0,9 points respectively ($p = 0.012$) compared with VI group - 4,7 points. When medical treatment was clouding intensity 3,3 points ($p = 0.018$). Area of corneal neovascularization in the twenty-first day of the experiment was the lowest in the group, where they spent a combined treatment using preserved and fresh AM, in group I (12,6 ± 0,2) mm ², ($p = 0.028$) in group III - (14,27 ± 0,52) mm ², ($p = 0.028$), with the medical treatment of corneal neovascularization BCU was (30,83 ± 0,85) mm.

Conclusion. Experimentally proved tolerant eye tissue for cornea implant in the pocket of fresh and preserved in decamethoxinum AM.

In the treatment of bacterial corneal ulcers found that the best treatment is a combined treatment with the use of AM. Canned in the decamethoxinum AM has antiseptic properties and prevents joining a secondary infection in the treatment of bacterial corneal ulcers, which can be widely used in the clinic for inflammatory diseases of the eye.

Key words: bacterial corneal ulcer, amniotic membrane, Decamethoxin.

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MICROBIOLOGICAL METHODS OF DIAGNOSTICS OF INFECTIOUS PATHOLOGY AND THEIR ROLE IN TEACHING OF MEDICAL MICROBIOLOGY

Microbiological diagnostics is the base of etiological diagnosis of infectious diseases. It is based on the detection of trigger, it’s genetic material, metabolites and reaction of human organism on it. Different methods of diagnostic were reviewed.

Methods of microscopy have auxiliary and oriental meaning. Electronic microscopy is used for noncellular nature triggers. Cultural method is based on receiving of clear culture of microorganisms with its next identification. Viruses, Ricketsia and Chlamydia are revealed by infication of animals, hen’s embryones and cultures of cells.

Immunological methods of diagnostics have several directions: serologic diagnostics, detection of allergic reconstruction of organism and trigger antigens. The using of experimental animals is the fundamental part of biological research method. In this case the infectious process is modulated on the animals. Genetic diagnostic is

detection in the material of patient or in revealed culture of triggers of specific site of NA, which is common only for this microorganism. Today chain polymerized reaction and other amplification methods are used mainly. Their advantages and disadvantages were analyzed.

Conclusion. The establishing of microbiological (etiological) diagnosis is the most important part of the modern medicine. New technology are intensively used for creation and modernization of microbiological diagnostics of infectious pathology. Together with microbiological and immunological methods of infectious disease are used more often achieving of molecular biology and genetics, that is powerful factor in development of microbiological science and undoubtedly causes the need of improvement of teaching of medical microbiology.

Key words: microbiological diagnostics, immunological methods, chain polymerized reaction.

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CLUSTER ANALYSIS PROCEDURES AND THEIR PLACE IN THE PROCESS OF CREATION PROFESSIOGRAMS OF DENTAL SPECIALTIES UNDER FUNCTIONAL FEATURES OF SENSORY SYSTEMS OF THE ORGANISM

Introduction. Psyhophysiogram of professional activities as an important and integral component of modern professiogram is structured clearly and objectively outlined in its leading features, a list of specific evidence-based and practical-relevant requirements that certain profession makes to the development of certain psychophysiological functions the human body. However, making any classification procedures, including the creation, development and scientific substantiation

professiogram of major dental specialties, involves the use of a number of modern methods of multivariate statistical analysis, cluster analysis procedures in particular.

The *purpose* of the study is scientific justification prospects of cluster analysis procedures to create psyhophysiograms of basic dental specialties according to the characteristics of the functional state of sensory systems.

Materials and methods. Making peer review of professional activities resulted in: identifying key specialties dental, development of questionnaires, the questionnaire scoring professionally significant qualities of the specialties of the dental profession, the definition of experts, among which attributed the persons who have or relevant work experience for at least 5 years by profession or relevant experience hygienic assessment of scientific and meaningful interpretation problems professiographic expertise and statistical processing of the obtained materials. To implement the above requirements during the studies used a specially designed questionnaire, a questionnaire peer review, which consisted of 57 questions that included the definition of professional significance of psychophysiological functions. Data collected during the peer review, been confirmed the results dynamically structured observation of employment, performed.

Defining features of the links between performance indicators of professionally important characteristics of functional state of sensory systems of the students learn dental specialties, carried out by applying the procedures of descriptive statistics and cluster analysis based on the use of standard application package multivariate statistical analysis “Statistica 6.1 for Windows”. As basic procedure used hierarchical agglomeration procedure of cluster analysis.

Results. During the evaluation of data on expert evaluation of the degree of psychophysiological functions, reflecting the peculiarities of the functional state of the visual sensory systems of the body, it was necessary to mention quite an interesting picture of cluster groups that are registered. In particular, it should be noted that the structure of the cluster groups for dental surgical specialties, children's surgical and therapeutic profiles, the cluster №1 (cluster associated with linear eye) should be attributed performance only linear eye, the cluster №2 (cluster associated with differential light sensitivity) – only differentiated indicators light sensitivity, the

cluster №3 (visual-sensory integrative cluster) – parameters of visual acuity, color distinction and color differentiated color distinction, dark and light adaptation, spatial adaptation, the volume of visual fields, differential linear eye, critical fusion frequency of light flashes and speed of visual perception.

A somewhat different nature inherent to the structure of cluster groups specific to therapeutic dentistry – in this case should also note the presence of three major clusters, however, their semantic content different from the previous one. By cluster №1 (cluster associated with linear eye) need only be attributed performance linear eye to cluster №2 (spatially adaptive cluster) – parameters of spatial adaptation and scope of fields to cluster №3 (visual-sensory integrative cluster) – parameters of visual acuity, color distinction and color differentiated color distinction, dark and light adaptation, linear differential eye and visual perception,

Conclusions. During the studies is scientific justification prospects of cluster analysis procedures to create psyhophysiograms of basic dental specialties according to the characteristics of the functional state of sensory systems. The results confirm the fact that the procedures of cluster analysis, together with procedures of descriptive statistics, correlation and factor analysis, should occupy one of leading places in the structure of creation as professiograms major dental specialties and those of the leading components as psyhophysiograms and psychohrams. The approach has great prospects as in the case of determining the place in the structure professiograms leading indicators of the functional state of sensory systems of the organism, and a number of other characteristics of criterion of psychophysiological functions and personality traits of modern students. Discovered the features of relationships between indicators of professionally important characteristics of functional state of sensory systems of the students, learn basic dental specialties, have undeniable prognostic value and require consideration of further development in the health promotion technologies in universities.

Key words: students, dental specialties, professiogram, psyhophysiogram, sensory systems of the organism, cluster analysis.

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RESTRUCTURING AND PROBLEMS OF TEACHING CLINICAL MICROBIOLOGY DURING INTERNSHIP

Theoretical course of clinical microbiology includes studying of etiological, pathogenical roles of microorganisms in development of infectious, surgical, gynecological and somatic illnesses, and aspects of hospital infections. Studying of etiological,pathogenical characteristics of microbial complications together with biological abilities of microorganisms is advisable. With great interest interns of different specialties listen to lectures "*Obligate intracellular bacterial parasites"; "Bacterial resistance to antimicrobial drugs and ways for its overcoming";" Medical and biological aspects of virus persistence";"Prion infection"; "Microbiological characteristics of intraabdominal infections";"Viral oncogenesis. Antitumoral immunity".* Future specialists of intensive care units (ICU) acquire knowledge of important topics such as *"Catheter-associated infections" and "Etiology of ventilator-associated pneumonia"*. We deliver up-to-date lectures such as "*Microflora of blast and mine-blast injury"; "Immunology of severe injury and trauma*".

Main aspects of clinical microbiology are studied at practical classes, at which post-graduate students acquire practical skills and dissolve next tasks:

1. Reasoning of sample choice for laboratory investigation, based on primary diagnosis, expected disease etiology, location of pathological process, and ways of pathogen shedding from the host in the environment;

2. Guideline and methods of laboratory diagnostics (microbiological, virological, mycological, and serological ones), dynamics of diagnostic investigations during patient treatment;

3. Rapid tests and methods for diagnosis confirmation;

4. Evaluation and interpretation of laboratory assay, making a final conclusion.

Post-graduate studying requires improving of concept teaching clinical microbiology, interaction of experienced specialists from different universities, foundation of Coordination center for creation of integrative study program. Teaching this subject requires improving of economic base and corresponding modern laboratory equipment.

Conclusion. Knowledge of clinical microbiology is important part of clinical thinking for future specialists; it improves significantly professional knowledge, and extends ability of laboratory diagnostics and rational therapy.

Key words: clinical microbiology, postgraduate education.

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THE CONDITIONS AND THE NECESSITY TO STUDY THE SUBJECT "FIRST AID IN EMERGENCY SITUATIONS" AT THE MEDICAL UNIVERSITY

In the article the necessity to study the tactical medicine, standards of the first aid on the battlefield are discussed. This is one of the requirements of the Ukrainian Verkhovna Rada Resolution (17.04.2014r.) and programs of this discipline. Besides the invasion of Russian troops into the eastern part of our state, using the most modern weapon for killing our soldiers are reasons for medical students to actively

explore the features of wounds, gunshot bleeding, students should be able to provide quality care.

The authors have analyzed the progress of second-year students, which first studied course "First aid in emergency situations". 12 subgroups (6 groups) were selected (among them 3 groups of domestic (75) and 3 groups of foreign students). Material and methodological support of the students, their understanding of the material was under control. The average score among foreign students ranged from 3.14 to 3.32, among domestic students - from 4.0 to 4.28. Accordingly the education quality of domestic students was significantly higher (88.2%) than foreign students (40.5%). In addition to indicators of progress, the authors noted that such topics as "Bleeding control", "Airway obstruction" became more difficult for them than the assimilation of other topics. By the way the main reasons of battlefield deaths are bleeding (up to 70%) and respiratory failure (by 30%).

Conclusion. In conclusion the team of authors considers it is important to open another gym on the department with the necessary material and methodological support for the best learning as well as to improve the state provision of Ukrainian military of first aid kits (IFAK). Also we need to improve training of students at the medical universities.

Key words: first aid in emergency, students academic performance, skills.

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THE MOTIVATION OF LEARNING ACTIVITIES OF FIRST-YEAR STUDENTS OF THE MEDICAL FACULTY

Introduction. Motivation and motives to succeed in learning are of most importance studied by psychology and pedagogics as almost everyone requires to be educated. To be successful in studies the student shall have internal motivation.

Purpose of this research was to determine motivation of the first-year students of Medical Department to succeed in studies.

Materials and methods. 95 first-year students of Medical Department participated in the study. The following methods have been used: 1. K. Zamfir modified by A. A. Rean "Motivation of professional (learning) activity"; 2. T. Ilina "Motivation in Higher Education"; 3. A. A. Rean, V. A. Yakunin "Students' motives for learning"

Results. Student survey using K. Zamfir's method modified by A. A. Rean is based upon the internal and external motivation concept. 90 students took part in the survey. Internal motivation to succeed in studies is prevalent for 62% of respondents who considers the studies important as such and enjoys themselves learning, sees potential for self-realization in the selected higher education institution. External motivation to be successful in studies prevails for 11% of respondents who needs to be respected by others, be approved by the relatives and obtain scholarship. 7% respondents expressed external negative motivation. They expressly aim to avoid criticism from their fellow students, teachers, administration. They wish to prevent possible punishment and troubles. Intermediate variants of joining three types of motivation were shown by 18% of students. By results received we concluded that internal and external positive motivation to succeed in studies are prevalent for the first-year students of medical department.

A. A. Rean and V. A. Yakunin's survey was used to study the motives. 88 first-year students participated in the research who had to choose the most significant motives for them. Upon the survey results 93% of all respondents consider possibility to become a skilled professional using knowledge received at the university as the most significant motivation to studies. 78% of students consider the studies as possibility "to be successful in future career" and 78% are motivated to "gain deep and strong knowledge". Motives that grouped to "External motivation" are highly expressed by the respondents. For many of them important motive is to obtain diploma, gain

scholarship, approval from the relatives, respect from the teachers. It should be noted that it doesn't matter for the students what their fellow students think of them.

We used the T. I. Ilina's method to estimate the motivation to succeed in studies in the higher education institution. The questions that the students were answered had been divided into three parts: "knowledge acquisition"; "mastery of professional skills"; "obtaining diploma". Results for the survey on motivation to succeed in studies based on T. I. Ilina's methods are as follows: 91 first-year students participated in the survey. Motivation to acquire knowledge is mentioned in 53% surveys. Motivation to mastery of professional skills was chosen as a key one by 21% of respondents. Motivation to obtain diploma was ticked by 26% of participated students. Excess of motives by the first two scales is the affirmation of an adequate choice made by the student and their satisfaction in it.

Conclusions. Internal and external positive motives to succeed in studies are prevalent based on results of the first-year students of Medical Department survey. It is required to create conditions, that will promote improvement of students' positive motivation. Motivation to achieve high results in studies is aimed to successfully combine and efficiently use all the system factors that simultaneously influence on the students' external and internal motivation to succeed in studies.

Key words: motivation, motive, learning activities, internal motivation, external positive motivation, external negative motivation.

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NEW APPROACHES IN DIAGNOSIS AND TREATMENT OF PATIENTS WITH OBSTRUCTION OF THE UPPER URINARY TRACT

Introduction. Among urologic diseases obstruction of the upper urinary tract (UUT) occupies an important place and is extremely urgent and serious problem of clinical medicine. Whatever the reason there is obstruction violation of the outflow of urine, increased pressure in the pelvis of the kidney, it's cups. Expansion pelvic-renal system accompanied by compression and thinning of renal parenchyma, the development of pelvic-renal reflexes progressively deteriorating hemodynamics real, there is ischemia, hypoxia, functional disorders become organic nature. It creates the optimal conditions for the emergence of serious complications until death. Prediction treatment, quality of life of patients with obstruction UUT determine the timely diagnosis of the disease.

The study *aims* to improve methods of diagnosis and treatment of this serious pathology.

Materials and methods. On the basis of DU Institute of Urology NAMS of Ukraine conducted a comprehensive examination and treatment of 157 patients with long-term obstruction UUT. It was commonly used complex clinical (blood, urine, blood chemistry) and instrumental methods. All patients performed a survey and excretory orography and it's modification renthenaparati "Uroscop D^3" company 'Siemens' (Germany), conducted a CT scan. Anatomical and structural renal function assessed the results of ultrasound (US). The use of color Doppler and pulsed Doppler mapping allowed us to estimate changes of main and internal bleed in the affected kidney and counter lateral kidneys. To evaluate the functional state of the kidneys and urinary tract performed radioisotope rheography (RRG). Recording and processing was carried out using a computer system hardware and software system. After skin punctures well nephrotomy (TSPN) performed on urological x-ray table using ultrasonic apparatus "Sonoline Versa-Pro" company 'Siemens' (Germany) with the needle guide.

Results. The study in DU Institute of Urology NAMS of Ukraine 69 men and 88 women from 17 to 71 years of long-term obstruction UUT. Causes obstruction, urolithiasis (45.2%), abnormalities of the genitourinary system (32.2%), pelvic tumors and retroperitoneal (14.0%), iatrogenic ureteral injury (2.5%). The results of the examination, all patients were divided into 2 groups (I-44 patients, II-113).

Excretory orography showed that 61.4% of patients and contrast of strokes in the extended pyelocaliceal system are identified for 120 minutes in the study, 6.8% - to 180 minutes in 31.8% -function kidneys are not defined within 24 hours. In 3.5% of patients in group II smears contrast observed for 90 minutes in 30% - 120 minutes, 15% - 180 minutes in 51.3% - kidney function is not defined within days. Ultrasonography and CT showed a significant decrease in the thickness of the affected kidney parenchyma versus lateral counter. Smaller figure was in Group I patients (6,6 ± 0,3 mm) compared with patients II group (8,1 ± 0,6 mm). Conducted Doppler shown in all the affected kidney patients in both groups expressed depletion of vascular pattern, reducing blood flow in cortical layer, reducing the diameter of the arteries in the kidneys and lead their branches. Increased systolic-diastolic ratio increased repletion index (PI) and resistance index (RI). According to RRG, patients have been obstructive and isostenuria type curve. The results of the survey of all patients and performed nephrectomy and patients II group - TSPN. Already at the first day of urine from the nave growth was 973,2 ± 193,0 ml proportion - 1004,2 ± 0,3. Indicators of creatine and urea respectively - 193,5 ± 18,1 mg/dl and 13,2 ± 2,8 mmol/l after the appearance of urine was performed in all patients eliminate the cause of the obstruction. Gradually (7 days) increased the amount of urine, increased its share, decreased levels of creatine and urea well. Improved, according Doppler, angioarchitectonics affected kidney. All patients discharged from functioning nephrostomy. Repeated hospitalization for a control examination carried out after 4 weeks. Number of urine in most patients 1500-1800 ml, proportion - up to 1013. The level of creatine and urea well - 104,6 ± 3,9 mmol/l and 5,8 ± 0,2 mmol/l. Ultrasound and CT scan showed thickening of the kidney parenchyma blocked to 10-11 mm. In RRG - normal (to 70.4%) and isostenuria (29.6%) type curve. Decreased RI, reduced the difference between RI and blocked contralateral kidney. 10 patients the results of re-examination was performed nephrectomy.

Conclusion. The best diagnostic system for determining the functional reserve of the blocked kidney is ultrasound, Doppler, nephroscintigraphy. They allow you to objectively evaluate renal and UUT judge the possibility of repayment uro- and hemodynamics. The thickness of renal parenchyma is one of the criteria for assessing

its functioning. At a thickness of 7 mm increased likelihood of blocked kidney function recovery. Important to determine the functional reserve is the study of hemodynamics. After a skin puncture to nephrotomy under prolonged obstruction is the only minimally invasive method to objectively assess the spare capacity of the affected kidney, justify an appropriate treatment strategy, helps prevent unnecessary open surgical intervention, unreasonable nephrectomy. Reserve capacity blocked kidney appropriate to no earlier than 4 weeks after TSPN and eliminate the cause of the obstruction.

Key words: obstruction of the upper urinary tract through skin punctures nephrostomy, kidney parenchyma.

SCIENTIFIC REVIEWS

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INTESTINAL OBSTRUCTION: CORE SYMPTOMS AND SYNDROMES

The article contains brief description of the intestinal obstruction main symptoms and syndromes. The rapid technical progress and using modern diagnostic equipment in medical practice somewhat forced the clinical portion of diagnostic work out to the back. Since the knowledge of main symptoms at a preliminary phase of any examination is of crucial importance, we have attempted to present the core symptoms and syndromes of intestinal obstruction.

It is well known, that intestinal obstruction is called a pathological process, being a background for a blockage of the intestine with foreign bodies, paralysis or volvulus

of bowels. This pathology is an urgent one and requires immediate and decisive actions to provide timely diagnostics and appropriate health care.

The goal of our work was to determine the most affordable and, at the same time, the most informative symptoms and syndromes of intestinal obstruction that may be used by doctors to diagnose the disease as soon as possible, especially at the preliminary stage of patients` examination.

We derived this factual material from a variety of scientific sources (articles, monographs, reference books, online resources, etc.). We processed and systematized the data and presented it in a brief format names and description of symptoms, and other concise information.

The article presents the most common symptoms (signs, symptoms) of intestinal obstruction, such as: an Anschütz symptom, an "Arche" symptom (synonym: Shtirlin`s symptom), Baeyer symptom, Bailey I symptom. Boyer symptom, Bouveret symptom, Wahl symptom, Wilms symptom, Wortmann-Mondor's symptom, Hintze symptom, Hirschprung symptom, Hochenegg symptom, Grekov 1 symptom (synonym: “Obukhov Hospital” symptom), Gangolphe symptom, Golda symptom, Dance symptom, Johnson symptom, Zubritskiy symptom (synonym: “Repeated Retrograde Contrast Stomach” symptom); Case III symptom, Kishkovskiy symptom, Kloiber symptom (synonym: Kloiber's cups (air-fluid level)); Cruveilhier II symptom, Lehmann symptom (synonym: a "Claw" symptom); Lotheissen symptom, Mackelia-Dworken-Biel symptom (synonym: a "Splenic angle" symptom); Mathieu symptom (synonym: méthode de Mathieu); Mytohyn- Kochneva symptom, a "Hoop" symptom, the “Obukhov Hospital” symptom (synonym: Grekov I symptom, Hochenegg symptom); Ombrédane equation, Petrov sigmoid twisting symptom, (synonym: a "Sitting Bird Shadow" symptom), Pugachev symptom (synonym: a "Sickle" symptom); Rush symptom, Spasokukotskiy II symptom (synonyms: Williams symptom, a "Falling drop" symptom); Thevenard symptom, Titov symptom, Treves I symptom, a "Trident" symptom, (Frimann-Dahl symptom, Tsege-Manteuffel symptom, Tsulukidze symptom, Chugaev II symptom (synonym: Dzbanovskiy-Chugaev symptom); Chuhrienko III symptom, Schwarz II symptom,

Schiman symptom (synonym: Dance -alike symptom); Schlange I symptom, (Schlange II symptom), and Stierlin II symptom.

Conclusions. These materials, in our opinion, will help physicians of various specialties and scientists working with patients to quickly make a correct diagnosis of "intestinal obstruction".

For further development, this material may later be supplemented with new "equipment-specific" symptoms (new ultrasound, new computer-tomography symptoms, etc.).

Key words: intestinal obstruction.

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FORMATION OF PHARMACEUTICAL MICROBIOLOGY: WAY TO THE FUTURE FROM THE PAST

Today microbiology as a science includes a variety of areas: medical, sanitary, pharmaceutical, industrial, food, agriculture, veterinary. Given that the medicine tightly linked to the pharmacy, it is clear that one of the areas of training of pharmacists is to study the medical and pharmaceutical microbiology. In today's world, the problem of training specialists in pharmacy must meet the new requirements of society. Modern pharmacist must possess a high level of professional knowledge and skills, which are major components including science knowledge of microbiology control methods in the production of pharmaceutical products; ability to organize and control the production process, taking into account the needs, interests and opportunities for consumers.

Academician of AMS M.N.Solovyov was the first scientist- practices, which emphasized the need to study microbiology experts of pharmacy. He insisted on the

opening of microbiology at the Pharmaceutical Institute in 1932 [1]. Priority scientific direction of the department at that time were the development of highly efficient disinfectants, antiseptics and other antimicrobial agents. The results of fundamental researches of department staff have been implemented in practical epidemiology.

For decades, the best interests of the department were studying the activity of antibiotics, antibacterial and antifungal agents, disinfectants; study of adjuvant properties of bacterial endotoxins and study activity of drugs acridine series, synthesized in the Department of Pharmaceutical and Organic Chemistry of Institute. Shaping scientific school of reasonable microbiological screening, members of the department of microbiology in the period of 60-70 years, not only developed objective evaluation criteria for the selection of KhPhI synthesized substances, but also formed to create a line of antibacterial and immunological drugs from plant and animal materials.

Along with the formation of the scientific field during the time the main task of department staff were quality of teaching and formation of students' knowledge of the role of microorganisms in the existence of nature, their evolution, ecology, morphology and physiology, importance of microbes in infectious and noninfectious human pathology, the principles microbiological, serological diagnosis, specific treatment and prevention of infectious diseases, the importance of microorganisms in spoiling medicinal raw materials and finished dosage forms and immunological medicines and their use and value.

The study of the subject "Microbiology of the basics of immunology" knowledge-based students in philosophy, botany, anatomy with bases of histology, physiology, pathological physiology with bases of pathological anatomy, inorganic chemistry, Latin, physics, organic chemistry, biochemistry. At nowadays National University of Pharmacy has a lot of directions: "Pharmacy", "Clinical Pharmacy", "Technology of perfumery and cosmetics", "Technology of pharmaceuticals", "Laboratory diagnosis". Teaching courses in the department of microbiology, virology and immunology is on a credit system. The department developed criteria for evaluating educational activities of students. Score module is defined as the sum of current assessments of

student learning activities and assessment of the final module control (in points) that exhibited in the assessment of theoretical knowledge and practical skills for each module respectively. The maximum number of points that a student can get for learning module is 100, including the current educational activity - 60, according to the final module control - 40 points. Current student achievement measured by traditional grading scale, which are converted then into points.

Part of the credit-module system is also self-study student, which includes both of classroom and extracurricular work of students Assessment of students on the subject "Microbiology, Virology and Immunology" is rating, assigned point scale, taking into account all the ratings for individual modules.

Conclusion. Thus, the purpose of teaching students of pharmacy discipline, "Microbiology, Virology and Immunology" is to obtain qualitative and theoretical training of students' practical skills are sufficient.

Key words: discipline of microbiology, specialty, training of specialists.

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PLACEBO: HISTORY OF THE TERM ORIGIN. THE PLACE OF PLACEBO IN MODERN THERAPY. (REVIEW OF LITERATURE)

Placebo is an inert substance having two effects: positive and negative. The positive effect implies positive changes in the patient's organism manifested by objective changes: relief or disappearance of symptoms, development of favourable conditions for recovery. The negative effect of placebo (nocebo) lies in inhibition of treatment process. This mostly occurs because of the patient's awareness of side effects which this drug has. Thus, knowledge and proper use of placebo by the doctor may

contribute to prevention of polypragmasy in patients as well as the decrease of negative effects of administered treatment.

The aim of the work was to study the history of origin of the term “placebo”, its characteristics and the main mechanisms of its action as well as to determine the prospects of further investigations in this field. The study of pathogenetic mechanisms of placebo action made it possible to advocate further investigation of this problem as urgent and significant in understanding the processes of restoration of the organism as well as in developing the most rational therapeutic methods.

Conclusions. Study of pathogenetic mechanisms of placebo action is an urgent and prospective direction in understanding processes of recovery of the organism and elaboration of the most effective therapy methods. Relavent use of placebo in patients by family doctors cam provide prevention of polypragmasy and negative effects of treatment. Study of published data as to probable mechanisms underlying placebo-effect is promising.

CHRONICLE

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D.K. ZABOLOTNYI (DEDICATED TO 150TH ANNIVERSARY)

In 2016 the whole progressive world community commemorates our outstanding compatriot, scientist - epidemiologist, microbiologist, health care founder, social worker, teacher, professor, academician Danylo Kyrylovych Zabolotnyi.

Zabolotnyi was born on December 16, 1866 in the village of Chobotarka Olhopilskyi province Podilsk district in a peasant family.

In 1891 he graduated from the Natural Sciences Department of Physics and Mathematics Faculty of Novorossiysk University, and in 1894 - the Medical Department of Kyiv University of St. Volodymyr.

In 1898 D.K. Zabolotnyi created Russia's first independent department of medical microbiology in Petersburg.

He was the first to widely use antidiphteria serum treatment in Russia. He also studied the agent of syphilis - pale spirochetes and recommended to pay attention to microbes and their antagonistic activity.

D.K. Zabolotnyi actively supported the publication of medical literature and epidemiological training of personnel to combat the epidemics, improving the social conditions of the population. He was the first to begin conducting health education in rural areas, and as evidence of preventive medicine orientation, created the world's first department of Epidemiology (1920).

Since 1928 he was the President of the Ukrainian Academy of Sciences, and since 1929 - Member of the Academy of Sciences of the USSR.

D.K. Zabolotnyi was not only an outstanding scientist, epidemiologist, microbiologist, but the teacher, founder of medical education. Thanks to D.K. Zabolotnyi the medical institution for paramedics and midwives was opened in 1921 in Vinnytsia. In 1954 it was given the status of medical school.

Year 1966 was significant for the institution: in the honor of 100th anniversary of the great scientist the college was named after the academician Danylo Kyrylovych Zabolotnyi.

On December 28, 1986 the museum of Zabolotnyi was opened to 120th birth anniversary of the outstanding scientist.

In 1994, the college received the status of the institution of II accreditation level and was renamed into the Vinnytsia Medical College named after acad. D.K. Zabolotnyi, which was presented on December 16, 1994.

In 2011, a monument to the prominent scientist was opened on the campus.

Students and teachers of Vinnytsia Medical College are proud of their fellow countryman – D. K. Zabolotnyi, the titanium of medical opinion, the peasant, the

academician, the world-known scientist who took pride of place among the most famous physicians of the world.

Key words: D.K. Zabolotnyi, development of Microbiology and Epidemiology, medical education, Vinnytsia Medical College.