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ORIGINAL STUDIES

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STRUCTURAL CHANGES IN MICROVASCULAR ENDOTHELIAL CELLS OF BRAIN SHEATH AND SPINAL GANGLIA IN EXPERIMENTAL ENDOTOXEMIA. LIGHT AND ELECTRON MICROSCOPIC STUDIES

Introduction. Three major interfaces separate the extracellular fluid inside of central nervous system (CNS) from the changeable blood environment in order to maintain a highly controlled and stable microenvironment around neurons: at the level of brain capillaries it is the blood-brain barrier (BBB), which isolate the brain interstitial fluid from the circulating blood and is represented primarily by endothelial cells; at the level of choroid plexuses that is the blood-cerebrospinal fluid barrier (BCSFB) formed by epithelial covering, situated between the cerebrospinal fluid and the interstitial fluid of choroid plexuses; and, finally, the arachnoidal barrier (AB) separating the cerebrospinal fluid (CSF) from the dura mater interstitial fluid. Considering the fact that blood vessels inside of choroid plexus and those of dura mater do not comprise barrier properties, it becomes clear that the constant composition of CSF in the brain ventricles is primarily maintained due to close contacts between cuboidal epithelial cells covering the choroid plexus as well as by the arachnoid barrier cell layer isolating the CSF circulating in the subarachnoid space.

Because of the physiological protection of brain meninges from bloodborne bacterial pathogens, by means of all BBB, BCSFB and ABs, only a small number of bacterial pathogens are able to reach the subarachnoidal space and cause bacterial meningitis in both humans and animals. According to Pomar V. et al. (2013) the mortality rate was higher among patients with gram-negative bacteria-induced meningitis comparing to those with other varieties of bacterial meningitis. An important virulence mechanism of the Gram-negative bacteria is the ability to shed outer membrane blebs (vesicles) containing lipopolysaccharide (LPS), the main pathogenic components of E. coli. The conserved lipid-A moiety of LPS was identified as endotoxin while LPS circulation in bloodstream is referred endotoxemia.

Model of experimental endotoxemia had been produced as by both intracisternal, and intracerebroventricular direct inoculation of gram-negative bacterial suspensions into the CSF, as well as via intravenous administration of LPS. It is recognized that hypoxia as well as toxic and the infectious processes primarily lead to the damage of

endothelial cells of the microvasculature in different parts of the nervous system, which is accompanied by violation of morpho- functional characteristics of the BBB.
The vast majority of researchers showed that the main indicators of disturbances in BBB structural integrity are the increase in the level of pro-inflammatory cytokines, such as tumour necrosis factor-α - TNF-α, IL-1, IL-6, interferon gamma -IFNγ and albumins labeled with radioisotope of iodine (125I-albumin) in blood plasma and CSF. A significant BBB leakage in pial-arachnoid microvessels for sodium fluorescein was clearly demonstrated by Temesvári et all (1993). In addition, the plasma extravasations from pial venous vessels have been seen by means of intravital microscopy using fluorescence dyes. One of essential studies upon meningitis is the research carried by S.Copeland et all (2005) who for the first time evaluated the inflammatory reactions on adult healthy volunteers and mice after the LPS intravenous administration. The authors demonstrated that despite of a few differences, the levels of TNF-α, IL-6 and CXC chemokines in plasma of both mice and humans peaks at 2 h. Moreover, LPS - activated signaling pathway also resulted in enhanced iNOS expression through NFκB and blood-brain barrier opening in pial-arachnoid microvessels with subsequent neuroinflammatory response.
The electron microscopic investigation of BBB integrity disturbances in pia-arachnoid vessels at the experimental endotoxemia was carried out by two groups of researchers: Quagliarello et all [1986] and Quagliarello et all [1991]. The former considered that increase in permeability of microvessels is primarily related to significant raise in number of pinocytotic vesicles. The second group of authors, heading by G.E.Pallade, on the ultrastructural level showed the development of reversible meningitis after the intracisternal inoculation of Escherichia coli (0111:B4) lipopolysaccharide in rats. Using immunodetectable monomeric bovine serum albumin and 0.01% colloidal carbon black as tracers they demonstrated that the main exit pathways for tracers are open interendothelial junctions of pia-arachnoidea venules. However, it was not paid enough attention to the ultrastructural parameters of endothelial cells of the microvasculature's arterial part, which is also engaged in the exchange of substances in the brain meninges and spinal ganglia. In addition, the comparative characteristics of structural changes in endothelial cells with barrier capabilities (pia-arachnoid) and without them (spinal ganglia) have not been covered in a state of experimental endotoxemia.
It must be emphasized that because of the lack of lymphatic component of microcirculation in the brain arachnoid and pia mater as well as in spinal ganglia endoneurium the drainage of biological fluids is performed only by microcirculatory blood vessels.
Taken in mind the above mentioned, the aim of the present study was to examine the structural alterations taking place in endothelial cells lining all of microcirculatory bed vessels involved in the blood supply to the brain membranes and spinal ganglia during experimental endotoxemia.
Material and methods. The research was conducted on 20 white rats (weight 200-250 g) maintained in the animal care standard laboratory conditions approved by Azerbaijan Medical University. Animals were randomly subdivided into experimental and control groups. In the experimental group, lipopolysaccharide

(LPS, from *Escherichia coli*, serotype 0111:B4 InvivoGen, San Diego, CA 92121) was given i.v at 1 mg/kg. Control animals were given an equal volume of sterile saline. Two hours after injection of LPS or saline, rats were decapitated under ketamine anesthesia; the skull was opened carefully and pierces of brain cortices from both hemispheres together with associated meningeal elements were removed. After the abdominal and thoracic cavities being opened, the internal organs and the vertebral bodies taken out, a spinal canal was opened and spinal ganglia were removed from the soft tissue at the level of intervertebral foramen by help of special lancet. This method provides the minimum of spinal ganglia damage. The slices of brain cortices along with their meningeal elements and spinal ganglia then had been fixated in solution containing 2% Paraformaldehyde, 2% Glutaraldehyde and 0.1% Picrin acid prepared in Phosphate buffer (pH 7.4). After the postfixation procedures in 1% Osmium acid solution for two hours, the Spurr and Araldit-Epon blocks were prepared according to general methods accepted in electron microscopy. Semithin sections (1-2μm) obtained by the aid of LKB-III and Leica EM UC7 ultramicrotomes were stained with methylene blue, azure II and basic fuchsine as well as toluidine blue for further investigation by light microscope Latimet (Leitz) and photographing by digital camera Pixera (USA). The silver and gold ultrathin sections after being processed with 2% uranyl acetate solution and 0.6% lead citrate made in NaOH 0.1N were examined under the transmission electron microscope JEM-1400 at 80-120 kV.

Results. The particular attention in slides with an acute endotoxemia is attracted by the following alterations. First of all, it is the increased number of cells belonging to miyelomonocytic linage (monocytes and neutrophils) as in the lumen of microvessels as among the loose connective tissue elements around spinal ganglia.

Secondly, in comparison with control slides the deformations of varying degrees as well as destructive (shown by double arrows) changes in the sheath elements of brain and spinal ganglia are detected.

The other point, which gains attention, is evaluation of light unstained areas representing sites of edematous fluid extend in sub- , inter- and under sheath regions on the surface of both cerebral cortex and spinal ganglia. Analysis of obtained data demonstrates that all of the mentioned structural changes are definitely related to increased permeability in the brain sheath as well as spinal ganglia vessels during an acute experimental endotoxemia.

Remarkable point is that ultrastructural characteristics of enhanced vascular permeability at endotoxemia are found in all components of microcirculatory vessels located inside of pia – arachnoidea and spinal ganglia – beginning with arterioles and untill postcapillary venules.

Among the structural elements of endothelial cells the important role in transcellular transport of substances is played by the pinocytotic vesicles (caveolae). The results obtained from researchs on transgenic mice with lack of synthesis protein Cav1 showed that the vast majority of micropinocytotic vesicles in cytoplasm of endothelial cells are caveoles. The caveoles the diameter of which fluctuate at a range of 50-80 nm belong to micropinocytotic vesicles, that in the level of cell membrane have omega shape, while in cytoplasm the spherical. During an acute endotoxemia, in comparison to endothelial lining of brain meningeal vessels the increased number of

both free and linked caveolae are found primarily at the peripheral parts of the endotheliocytes of spinal ganglia microvessels. They are visible both on luminal and abluminal endothelial surfaces with possibilities of transendothelial channel formation.

Compared to control slides in those taken from experimental animals particular attention attracts open intercellular contacts, where adhesion points between the outer layers of plasma membranes of neighbor endothelial cells are not distinguishable. Moreover, in the wall of venules an interendothelial gaps, the diameter of which reaches up to 70nm, can be discerned.

It is of particular importance to notice the signs of endothelial cell swelling in peripheral regions of the venular endothelial cells with disturbances of their plasma membrane integrity, which all together indicate the incidence of primary type of necrosis. In our material indications of necrosis frequently observed also at junctional regions between three neighboring endotheliocytes of both arterial and venular microvessels, precisely in regions where peripheral part of one endothelial cell is wedged between two adjacent ones. The number of cytoplasmic protrusions on both the luminal and abluminal endothelial surfaces, especially at the venular microvessels is significantly greater compared to control sections.

Occasionally, on the randomly chosen fragments of the venular microvessels the defect of the endothelial coat indicating the regions of detachment of individual endotheliocyte from the surrounding connective tissue elements are being identified. The granular mass of blood plasma around and between bundles of collagen fibers is seen. Tear and violations in three-layered organization of the basement membranes surrounding microvessels with signs of increased vascular permeability are apparent.

The key step in the initial stage of host-pathogen interactions is the recognition of highly conserved structures of pathogens, called pathogen-associated molecular patterns (PAMPs), by their special receptors known as pattern recognition receptors - PRRs. Toll-like receptors (TLRs) being one of the PRRs, play a key role in activation of signaling cascades leading to the synthesis of proinflammatory and antiinflammatory molecules.

The purified LPS, that has been used in our experiment, represents the exceptional ligand of TLR4 among all other forms of PAMPs. Numerous studies have shown that TLR4 is expressed not only in endothelial cells, but also in human circulating endothelial colony forming cells.

According to its topographical position on the one hand, and expression of TLR4 on the other, the endothelial cells represent the first targets for intravenously administrated LPS. In addition, they express all types of accessory molecules needed for transmission of received signals in direction of transcription factor Nuclear Factor kappa-B (NF-kB), upon activation of which the upregulation of not only pro-inflammatory cytokines, but also proteins participating in regulation of the vascular permeability have been confirmed.

The endothelial cells are one of the most common destinations of caveoles, among all of human cells. As opposed to other forms of micropinocytosis (uncovered pinocytosis, clathrin coated pinocytosis) in the composition of the cell membrane covering caveoles besides cholesterol and glycosphingolipids, participate also

specific integral membrane protein caveolin-1 with molecular weight of 21 - 22 kDa (caveolin-1 - Cav1).

The caveolae dependent transportation of plasma albumins across the endothelial layer of arterial blood vessels to the perivascular area and participance of Cav1 in that process in normal conditions was approved by modern electron immunohistochemistry methods. Along with that, it was determined that endotoxin of E. coli contacting with TLR 4 of endothelial cells cause significant increase not only synthesis of inflammatory cytokines (IL-1, IL-6, IL-8, TNF- α and etc.), but also glycoprotein Cav1.

The increase in the number of caveolae, especially at the periphery of endothelial cells assumed as the first sign of enhanced vascular permeability. According to Sun Y. (2009) the phosphorylation of caveolin-1 in the oxidative stress increases the permeability of blood vessels as by means of trans -, so by paracellular transport pathways. Moreover, by increasing the eNOS expression caveolin-1 also activates synthesis of NO- oxidase promoting NO and peroxynitrite generation.

In transgenic animals lacking synthesis of caveolin-1 the impairment in adhesive contacts between endothelial cells along with decline in caveolae-dependent transcellular path for edema fluid formation was demonstrated. Furthemore, LPS also leads to down-regulation of tight junction proteins like zonula occludens ZO-1, occluding and ve-cadherin, which results in appearance of open interendothelial contacts.

It should be noted that in addition to the reactive nature of the changes have been observed, the acute endotoxemia results in the different scenery of endothelial cells destructive changes as well. Analysis of the available literature indicates that the main reason of those changes are reactive oxygen species (ROS) that can lead to endothelial cell dysfunction. According to F.Simon, R.Fernández (2009) endothelial cells exposed to LPS may generate ROS in just a few minites. Park et all (2004) showed that direct interaction of TLR4 with NAD(P)H oxidase is needed for not only LPS-induced ROS production but also NF-kB activation.

Under the ROS action, in certain cases along with disruptive changes in the cytoskeleton of endothelial cells and the expansion of endoplasmic reticulum cisterns, as well as the deformation of the cristae of mitochondria, the signs of necrosis in those cells could be determined. In all possibility the necrosis of endothelial cells is closely associated with the transient receptor potential melastatin 4 (TRPM4) protein, functioning as ion channel. Under fisiological conditions TRPM4 activation promotes Na^+ influx and depolarization. The unchecked TRPM4 activation under the influence of ROS in case of endotoxemia lead to Na overload with subsequent cell volume increase, endothelial blebbing and finally plasma membrane rupture. All mentioned data taken together indicate the death of endotheliocytes by I type of necrotic death.

It should be emphasized that in the current study the endothelial necrotic changes have been observed in all microcirculatory bed vessels, were frequently seen in regions of joining of three neighboring endothelial cells. It have to be noticed that mainly two: bicellular and threecellular interendothelial contact types were found between endothelial cells. If in bicellular connections the endothelial cells connected by tight junctions which contain claudins and occludins, then in threecellular contacts

are formed by means of protein tricellulin which forms the barrier to only macromolecules, without impact on the ionic conductivity. Perhaps this fact is the reason of oncosis in areas where one endothelial cell wedged between adjacent two cells.

Schubert-Unkmeir et all (2010) have shown that in vitro contamination of human brain microvascular endothelial cells with Neisseria meningitides induced an increase of permeability at prolonged time of infection. The authors concluded that enhanced BBB permeability at Neisseria meningitides is closely associated with the production of MMP–8 by endothelial cells, intimately contacting to bacteria. That leads to detachment of endotheliocytes from underlying matrix. According to the own data we can suggest that even in the absence of the immediate contact with whole bacteria the impact E.coli LPS on endothelial cells, which line the microvasculature (venules) either possessing barrier properties (pia-arachnoidea) or not (spinal ganglia), also results in loosening their connections with surrounding elements.

It should be added that the increase in the level of inflammatory cytokine TNF-α and the permeability of blood vessels with barrier characteristics, lead to disruption of the endothelial cell glycocalyx, which play a key role in selective permeability of blood vessels.

Conclusions. 1. The intravenous administration of E.coli endotoxin at a dose of 1mg / kg leads to development of acute inflammation being part of the innate immune response in white rats; 2. Open interendothelial contacts and increased number of caveolae observed in all parts of microcirculatory bed vessels involved in blood supply of brain meninges and spinal ganglia. The intensification of both the trans- and para-endothelial pathways for edema fluid transport and related mechanical along with destructive changes in sheath structure is more pronounced in the spinal ganglia; 3. Indications of endothelial cell oncosis with the disruption of its plasma membrane, as well as the partial absence of endothelial covering found only in the wall of venules. Necrotic changes in the peripheral parts of the endothelial cells, which is wedged between adjacent endothelial cells found in the wall of both the arteriolar and the venular microvessels.

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Key words: experimental endotoxemia, microvascular endothelial cells, brain meninges, spinal ganglia, ultrastructure.

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SUBMICROSCOPIC STATE RESPIRATORY ALVEOLI OF THE LUNGS IN DYNAMIC AFTER EXPERIMENTAL THERMAL INJURY

Introduction. Heat injury is one of the important issues in modern theoretical and practical medicine. With deep, large area burns along with skin damage, there are significant morphological and functional changes in tissues and organs of the body, including the lungs. One reason for this is a significant exogenous and endogenous intoxication, which occurs in the affected body. Due to little knowledge of ultrastructural changes of components of the respiratory department of lungs in severe burns, the study of submicroscopic state of aero-hematic barrier in the alveoli dynamics after experimental injury is relevant.

The aim was to establish submicroscopic structural changes in the components of the alveoli of the lungs respiratory in dynamics after experimental thermal injury.

Materials and methods. Experiments conducted at 20 mature white male rats. All manipulations with experimental animals were carried out in compliance with the rules "European convention for the Protection of vertebrate animals used for experimental and other scientific purposes" and under "Scientific and practical recommendations for the maintenance of laboratory animals and working with them". Burn applied with copper plates heated in boiling water. Size of the area impression accounted for 18-20% of the shaved body surface of animals. The results of histological studies showed depth skin lesion damaged corresponding to the third degree burns.

The experimental animals were divided into two groups: whites intact rats and animals with burn injury. The objects of the study were lung. To study the ultrastructural changes, the animals were decapitated using the guillotine during ketamine anesthesia on 7, 14 and 21 days, that according to modern ideas corresponds stage early and late toxemia and septic toxemia of burn disease.

For electron microscopic studies took pieces of the respiratory department of lungs, their fixed in 2.5% glutaraldehyde solution, post fixed with 1% osmium tetroxide solution in phosphate buffer. Further processing was carried out according to conventional methods. Ultrathin sections, made on ultra-microtome UMPT-7, contrasted by uranyl acetate, lead citrate according to Reynolds method and studied in the electron microscope PEM-125K.

Results. In the stage toxemia (7 days) in experimental burns set adaptive-compensatory processes and characteristics of destructive changes of alveolar epithelial secretory alveolocyte and walls of hemo capillary.

In the late stage of toxemia and septic toxemia (14, 21 days) after heat injury is undergoing profound changes submicroscopic structural components of the respiratory alveoli of the lungs. Developed significant degenerative-dystrophic changes aero-hematic barrier hemo capillaries and of alveolar macrophages. This significantly impairs gas exchange in the respiratory department of lungs.

In further research is planned to establish the degree of morphological changes in the respiratory department of lungs dynamics after experimental thermal injury under conditions of corrective agents.

Conclusions. 1. In the stage toxemia (7 days) in experimental burns set adaptive-compensatory processes and characteristics of destructive changes of alveolar epithelial secretory alveolocyte and walls of hemo capillary.
2. In the late stage of toxemia and septic toxemia (14, 21 days) after heat injury is undergoing profound changes submicroscopic structural components of the respiratory alveoli of the lungs. Developed significant degenerative-dystrophic changes aero-hematic barrier hemo capillaries and of alveolar macrophages. This significantly impairs gas exchange in the respiratory department of lungs.
Key words: alveoli of the lungs, submicroscopic state, thermal injury.

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MORPHOLOGICAL CHANGES OF MYOCARDIUM IN EXPERIMENTAL ISCHEMIA IN CONDITIONS OF USE CARDIOPROTECTORS

Introduction. Insufficient efficiency of modern cardioprotectors leads to the search for new molecules with a protective effect on ischemic myocardium, suitable for a new more effective and safe drug. In this regard, the perspective is 4-oxo(amino)quinazoline derivative (compound PK-66), whose pharmacological properties (antihypoxic, antioxidant, act protective) is well matched with the pathogenesis of CHD [Альчук, 2011].
Objective: to evaluate the morphological changes of the myocardium and give comparative characteristics of cytoprotective effect of PK-66 compared to Mexidolum and Cordaron under conditions of acute experimental ischemia.
Materials and methods. The study was conducted on 35 non-linear male rats weighing 150-220 g, divided into 5 groups of 7 animals each. Myocardial ischemia modeled by input to animals within 7 days noradrenaline hydrochloride in increasing doses [Попович, 1990]. Cordaron (10 mg/kg i/o), Mexidolum (100 mg/kg i/o) and compound PK-66 (10 mg/kg i/o) were injected to rats daily before 35-45 minutes to norepinephrine. To evaluate the morphological changes of the myocardium of the heart, muscle pieces were fixed in 10% formalin solution neutral. Specimens prepared by the standard method, histological sections 5-7 microns thick were stained with hematoxylin and eosin, Van Gieson's mixture of picric acid and acid fuchsin, a combination of PAS-reaction with alcian blue [Автандилов, 2007].
Microscopy and histological preparations photographing performed using a light microscope OLIMPUS BX 41 at magnifications of 40, 100, 200, 400 and 1000 times. Morphometry and statistical analysis was performed by the program «Quick PHOTO MICRO 2.3».
Results. In the group of untreated animals with experimental myocardial ischemia model (EIM), there were significant changes in the circulatory nature in the form of

significant expansion of peri and endomysium zone (38,8±0,489 micron and 11,6±0,371 micron respectively), indicating interstitial edema of myocardium.
In the case of using *Cordarone* in myocardial interstitial tissues adjacent to the vasculature, there was a small focal perivascular infiltration of histiocytic elements and lymphocytes. Kept stromal edema of fibrous tissue, but to a lesser extent (width of the zone perimysium was 37,2 ± 0,785 micron, endomysium - 9,4 ± 0,635 micron). Kept swelling part of cardiomyocytes with marked eosinophilia of the cytoplasm, without pycnosis of nuclei and myofibrils domain decomposition. Kept contracture areas of damaged cardiomyocytes, but to a lesser extent than in the group of control animals.
On the background of use *Mexidolum* breadth of perimysium zone averaged 35,3 ± 0,731 micron, endomysium - 7,6 ± 0,305 micron. The thickness of cardiomyocytes averaged 9,2 ± 0,442 mm, the area of intersection of the cross - 89,5 ± 1,536 micron^2. Ie stromal and cellular edema maintained, but was moderate. On the part of hemo-microcirculation vessels registered small venules-capillary congestion, mainly in sub endocardial area. Hemorrhage and erythrocyte extravasation were not found. The endothelium of blood vessels and heart ventricles had a normal appearance. Stromal cell infiltration was expressed slightly and represented as single histiocytes that are defined irregularly. Fragmentation of muscle fibers throughout not observed, but met few wavy twisted fibers. On a more throughout cross striatus of typical cardiomyocytes was expressive and longitudinal - not always differ.
On the background of use drug *PK-66* width of perimysium zone averaged 29,38±1,265 micron, endomysium - 5,0±0,333 micron, and was similar to that of in control. The thickness of cardiomyocytes averaged 8,1±0,546 micron, the area of intersection of the cross - 68,5±2,0 micron^2. There were no significant signs of cellular and stromal edema. In other cardiomyocytes clearly viewed transverse striatus, the nucleus of cardiomyocytes had correct rounded-oval form, cross-sectional area of averaged 28,4±0,777 micron^2. Chromatin condensation revealed less than 15% of the nuclei and was mainly parietal location.
Thus, analysis of histological preparations of a myocardium on optical light level shown in all experimental groups of animals on the background of norepinephrine occurred damage of cardiomyocytes, vascular changes in hemocirculation and circulatory disorders of the heart muscle.
The degree of severity and prevalence of pathological changes dependent on the applied drugs. The biggest changes were observed in the microstructure of myocardial control animals after administration of norepinephrine without correction. Thus expansion of peri- and endomysium constituted 38,8±0,489 micron and 11,6±0,371 micron compared to the intact group 27,0±0,614 micron and 4,4±0,339 micron, respectively, $p<0,001$. In this case met infarction areas with severe dystrophy, edema and even death of individual cardiomyocytes with formation of (in response to alteration) small pockets of productive inflammation, consisting mainly of macrophages, lymphocytes and fibroblasts small amount. Inflammation shows that on 7 day after use without correction noradrenaline in myocardium of rats is not yet finished remodeling of damaged areas and continued proliferation of fibroblasts in the area of inflammation.

The use of the PC-66 as assistant drugs helped reduce the extent and prevalence of pathological changes in myocardium caused by experimental ischemia.
Conclusions. Prophylactic injection of compounds PC-66 is accompanied by a clear protective effect on the heart muscle damaged by noradrenaline, dominating by protective effect on Mexidol and especially Cordaron.
Key words: myocardium, morphological changes, cardioprotective drugs, compound of PK-66, Mexidol, Cordarone.

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PATHOMORPHOLOGICAL SPECIFIC CHARACTERISTICS OF INNER ORGANS AT GENERAL PERITONITIS AS COMPLICATION OF THE LARGE INTESTINE CANCER

Introduction. Acute general peritonitis is one of the most severe complications of many diseases of the organs of the abdominal cavity, in particular, if it arises against a background of already existing pathological changes, caused by cancerous disease proper, as it has a number of pathogenic peculiarities which significantly complicate its clinical course and lead to unsatisfactory results of therapy.
Investigation of the large intestine cancer influence upon pathomorphological changes of inner organs of the dead patients, operated on because of acute general peritonitis, will enable to understand better the influence of cancerous disease upon the clinical course of the given complication.
Therefore, *the aim* of the research was to establish pathological changes of the inner organs in case of acute general peritonitis which arose as a result of complication of the large intestine cancer.
Materials and methods. To implement the object we have examined 32 bodies of the dead patients with acute general peritonitis. 18 patients constituted the basic group where peritonitis occurred as a result of complication of the large intestine cancer. The group of comparison was made up of 14 patients where tumorous diseases of the large intestine were not the cause of peritonitis. Both groups were representative according to the age, sex, stage, degree of peritonitis severity and complexity of the carried out operative intervention. Histological sections were stained with hematoxylin and eosin. Descriptive method of the revealed pathological changes was used.
Results. The obtained results of the research are evidence that acute general peritonitis, which arose from perforation of the wall of the large intestine by the malignant tumour, has a number of certain pathomorphological specific

characteristics distinguishing it from peritonitis of not tumorous etiology. Thus, hepatic tissue in case of peritonitis development is characterized by the development of fatty degeneration with the phenomena of fat necrosis, however, the latter one has focal character against a background of oncological process, moreover, expressed edema of Diesse's spaces is present.
The origin of peritonitis results in degeneration of the epithelium of the proximal tubules in the kidney. For all this, glomerular collapse and evident oedema of intersticium of the medullary substance, medullary zone as well as stasis of the microcirculatory bloodstream are additionally marked at malignant growth.
Similar changes, namely, the development of acute respiratory distress-syndrome, occur in the lungs in case of both "peritonites", but much more area of filling the respiratory part of the pulmonary tissue with swollen fluid, erythrocytes, is observed at oncological pathology. It should be noted, that, namely, at acute general peritonitis of oncological etiology, hyaline membranes and fibrin, in general, are less formed.
Conclusion. Acute general peritonitis that arose against a background of malignant growth of the large intestine is characterized by the evident edema of the hepatic and renal tissue, glomerular collapse and stasis of the microcirculatory bloodstream of the latter one, as well as larger area of the lesion by the swollen tissue, erythrocytes of the respiratory parts of the pulmonary tissue.
Key words: large intestine cancer, acute general peritonitis.

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MORPHOFUNCTIONAL CHARACTERISTIC OF THE SPONGY BONE REGENERATE IN THE AGE ASPECT

Introduction. The problem of bone reparative osteogenesis in the scientific and technological progress does not lose its topicality. Disability due to injuries of the locomotor apparatus steadily is third in nosological structure of primary disability in Ukraine. But if numerous works were devoted to fractures of tubular bones, injuries of spongy bone are almost not studied.
The aim of this work was to study the reaction of spongy bone tissue to mechanical damage in animals of different ages and to determine reparative osteogenesis stages.
Materials and Methods. The experiment involved 18 male white rats 3rd, 9-th and 20-th months of age. Under ketaminophen anesthesia the perforated defect was applied on the medial side of the body of the calcaneus using dental Bor 1 mm of diameter. Surgical wound was sewned, animals were taken out of anesthesia and kept in vivarium conditions. The animals were taken out of the experiment by decapitation under ether anesthesia on 3rd, 15th and 24th day after operation. We conducted osteometry, light microscopy with morphometry, scanning electron microscopy, we

determined the chemical composition of the place of the accident, spectrophotometric method and probe analysis.

Results. When perforated defect of calcaneus is a violation of its integrity, leading to rupture of the periosteum, trabecular bone fracture, rupture of endostum, blood vessels, nerves and bone marrow. Connective tissue with blood vessels and nerves surrounding the bone is damaged to a lesser degree.

On the 3rd day after the application of defect the basic morphofunctional features are leukocyte-fibroblastyc and macrophagal dyferones, their heteromorphy and new intercellular interactions that led to clearing from cells and intercellular structures in areas of damage. All this together with the beginning of angiogenesis and migration of fibroblasts into the zone of damage precedes the regeneration histogenesis. On the 3rd day of the experiment we observed increasing of calcium, zinc, magnesium and decreasing of water, iron, potassium and sodium content in area of defect. Micronutrient content in the regeneration decreases with age.

After 15 days of injury, calcaneus bone regenerate is formed mainly by fibroreticular tissue. The method of scanning electron microscopy showed signs of the initial stage of ossification of the organic matrix that correlates with histology. Compared to the previous study period we marked increasing of calcium content in the area of the defect.

On the 24-th day of study the area of defect is filled with bone tissue, represented by small and large newly trabeculae with numerous osteocytes. We observed high activity of reparative processes, especially in young and mature animals. Reparative processes in calcaneus at this stage of experiment is characterized by restructuring of reticulofibrous tissue into spongy tissue. These processes occur most rapidly in young animals. Probe microanalysis of calcaneus bone regenerate on 24-th day after the injury indicates that the content of osteotropic elements, calcium and phosphorus, reached the maximum level. The concentration of calcium and phosphorus in mature animals is in the middle between same indicators in young and senile animals. The chemical composition of injured bone is characterized by increasing of copper content. The younger the animal, the higher the concentration of macro- and microelements.

Conclusions. Mechanical injury results in considerable reaction of spongy bone and organism as a whole, aimed at restoring the integrity of bone. It is noted stages of reparative processes and specifical changes of all investigated indicators for each term of osteogenesis.

Key words: spongy bone, reparative osteogenesis, morphometry, scanning electron microscopy, spectral analysis.

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MORPHOFUNCTIONAL STATE OF HORMONAL STATUS OF ANIMALS UNDER INFLUENCE OF XENOBIOTICS

Introduction. The aggregate of all nonspecific changes occurring in the organism under the influence of harmful factors include the stereotypical set of protective and adaptive reactions and characterizes the state of stress. The most complete and stable adaptation of the body in stressful situations is carried out by the interaction of a number of functional units of the neuroendocrine system.
The need to study the stress response of the hypothalamic-pituitary-adrenal, thyroid complexes is due to a complex interaction of these systems at various levels of the organization in the conditions as the norm and pathology.
Materials and methods. In this article there was spent an irvestigation of hormonal status of animals in toxicologic experiment on white mice of Vistar population after 45 gays of peroral jeding of oqueous solution 1/100 and 1/10 neonols. Upon completion of subacute experiment determined hormones and endocrine tissue hormones radioimunologicheskimi methods using standard kits for determination of hormones.
Results. Test substances violated the dynamics of thyroxine, glucose, calcitonin, adrenocorticotropic hormone and follicle. AF9-12 AFS9-6KM and increase the content of serum T_4, ACTH, glucose, FSH decreased T_3, insulin, calcitonin, TSH, LT, glucagon, do not affect the amount of progesterone, testosterone, prolactin. Test compounds AF 9-12 and 9-6 KM APS has a significant impact on the content of prostaglandins and leukotrienes. Observations showed a similar effect on their metabolism of biologically active compounds. Neonols increased level PGE2, PGE, 6 keto - PTF1, leukotriene B_4. The drug reduces the pool of PGE_1, PGE_2 and leukotriene C_4.
Conclusion. The results showed that under influence of xenobiotics there were observed some changes of functial activity of system of hypothalamo-hypophysis-cortical substance of adrenal glands, activity of thyroid gland, sempato-adrenal struetures, sexual hormones. This conjians an existence of complex of interconnected mechanisms of adaptation disturbance to injurious influence.
Key words: hormonal status, xenobiotics, mice of Vistar population.

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EXPERIMENTAL STUDY THE EFFECT OF KVERTULIN ON THE PROCESSES OF HEALING OF TRAUMATIC INJURIES OF ORAL MUCOSA OF RATS

Introduction. The wounds of soft tissues of the maxillofacial area is the leading injuries of the face. Clinic of wounds of soft tissues of the face and the flowing of healing have its own characteristics and have complications. Presence of complicated healing, in some cases, requires a complex approach to the determination of treatment.

Purpose of the study – to explore the effect of Kvertulin on the conditions of healing of traumatic injuries of the oral mucosa of rats.

Material and methods. The experiment was conducted on 20 male rats Wistar which were on the standard conditions of stay in the cells of the vivarium of VNMU named after Pirogov. The age of the animals is 5 months. The weight of the rats was in the range of 240-270 g.

The rats were divided into 2 groups: control and experimental. Control group - 10 rats with the injury of the oral mucosa; experimental group - 10 rats with injured oral mucosa,which in the day of injury and two weeks later was added to the food Kvertulin 200 mg per kilogram of rat.

Results. Kvertulin is a complex drug containing bioflavonoid quercetin, the prebiotic inulin, calcium citrate (resolution of Ministry of Health of Ukraine №05.03.02. - 06/44464 from 17.05.2012). Inulin has an antidysbiotic effect, stimulating the growth of probiotic microflora and eliminating the phenomenon of dysbiosis. Quercetin possessing P-vitamin activity, has antioxidant, membrane- and hepatoprotective effect. Calcium citrate is the most lightest digestive form of calcium, stimulates bone mineralization, eliminating the effects of osteoporosis.

Clinical evaluation of the wound surface of the cheeks were carried out daily from the 4 day of experience. Complete healing (100%) of standard traumatic wounds of cheeks of the control group of animals occurred on the 12th day, of the experimental group - on the 10 day. The results of daily observations of the dynamics of the processes of healing traumatic wounds of buccal mucosa show that the use of Kvertulin affects positive on healing post-traumatic injuries of the soft tissues of the oral cavity reducing the healing time of 2±0,8 days.

Conclusions. 1. Using of Kvertulin effect positively on the healing of traumatic injuries of the oral mucosa of rats. 2. Kvertulin reduces the healing time post-traumatic injuries of the oral mucosa of rats at 2 ± 0,8 days. 3. Kvertulin reduces the healing time of post-traumatic injuries of the oral mucosa of rats indirectly through P-vitamin activity and antioxidant, membrane-protective, hepatoprotective effect, by stimulating its own defense forces. 4. Using of Kvertulin significantly reduces the amount of post-traumatic complications at the healing of wounds of the maxillofacial area.

Key words: experiment, rats, injury of the oral mucosa, Kvertulin.

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INFLUENCE OF HYPERHOMOCYSTEINEMIA ON NONALCOHOLIC FATTY LIVER DISEASE FORMATION IN RATS

Introduction. Nonalcoholic fatty liver disease (NAFLD) is the most common chronic disease that covers 10-40% of the population. Despite the large number of works devoted to the pathogenesis NAFLD, some issues are still not understood. One of the reasons of NAFLD is hyperhomocysteinemia (HHC). Described many mechanisms of pathogenic action HHC. The main among them is inhibition of methylation, activation of oxidative stress and proteine homocysteinylation processes. These mechanisms trigger other pathological processes - genome destabilization (as a result of reducing the degree of DNA methylation), dysregulation of some redox-sensitive genes, reducing the level of hydrogen sulphide synthess, thrombophilia, etc.

Now, however, practically no studies on the effect of HHC on the development of NAFLD. The purpose of the research was to study the effect of chronic hyperhomocysteinemia on NAFLD formation in rats.

Materials and methods. The study was carried out on 40 non-linear rats who were on a appropriate diet and had free access to drinking water. Rats were divided into 4 groups

Group 1 - control - intact rats, which were kept on a standard diet (10 rats);

Group 2 - a standard diet with a daily homocysteine thiolactone administered at a dose of 100 mg / kg (10 rats);

Group 3 – high fat diet without homocysteine thiolactone (10 rats);

Group 4 - high fat diet with homocysteine thiolactone administered at a dose of 100 mg / kg (10 rats).

After the experiment functional status of rat liver, intensity of oxidative stress and antioxidant defense, and steato- and fibrogenesis were assessed. Also were examined histological sections of liver tissue.

Results. Nonalcoholic fatty liver disease with chronic hyperhomocysteinemia leads to the progression of oxidative stress in rat liver tissue. This is manifested by increased activity of NADPH-oxidase, the amount of protein carbonyl groups in liver homogenate and concentration of malondialdehyde in both liver homogenate and in serum. This reduces the activity of antioxidant enzymes, including thioredoxin reductase, glutathione peroxidase and superoxide dismutase in serum. Presence of hyperhomocysteinemia significantly increases the number of hepatocytes with cytoplasmic lipid droplets and increases the concentration of triglycerides in liver homogenate. The data show that homocysteine is one of factors of pathological changes in liver.

Conclusion. Chronic hyperhomocysteinemia significantly accelerates NAFLD formation in rats that are on a high-fat diet.

Key words: nonalcoholic fatty liver disease, homocysteine, hyperhomocysteinemia.

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MORPHOLOGICAL SUBSTANTIATION OF MULTIMODAL ANALGESIA IN HYPERALGESIA TREATMENT

Introduction. The problem of pain and analgesia occupies a central place in modern medicine. The treatment of pain, particularly in the postoperative period, traditionally includes opioid analgesics and NSAIDs. Effectiveness of their use is often limited by the development of specific side effects, so the problem of finding new approaches to correction of hyperalgesia remains relevant. Among the main reasons for the inadequate postoperative analgesia in children: the absence of universally and simple methods for assessing the severity of pain in pediatrics; using mostly narcotic analgesics. Inadequate analgesia in the early postoperative period worsens the course and prognosis of this period in children and promotes the development of hyperalgesia. Hyperalgesia - a state of hypersensitivity to pain. Hyperalgesia implemented primarily at the spinal cord and intensyvosti associated with increased pain and increased risk of chronic pain.
Objective: morphologically justify the action of drugs of different pharmacological groups (opioidnyh and neopioidnyh analgesics, local anesthetics) and their combinations in the treatment of hyperalgesia.
Materials and methods. In study 50 non-linear rats and 50 maice with weight of 20-25 g was used. As a model of hyperalgesia carrageenan edema was used (0,1 ml, 1% sol.). Carrageenan edema was modeled by sublantar injection of 0,05ml 1% carrageenan solution (Sigma, USA) in the animal's right hind limb. Obseravtion of the ptostaglandin edema development in animals of both sexes was conducted at the 3rd hour (development pick) after the flogogen injection. Animals was divided into 4 groups. I – carrageenan edema without treatment (control group), animals of the II group was injected fentanyl (5 mcg/kg) intaperitoneally, animals of the III group was ingected bupivacaine (25 mcg/kg, 1-2ml) in the perinevral space, animals of the IV group was injected ketamine.
Results. Using of fentanyl in high doses in animals can lead to opioid-induced hyperalgesia, which is accompanied by skin morphological changes after carrageenan injection. On the 3rd hour after fentanyl injection next morphological changes was observed – alteration zone was very spread, without clear borders, with the necrosis development in it's center (thickness of necrosis tissue was under 5 mm) with expressed perifocal reactive changes in the form of significant inflammation (reactive changes zone thickness under 7 mm), significant microcirculation violations took place.

Conclusion. Using of local analgesia methods with bupivacaine almost covpletely negates this changes, and while ketamine using in tissue was observed changes similar to morphological changes after fentanyl infusion, but they were less expressed.

Key words: hyperalgesia, carrageenan, edema, analgesia.

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STRUCTURAL ORGANIZATION NUCLEI OF HUMAN FETUSES MEDULLA OBLONGATA IN 34-35 WEEKS OF FETAL DEVELOPMENT

Introduction. In the available scientific literature describes the development of the nuclei of the medulla oblongata in the prenatal ontogenesis in the early stages of gestation, however, remain insufficiently studied issues of differentiation of nerve cells and the formation of nuclei in the late stages of intrauterine development of the fetus.

Materials and Methods. Conducted anatomical and histological study of 14 human fetuses. The gestation period is 34 to 35 weeks of fetal development. Parietal-coccygeal length is 335,2±12.4 mm, weight – 2347,4±68,4 g.

Material for research was obtained as a result of late abortions in Regional pathoanatomical Bureau in Vinnitsa, and then fixed with 10% neutral formalin solution. Malformations of the Central nervous system was absent. Made from paraffin blocks underwent serial horizontal slices of the medulla oblongata thickness 8 to 10 microns. The preparations were stained with hematoxylin-eosin, toluidine blue and Van Gieson's Stain.

Results. According to morphometry the length of the medulla oblongata is 13,8±0.4 mm, the anterior-posterior size of the medulla oblongata at the middle of the olive – 9,1±0,2 mm transverse size – 10,3±0,2 mm.

The nucleus olivaris principals have the form of a winding gear of the plate. The area of a right of the nucleus olivaris principals human fetus at 34-35 weeks is 2,13±0,05 mm^2, of the left - 1,98±0,04 mm^2. The neurons of the olive inferior the complex oval or spherical shape. The average values of the square and the size of the neuron of the medial extra of the nucleic olivarisare, respectively, 158,2±5,8 μm^2 and 18,6±0,4 x to 9,8±0,3 μm, the nucleus olivaris posterior - 145,21±5,3 μm^2, 13,17±0,3×11,24±0,3 μm, the nucleus olivaris principals - 157,21±6,0 μm^2, 15,38±0,4×11,22±0,3 μm.

Nucleus ambiguus in fetuses 34-35 weeks has an irregular or oval shape. Nerve cells nucleus ambiguus polygonal, pear-shaped. The average size of a neuron 270,12±8.7 μm^2, the size – 18,78±0,5×14,12±0.3 μm.

The nucleus dorsal of the hypoglossal nerve in the fetus 34-35 weeks ellipsoidal shape, is located in the medulla oblongata somewhat lateral to the midline at the

bottom of the IV ventricle, and formed of large polygonal nerve cells. The average area of a neuron – 301,1±9,3 μm^2, the size – 18,86±0,5×15,65±0.5 μm.
Dorsal nucleus of vagus nerve located at the bottom of the fourth ventricle in the caudal division of the medulla oblongata dorso-lateral to, and in the middle section of the lateral nucleus of the hypoglossal nerve. The dorsal nucleus of vagus nerve consists of nerve cells that have an irregular polygonal shape, spherical, oval and verminophobia. The average area of a neuron is equal to 226,03±6,2 μm^2, the size – 20,19±0,6×12,52±0,3 μm.
The limits of the nucleus solitary tract and the spinal nucleus of the trigeminal nerve is relatively well defined. The average area of a neuron – 104,86±3,1 μm^2, the size – 11,1±0,2×9,4±0,2 μm.
Conclusions. 1. On the preparations of the medulla oblongata of human fetuses 34-35 weeks of intrauterine development of the neural complexes are clearly separated and defined. The largest area of the group are motor neurons that form the nucleus of the hypoglossal nerve.
2. In the structure of the olive inferior of the complex established that the neurons have the same cytometrics the parameters of all the nucleus olivaris.
3. In sensory cranial nerve nuclei are studied neurons in two types.
4. The neurons of the dorsal nucleus of the vagus nerve are more differentiated compared with neurons sensitive nuclei of the medulla oblongata.
In the future further developments it is planned to establish regularities and to determine the topography of the neurons and cells neurop using the expression of immuno-histochemical markers.
Key words: morphometric parameters, medulla oblongata, nucleus of the medulla oblongata, prenatal ontogenesis.

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NEUROPROTECTIVE EFFECTS OF NMDA-RECEPTOR ACTIVITY MODULATORS IN ISCHEMIC INJURY OF EYE (EXPERIMENTAL INVESTIGATION)

Introduction. Diseases of the visual analyzer of ischemic genesis pathogenetically associated with post reperfusion damage of the retina and optic nerve
Our attention as a promising neural retina protectors attracted blockers polyamine site - drugs that have found their use in clinical practice for the treatment of Alzheimer's disease (memantine) and Parkinson (amantadine), ie neurological nosology in the development of neuro destructive phenomena in which the leading role played by excessive activation NMDA-receptor

The aim - to prove experimentally the possibility of increasing the efficiency of neuro retino protection by identifying the most active drug with blocking action on NMDA-receptors in ischemic lesions of the retina and install it conditionally effective dose

Materials and methods. Assessment of neuro retino tread properties NMDA-receptor blockers conducted on 66 male rats Wistar weighing 160-190 g.

Ischemic destruction of the retina modeled in conditions of transitive ischemia on models of ischemia-reperfusion (IR) of eye. IR achieved by imposing retrobulbar ligatures on left eye rats for 1 hour. After 60 min. after ischemia, ligatures gently dissolved and removed. Circulation quickly restored independently

Investigational medicinal products injected once in therapeutic mode after 30 minutes after the imposition of retrobulbar ligatures.

Assessment of the process neuro retino destruction was carried out at the end of the first day of IR defining activity NSE by a method ELISA using sets NSE ELISA KIT (DAI, USA) on device of company "Hipson" (Czech Republic) [Ходаківський, 2014].

Quantitative data was treated using the statistical analysis StatPlus 2009. We used parametric Student's t criterion in the case of normal distribution of variation row, nonparametric criterion W White - in his absence. The difference was considered statistically significant at $p < 0,05$.

Results. The study showed that the imposition of ligatures retrobulbar without further delay is not accompanied by the development of neuro destructive processes in the retina and optic nerve of experimental rats. In favor of this assertion indicated low activity marker of membrane integrity breach of neurocyte – NSE.

Conditionally effective neuro cyto protective dose of magnesium sulfate solution to our entire screening dose is 250 mg/kg i/v. On the background of the introduction of this solution exactly in dose of 250 mg/kg i/v was noted minimum increased activity of NSE in the post acute reperfusion period. So its average value was $1,20 \pm 0,116$ ng/ml, less than 2.9 times relative measure of control pathology correlate the activity to amantadine sulphate in dose of 2.5 mg/kg i/v and memantine in dose of 20 mg/kg i/v. Increasing dosage of magnesium sulfate solution 100 mg/kg i/v did not contribute to even greater de-escalation of activity NSE, though its significance were comparatively lower than with the dose of 150 mg/kg i/v. Thus, given the different values NSE activity is reasonable definition conditionally effective dose of such administration which contributes the maximum de-escalation investigational enzyme activity, ie 250 mg/kg i/v.

The maximum decrease in activity of neural marker of destruction against the backdrop of enteral introduction of Memantine occurred in its application the dose of 20 mg/kg. The effectiveness of this drug was comparable to the effect of amantadine sulphate the dose of 2.5 mg/kg i/v solution and magnesium sulphate in conventionally effective dose of 250 mg/kg i/v. Reduced activity NSE relative to control group of pathologies when administered to rats memantine with IR of eye with conditionally effective dose of 20 mg/kg were within the limits of 64.0% ($p < 0.05$). Twofold increase as well as decrease twice conditionally effective dose of memantine has not found a positive reflection of the weakening of neuro destructive phenomena in post reperfusion period.

Conclusions. 1. Application for ischemia-reperfusion eye studied blockers NMDA-receptors in conventionally effective doses contributed maximum de-escalation of activity NSE regarding animal control disease, whose value against the background of memantine (20 mg/kg i/s) and solutions amantadine and magnesium sulfate (respectively 5 and 250 mg/kg i/v) significantly decreased at the end of the first day average at 2.8, 6.0 and 2.9 times. 2. Drug-leader, promising to further develop neuro protective retino program hypoxic-ischemic lesions of the visual analyzer is amantadine sulphate solution in conventionally effective dose of 5 mg/kg i/v.

Key words: ophthalmic ischemia-reperfusion, neuron specific enolase, NMDA-receptor antagonists, neuroretinoprotection.

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THE INFLUENCE OF 4-[4-OXO-4N-QUINAZOLINE-3-IL] BENZOIC ACID ON THE ORIENTATION -BEHAVIOR REACTION OF RATS UNDER THE CONDITIONS OF CHRONIC IMMOBILIZATION STRESS

Introduction. In the previous researches it was established that the substance 4-[4-oxo-4N-quinazoline-3-il] benzoic acid (compound PK-66) fosters the increasing of physical activity in rats chronic immobilization stress (ChIS), that was testified likel increasing the duration of swimming test.Whereas the drawback of some actoprotectors is excessive activating influence on the behavior of people and animals, as in normal conditions, as after physical strain, it was interesting for us to research the influence of the compound PK-66 on the individual behavior of the rats under the conditions of 15 days hypokinesia,as an extreme factor.

The goal: To research the influence of 4-[4-oxo-4N-quinazoline-3-il] benzoic acid (compound PK-66), in comparison with 2-ethylbenziomydazol hydrobromid (bemithyl)on the affectively-behavior reaction stressed by hypokinesia rats in test “open field”.

Materials and methods. The characterization of the influence of the 15 days coursework administration of the compound PK-66 and reference-preparation on the oriental-research and affectively activity rats under the conditions of the hypodynamia, it was learnt on the model of the chronical immobilization stress. The compound PK-66 in the dose of (3 mg/kg intragastrically) and bemithyl (31mg/kg intraperitoneal) was administrated one time per day during the whole period of attendance. Oriental-research and affectively activity were estimated in the research called “open field”. The horizontal and pediment search activity was taken into account.

Results. The incurred research showed us that 15 days hypokinesia, as powerful stress factor, has led to a decreasing of the oriental-researching and affectively

reaction of the rats. At that it was attended the probable decreasing of the motion activity at the average 81% and 82%, as an exploratory activity on 69%relative to control group. ChIS also has led to the increasing of dejection acts and grooming at the average by the factor of 4-[4-oxo-4N-quinazoline-3-il] benzoic acid. The course administration to the rats under the conditions of the chronic hypodinamia compound PK-66, alike to bemithyl, has caused the probable increasing of the number horizontal and pediment movement on 460 and 394% ,483 and 400% relative to control animals. At that, under the conditions of the administration of the (ChIS) to rats compound PK-66,as a reference preparation the increasing of the exploratory activity relatively on 262 and 256%($p \leq 0,05$), but the quantity of the dejection acts and the grooming episodes probable has decreased at the average by a factor of 3.2 and 2.4.So, the daily therapy of the hypodynamic rats by the compound PK-66, as bemithyl upgrade the oriental-exploratory animals' behavior ,but decrease the level of emotional lability. At the same time, compound PK-66 predominated benchmark actoprotector for the ability to increase the quantity horizontal and pediment movements on 66 and 83%, for ability to decrease emotional anxiety by a factor of 1,5 relative to ($p \leq 0,05$).

Conclusion. In such a manner, received experimental info tell us, that course daily administration to rats under the conditions ChIS4-[4-oxo-4N-quinazoline-3-il] benzoic acidacid (3 mg/kg intragastrically) alike as and bemithyl (31mg/kg intraperitoneal) increase movement, exploratory activity of the rats, decrease the level of emotional anxiety relatively to control animal group, that can show us antistress and anxiolytic ability.

Key words: actoprotective activity, 4-[4-oxo-4n-quinazoline-3-il] benzoic acid, bemithyl, hypokinesia, test "open field".

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MORPHOLOGICAL STATE OF RETROSTERNAL GLAND, SPLEEN, LYMPH NODES OF RATS AFTER EXPOSURE OF ELECTROMAGNETIC FIELDS AND TINCTURE OF ECHINACEA PURPUREA

Introduction. One of the hazards of the environment is an electromagnetic field, which can impact exclusion as in industrial production and domestic violence. Outstanding issues today is to determine the effects of this impact on the immune system in general and its individual organs, such as retrosternal gland, spleen, lymph nodes. The functioning of the immune system provides an identity and integrity of the human body in the conditions of life in the hostile environment.

The aim of the study was manifested study the reaction of the immune system to influence the electromagnetic field of high voltage and low frequency using the following immunostimulant - 7% alcohol tincture of Echinacea purpurea.
Materials and methods. The experimental group of rats of 50 pieces irradiated with electromagnetic field 750 kV network in a range of industrial frequency - 50 Hz, the electromagnetic field strength of 10 kV/m. Cells from animals arranged under power lines, which were at a distance of 75 m from the surface. Animals were irradiated 45 days, then within five days of receiving intragastric 7-8% alcohol tincture of Echinacea purpurea rate of 0.0018 ml/g weight of the animal. In histological sections of defined morphologic characteristics.
Results. On the 45th day after EMF exposure and subsequent introduction of tincture of Echinacea purpurea specific lymphocyte density retrosternal cancer was 1,526 ± 0,003 conv. units. benchmarks at 1,501 ± 0,054 cu The specific surface area of lymphocytes retrosternal cancer was 2.7, which exceeded the benchmark (S = 2,5). In the study of tissue spleen large diameter lymph nodes spleen amounted to 0,271 ± 0,001mm, which was less than in control animals (0,288 ± 0,001 mm). The specific surface area of the lymph nodes S lymph nodes was 12.7, which exceeded the same indicator of control animals (S = 12,4). The specific length of surface lymph nodes equal to L = 9,7, which also exceeded benchmarks (L = 9,3).
Conclusion. On the 45th day after irradiation of rats EMF and use them tincture of Echinacea purpurea in immune organs of rats were observed following compensatory changes: increasing retrosternal gland reacted to specific lymphocyte density 1,526 ± 0,003um.od. In diameter spleen tissue lymph nodes increased to 0,271 ± 0,001mm in the lymph nodes of the diameter of the lymph nodes reached 0,297 ± 0,012mm. Discovered in immune organs of rats morphological changes indicate that the functionality of rats exposed to EMF, followed by the use of Echinacea purpurea, renewed.
Key words: EMF, immune stimulation, Echinacea purpurea, immune organs.

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PATHOMORPHOLOGICAL CHANGES OF PANCREATIC TISSUE IN EXPERIMENTAL ACUTE PANCREATITIS WHILE USING ANTIOXIDANTS

Introduction. There is a gradual increase in the incidence of acute pancreatitis (AP) on recent decades. It was not unable to achieve a significant reduction in mortality in acute pancreatitis. Still we have unsolved problems of pathogenic mechanisms and the role of free radical oxidation in the occurrence and progression of acute pancreatitis. We are going to continue studying of morphological changes in the

pancreas and markers of oxidative stress in conditions of experimental pancreatitis when using antioxidant therapy, because it has not been solved completely.

Materials and methods. During 2010 two series of experiments on 16 outbred male dogs with body weight 8-16 kg and from 3 to 5 years old were performed.

The induction of acute pancreatitis was performed by the modified Kostyuk method (1988), by injection of own bile into the pancreatic duct. Animals from first group were untreated. Second group dogs were treated with mexidol i/v injections 9 mg/kg (2a series), ascorbinic acid by i/v injections 7 mg/kg (2b series).

Comparison group consisted of 3 dogs without induction AP.

Animals was clinically and laboratory observed, serum amylase were taken after 12 and 24 hours from inducing. Markers of oxidative stress were taken on the fifth day after operation: glutathione peroxidase, glutathione reductase, malondialdehyde, superoxide dismutase, protein carbonyl groups.

For histological studies we took pancreas fragments. To assess morphometric characteristics of pancreas we used Combined histopathologic grading scale for pancreatitis.

Results. 12 hours later of modeling experimental AP all dogs had clinical and laboratory signs of AP.

On the fifth day after induction AP 11 dogs were removed from the experiment by euthanasia, two dogs had died by that time.

Morphometric scale showed that the use of antioxidant therapy for the correction of the experimental AP decreases severity of necrobiotic and necrotic changes in acinar tissue ($p = 0.005$) and parenchyma ($p = 0.026$), inflammatory infiltration of leukocytes and macrophages ($p < 0.05$) and lipomatosis ($p < 0.05$) in places of dead parenchyma compared with the control group animals. Significant differences in the severity of fibrosis ($p = 0.009$), atypical reactive regeneration ($p < 0.001$) and vacuolization of cells ($p = 0.043$) were revealed. Using ascorbic acid in II b series of experiment marked a decrease number of vessel thrombosis.

The destructive process in the pancreas accompanied by intensification of peroxidation of lipids – malondialdehyde serum concentration was 1.8 times higher than in intact animals (7,91 ± 0,15 to 4,44 ± 0,76mkmol / l, $p = 0.007$), and peroxidation of proteins – serum concentration of protein carbonyl groups was 2 times higher than in the intact animals (2.01 ± 0,87 to 0,96 ± 0,32mkmol / g protein; $p = 0.023$). At the same time, we received the decreased activity of glutathione-dependent enzymes. Thus, the levels of glutathione peroxidase (9,93 ± 0,84 mkmol NADFN2 h/mg protein) and glutathione reductase (4,01 ± 0,91 mkmol NADFN2 h/mg protein) in serum of experimental animals were 1.8 and 1.6 times lower than in comparison group (17,71 ± 6,34 and 6,54 ± 1,21 mkmol NADFN2 h/mg protein; $p = 0.111$ and $p = 0.028$). However, the concentration of the antioxidant enzyme superoxide dismutase on the contrary - increased to 41,93 ± 10,69 % inhib./oxid./querc. ($P = 0.23$) as opposed to index comparison group (30,63 ± 3,0% % inhib./oxid./querc.).

Conclusions. 1. We see increasing intensity of peroxide oxidation in experimental pancreatitis which is manifested by increased concentration of malondialdehyde and protein carbonyl groups.

2. Using antioxidant therapy decreases intensity of oxidative stress and minimizes inhibition of glutathione peroxidase and glutathione reductase.
3. Morphological picture shows that using antioxidant therapy decreases damage of pancreatic tissue.
4. When using mexidol and ascorbic acid in experimental AP we observed activation of proliferation, enhancing regeneration epithelial and connective tissue structures of the pancreas and vascular microcirculation.
Key words: acute experimental pancreatitis, mexidol, ascorbic acid.

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FEATURES OF THE ORGANIZATION OF NUCLEAR CHROMATIN OF THE EPITHELIOCYTES IN THE SMALL AND LARGE INTESTINE OF PATIENTS WITH PULMONARY TUBERCULOSIS

Introduction. Functional state of the intestine occupies an important place in the effectiveness of pulmonary tuberculosis (TB) treatment.
The condition of the intestinal functional activity can be assessed by the degree of organization of nuclear chromatin of epithelial cells, which reflects the functional state of the nucleus and shows the ability of a cell to perform a specialized function and the rate of its regeneration.
Therefore, the *objective* of the present study was to investigate the organization of nuclear chromatin of the epithelial cells of the small and large intestine in patients with pulmonary tuberculosis.
Materials and methods. A prospective pathomorphological investigation of 68 lethal cases of patients with pulmonary TB (the main group) was carried out: 23 cases of newly diagnosed pulmonary TB (subgroup 1), 21 cases of multidrug resistant and extensively drug resistant TB (subgroup 2), 24 cases of HIV/tuberculosis (subgroup 3). The comparison group included 20 people without pathology of the gastrointestinal tract and morphological signs of tuberculous infection.
To visualize and quantify nuclear chromatin of the intestinal epithelial cells the method of staining with iron hematoxylin by Heidenhain's was used. Calculating the optical density variation coefficient of core staining (expressed as a percentage) was performed by dividing the standard deviation value of the staining optical density by the arithmetic mean of the staining optical density with multiplying by 100.
Results. The digital data analysis has found optical density variation coefficient of nuclear chromatin in the main group was significantly higher ($p<0.05$).

Optical density variation coefficient of nuclear chromatin of the epithelial cells of the small intestine in the second and the third subgroups was higher by 1.41 and 1.71 times than in the subgroup 1 and, respectively, by 1.38 and 1.61 times higher in the epitheliocytes of the colon, which is indicative of the imbalance between eu- and heterochromatin at the expense of increasing heterochromatin content.
It is the evidence of a decreased activity of the cellular nucleus concerning DNA involvement into proliferative and nonproliferative (synthetic) processes. It is also a substrate for the development of epithelial dysfunction.
Conclusion. Optical density variation coefficient of nuclear chromatin of epithelial cells of the small and large intestine in patients with multidrug resistant and extensively drug resistant TB, co-infection of HIV/TB is significantly higher as compared to patients with newly diagnosed pulmonary tuberculosis with preserved sensitivity of Mycobacterium tuberculosis to anti-TB drugs.
Key words: pulmonary tuberculosis, the organization of nuclear chromatin, epithelial cells of the small and large intestine.

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STRUCTURAL MODIFICATIONS OF THE THYMIC (HASSALL'S) CORPUSCLES UNDER THE CONDITION OF EXPERIMENTAL BURN DISEASE AND IT'S TREATMENT BY THE INFUSION OF LACTOPROTEIN WITH SORBITOL

Introduction. From the time of A.H.Hassall and still Hassall's corpuscles define heterogeneous and polymorphous formations. Previous studies had found a plastic membrane effect of intravenous infusion of sorbitol solution Lactoproteinum on the structure of the thymus of rats with experimental burn disease.
The aim of this study was to investigate structural modifications corpuscles of thymus (Hassall's corpuscles) under experimental conditions of burn disease and its treatment by infusion Lactoproteinum with sorbitol.
Materials and methods. The study was performed on 154 male rats Wistar weighing 155-160 grams. Studied at thymus morphological changes in experimental burn disease (after 1, 3, 7, 14, 21, 30 days after burn skin) and under the conditions of action hyperosmolar-colloidal infusion drug Lactoproteinum with sorbitol.
Maintenance and manipulation with animals were carried out according to the "General ethical principles of animal experimentation" adopted the First National Congress on Bioethics (Kyiv, 2001), also guided by the recommendations of the "European Convention for the Protection of vertebrate animals used for experimental

and other scientific purposes" (Strasbourg, 1985) and the provisions of "Rules for clinical safety evaluation of pharmacological agents (GLP)".

Animals were divided into 5 groups: I - intact animals; II, III - rats without thermal injury, injected 0.9% NaCl solution and Lactoproteinum with sorbitol, respectively, in a dose of 10 ml/kg; IV; V - animals with burns, for which a similar scheme entered the substance.

Burn (after appropriate sedation) caused by attachment to the side surfaces of the body of animals four copper plates (two plates on each side) that previously held for 6 minutes in the water at a constant temperature of 100˚C. The total area of the burn in rats indicated weight was 21-23% during exposure 10 sec., which is enough to form IIIA degree burns and shock of medium severity. It is proved that a skin burn disease triggers the corresponding endogenous intoxication syndrome and multiple organ failure.

Infusion was performed in the inferior vena cava, which put a catheter aseptically through the femoral vein. The catheter set in the femoral vein, sewed under the skin. Its lumen along the entire length filled with volumetric solution of heparin (0.1 ml heparin in 10 ml 0.9% solution of NaCl) after each entry substances. The first introduction of solutions was performed 1 hour after modeling pathological condition following infusion performed 1 time per day.

After decapitation cutting of the chest cavity of animals (under general anesthesia) and cut using blades small pieces of thymus. Ultrathin sections were prepared on ultra microtome "LKB", and studied and photographed on the electron microscope PEM-125K.

The experiment was carried out on the basis of Scientific Research Center (director - Professor I.V.Gunas) Vinnitsa National Medical University named after Pirogov. Electron microscopic examination performed at the base of electron microscopy (supervisor - Professor L.O.Stechenko) The Institute of Pathology National Medical University named after Bogomolets.

Results. We obtained preliminary data suggest that Hassall's corpuscles normally differ in their structure, depending on their size. The "center" small Hassall's corpuscles located "light" keratinized epithelioreticulocytes. In the middle of electron transparent matrix granules identified clearly keratohyalin and a variety of configuration components of the cytoskeleton - beams of tonofilaments, keratin fibers.

The rest of the keratinized epithelioreticulocytes Hassall's corpuscles placed concentrically around described "center." Among them we can distinguish "light" and "dark" (with cytoplasmic matrix of high electron density) epithelioreticulocytes.

Ultrastructural examination showed that thymus of rat under the condition of experimental burn disease contains numerous highly keratinized Hassall’s corpuscles in various stages of development. Epithelioreticulocytes represent the “starting point” in thymic corpuscles formation and transformation. The fast genesis of thymic corpuscles and intercorpuscular “binding” by means of epithelioreticulocytes causes the particular polymorphism of these corpuscles during burn disease. Intravenosis infusion of lactoprotein with sorbitol has membranoplastic influence on the thymic structure. Application of lactoprotein with sorbitol also promoted to structural

modifications of thymic corpuscles, associated with the formation of “membrane-like complex”.

Conclusions. 1. Hassall's corpuscles in the burn disease have "core" consisting of keratinized fibrils and cells (thymocytes, macrophages, epithelioreticulocytes, plasma cells) at different stages of apoptotic degradation and lysis. Under the conditions development of burn disease there are certain structural modifications Hassall's corpuscles, which are evidence of their involvement in compensatory and adaptive processes in the thymus. 2. The obtained data suggest that Hassall's corpuscles promote segregation cells of thymus that have to die, ensure their sequestration and prevent the negative impact of the decay products of "core" on cells microenvironment. The data confirm cytoprotective and organo protective effect of Lactoproteinum sorbitol on thymus at burn disease.

Key words: burn disease, thymus, electronic microscopy.

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MORPHOLOGICAL AND FUNCTIONAL STATUS THYMUS OF RATS AT THREE AND FIVE WEEK EFFECT ON THE BODY NALBUPHINE

Introduction. Now the clinic is widely used for therapeutic purposes narcotic analgesics as drugs to relieve acute pain and chronic treatment . Representative narcotic analgesic is nalbuphine (nubain). In the literature there is evidence on the impact of opioids and other medications in various organs and tissues , but not the influence of opioid nalbuphine in the thymus . In the present study the effect of nalbuphine in the thymus.

Our purpose was to set morphofunctional state of structural components of thymic lobules white male rat reproductive age at 3 and 5 weeks of effects on the body opioid nalbuphine.

Materials and methods. The study was conducted on 19 white male rats weighing 80-150 grams of reproductive age (1,5-3,0 -month). Experimental animals are divided into 3 groups: the first group (5 animals) - intact animals; the second group (5 animals) that within 1 week intraperitoneally injected daily opioid nalbuphine 8 mg / kg, 2 week - daily 15 mg / kg; third week - daily 20 mg / kg of the third group (5 animals) that within 1 week of daily injected intraperitoneally opioid nalbuphine at a dose of 8 mg / kg, 2 week - daily 15 mg / kg, 3 week - daily 20 mg / kg, 4 week - daily 25 mg / kg, the fifth week - daily 30 mg / kg Control rats served 4 white males, who instead of nalbuphine injected 0.9% sodium chloride solution.

We determined the relative area of cortex and medulla, cortical- cerebral index, the thickness of the connective tissue capsule lymphocyte density per unit area in the cortex and medulla of the thymus.

Results. After 3 weeks of exposure opioid nalbuphine revealed an increase in the relative area of cortex from 60.69 % to 73.95 %. The relative area of the brain substance particles decreased from 39.31 % to 26.05 %. Corticalcerebral index increased from 1.54 to 2.84.

After 5 weeks of exposure opioid nalbuphine found a decrease relative area thymic cortex slices from 73.95 % to 71.25 %. The relative area of the brain substance particles increased from 26.05 % to 28.75 %. Decreased cortical- cerebral index from 2.84 to 2.48 .

After three weeks of daily exposure nalbuphine connective tissue capsule thickness increases from 30.71 m to 95.23 m . After 5 weeks of the experiment , this figure decreases from 95.23 m to 85.84 m.

As a result of three weeks of daily exposure nalbuphine the body male white rats showed an increase lymphocyte density per unit area in a matter of cortex N Lymphocyte 4.56 / 100 to 4.91 um^2 N Lymphocyte / 100 um^2 and reduce lymphocyte density per unit area in the medulla of 1 32 N Lymphocyte / 100 um^2 to N Lymphocyte 1.15 / 100 um^2.

After 5 weeks was found a gradual decrease in lymphocyte density per unit area in a matter of Cricova N Lymphocyte 4.91 / 100 to 4.75 um^2 N Lymphocyte / 100 um^2. Lymphocyte density per unit area in the medulla continues to decline and is Nlimfotsytiv 1.06 / 100 um^2.

Conclusions. After a five-week exposure to opioid nalbuphine body rat, compared with a control group of intact animals, the thymus of experimental animals revealed:

1. The increase in the relative area of cortex to 10.56%;
2. Reduction relative area medulla to 10.56%;
3. The increase in cerebral cortical-index 0.94;
4. Increasing the thickness of the capsule to 55.13 m;
5. The increase in the density of lymphocytes in the cortex at 0,19 N lymphocytes / 100 um^2;
6. Reduce the density of lymphocytes in the marrow lymphocytes to 0,26 N / 100 um^2.

This indicates that the cancer is zahrudnynnoyi pieces of compensatory phase process.

Key words: analgesic, experiment, rat, nalbuphine, cerebralcortical code cells.

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FORENSIC DESCRIPTION OF GUNSHOT INJURIES TO BIOLOGICAL OBJECTS CAUSED BY 8X57 MM CARTRIDGES EQUIPPED WITH EXPANDING BULLETS

Aim: the study aims at comparing morphological features of gunshot injuries of the soft tissue caused by 8X57mm cartridges from different manufacturers equipped with expanding bullets and establishing types of their expanding ability.

Materials and methods. A Mauser 98k hunting rifle loaded with 8X57mm cartridges with Geco, RWS and Sellier&Bellot expanding bullets was used for experimental shots. Morphological features of the input and output injuries, damage to internal organs and bone damage were described. The design of these bullets provides a significant increase in diameter when hit soft tissue to improve the killing power and reduce the depth of penetration.

Results. Hunting has always been considered a high-risk activity. Careless handling of weapons often results in injuries and deaths of the involved and random people. Hunting season is Ukraine takes dozens of lives annually. Forensic examination of gunshot wounds and damage to the clothes of the victim is one of the most topical and challenging problems of forensic medicine. According to the Lviv Regional Bureau of Forensic Examination archives, gunshot deaths account for nearly 1% of all violent deaths, and one-third of them is caused by rifled hunting weapons. Due to continuous improvement of fire arms and development of their new types, study of gunshot injuries has been a pressing problem for forensic experts for centuries. As new objects of research appear, new methods of study present enhanced forensic capabilities for gunshot wounds examination. However, lots of tasks in many areas stay unsolved. The paper presents the results of experimental study of damage to the soft tissue caused by 8x57 mm hunting cartridges equipped with expanding bullets from several manufacturers, which were shot at different distances. Morphological features of entrance and exit wounds, damage to the internal organs and bones are described. Taking into account the increasing popularity of rifled guns among hunters and statistics of hunting accidents, it was considered expedient to study one of the most widely-used 8x57 mm cartridges supplied with expanding bullets. The 8x57 mm cartridge is used for hunting animals weighing up to 300 kg at the distance of up to 350 m. This cartridge offers the advantage of powerful hitting with expanding bullets having unsurpassed stopping power and low risk of ricochet. They possess significant expanding ability stemming from the ability of bullets to expand upon impact. Their design provides for a considerable increase in diameter upon hitting the soft tissues, which is aimed at raising stopping power and decreasing penetration. Expanding bullets differ in expanding ability. They may get deformed, increase in diameter or fragment, which correlates with respective morphological features of soft tissue damage. Since these bullets cause serious damage to the soft tissues, in 1899 The First Hague Conference ranked them as inhumane and prohibited their use for military purposes. Nowadays, in spite of the prohibition to manufacture and use expanding bullets for military purposes, they are widely used by hunters and are available for purchase in many countries, including Ukraine. Therefore, taking into account the fact that sales volumes of 8x57 mm cartridges are the highest in hunting shops, it was important to study their impact on the human. Expansive bullets have different kinds of expansiveness: some are deforming, others revealed significantly increasing its diameter, other fragmenting. Due to the variety of expansiveness, differ also morphological features of damage to the soft tissues.

Conclusions. Experimental shots using Geco cartridges caused round entrance gunshot wounds of the hip and chest with defects of the fabric and disruption of the skin along the edge. There was a multifragmental fracture of the femoral bone; the exit wound is smaller in diameter, with defects of the fabric and everted edge. Extracting the Geco bullet from the body enabled ascertaining that these bullets split into three or more fragments. Shots with RWS cartridges caused entrance wounds in the hip which feature irregular shape, multiple disruptions along the edge, crushed soft tissue along the whole wound tract, significant defects of the fabric and hip fractures with multiple small fragments. RWS bullets expand upon impact, considerably increasing in diameter. When shooting Sellier&Bellot cartridges, the entrance wounds are characterized by irregular oval shape, even edges, defect of the fabric, multifragmental fractures of the hip; the bone fragments can be put together. While hitting the object, Sellier&Bellot bullets get deformed, increasing in diameter.
Key words: fire arms, expanding bullet, biological objects.

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SCREENING CEREBROPROTECTIVE PROPERTIES OF INDUSTRIAL DESIGNS AMPOULE SOLUTION 1-ADAMANTILOXY-3-MORFOLINO-2-PROPANOL HYDROCHLORIDE ("ADEMOL") ON THE MODEL OF ACUTE CEREBROVASCULAR ACCIDENT BY HEMORRHAGIC TYPE

Introduction. From the standpoint of evidence-based medicine today is missing credible clinical efficacy of treatment of hemorrhagic stroke using nootropic and neuroprotective drugs. It is promising is the development of drugs with proven cerebral protective activity. One of these drugs can be derivative of adamantane 1-adamantiloxy-3-morfolino-2-propanol hydrochloride ("Ademol"), for which is set availability cerebroprotective activity in models of ischemic stroke.
The goal - to conduct screening, followed by assessment value cerebroprotective activity in adamantane derivatives 1-adamantiloxy-3-morfolino-2-propanol hydrochloride ("Ademol") in terms of the model of hemorrhagic stroke.
Materials and methods. Screening studies conditional cerebroprotective effective dose of the industrial design ampoule 1.0% solution of 1-adamantiloxy-3-morfolino-2-propanol hydrochloride (Ademol "Darnitsa", Ukraine) conducted in conditions of experimental hemorrhagic stroke: intracerebral hemorrhage and subarachnoid.

Results. In the experimental hemorrhagic stroke in rats use ampoule solution 1.0% solution of 1-adamantiloxy-3-morfolino-2-propanol hydrochloride ("Ademol") in the dose range of 1 to 5 mg / kg has contributed to the survival of animals, which had to all studied doses significantly ($p < 0.05$) values at 72 hours intracerebral stroke. When infusion "Ademol" at a rate of 1 or 5 mg/kg mortality decreased by an average of 60, and the application of 2 mg/kg at 70% respectively. In terms of model subarachnoid or intracerebral hemorrhage infusion to rats "Ademol" conditionally effective dose of 2 mg/kg was accompanied by a probable reduction in mortality of animals relative to the group control pathology and for its efficiency is similar with nimodipine (30 mg/kg) surpassing the effectiveness of amantadine sulfate (48 hours of ICH) and magnesium sulfate in all periods of observation.
Conclusions. Given the expressive cerebral protective properties of the industrial design ampoule 1.0% solution of 1-adamantiloxy-3-morfolino-2-propanol hydrochloride ("Ademol") in conditions of various subtypes of hemorrhagic stroke, which manifested rising survival of animals with subarachnoid or intracerebral hemorrhage appropriate and reasonable is to establish mechanisms of its protective effect on ischemic brain stroke on selected models.
Key words: 1-adamantiloxy-3-morfolino-2-propanol hydrochloride (“Ademol”), hemorrhagic stroke, cerebral patronage.

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MORPHOLOGICAL CHANGES OF THE LIVER IN PATIENTS WITH TUBERCULOSIS DEPENDING ON THE NATURE OF MYCOBACTERIUM TUBERCULOSIS RESISTANCE

Objective. To study morphological changes in the liver in patients with pulmonary tuberculosis due to the nature of resistance of tuberculosis mycobacteria.
Introduction. Long and continuous taking of anti-TB drugs (ATD), along with the therapeutic effect, often has a negative impact on the human body. This complicates the treatment, makes interrupt it and, eventually, abandon it [1].
In recent years, there have been increasing reports of combination of tuberculosis and liver diseases. Reciprocally aggravating impact of diseases, the need for long-term use of ATD, each of which and their metabolites can cause changes in the detoxification and metabolism, create conditions for the development of medical complications [2].
Materials and methods. We have conducted a prospective pathomorphological study of 60 deaths of patients who had died from various diseases, but in their final clinical and postmortem diagnoses tuberculosis was mentioned as the underlying disease. Depending on the clinical forms and variants of TB, the main group was

divided into three subgroups. The first subgroup of the main group included 19 patients with firstly diagnosed pulmonary tuberculosis (FDPT), the second subgroup consisted of 21 patients with polydrug-resistant tuberculosis (PDR-TB) and the third one comprised 20 patients with multidrug-resistant tuberculosis (MDR-TB). The comparison group consisted of 20 corpses of people without pathology of the hepatobiliary system and morphological characteristics of tuberculosis infection. We studied primary medical records: medical cards of the inpatient (f. № 003/ r) and postmortem examination protocols (f. № 103/r).

Autopsy material sampling (in the comparison and main groups) was performed at the RCMI "Morbid Anatomy Bureau", the city of Chernivtsi in 2014-2015 considering "Law of Ukraine on the burial and funeral business as amended by the Law №2246-IV of 16.02.2004, BVR, 2005, №4, Art. 105.

Results. In 5 (26,32%) cases of the first subgroup, 6 (28,57%) of the second and 3 (15%) of the third subgroup of the main group the liver was oversized macroscopically, the organ weight ranged from 800 to 1400 grams. In section the liver tissue was in most cases speckled with alternating falling back sections of "nutmeg" appearance and exploding ocher-yellow fields; with normal density and shape.

Hardening of the liver tissue was observed in 14 (73.68%) patients of the first subgroup, 15 (71.43%) of the second and 17 (85%) of the third subgroups of the main group. The surface of the organ, in some cases gained small nodular appearance. The liver tissue was ocher-yellow. The size and weight of the liver ranged largely - from severe hepatomegaly to moderate downsizing.

In the first subgroup of the main group we have found mild structural changes in the liver parenchyma: decomplexation of hepatocytes with the loss of their connection in the liver trabecular, dystrophic changes and necrosis of some hepatocytes in the pericentral parts. In the second subgroup of the main group in the pericentral parts of the lobules we found some groups of enlarged hepatocytes with clear contours of a membrane. The remains of weakly eosinophil granular cytoplasm are arranged around the nucleus or along the cellular membranes. Groups of hepatocytes with signs of hydropic, hyaline degeneration and steatosis in the centrilobular and middle zone areas were identified in all cases of the third subgroup of the main group.

Conclusion. In the main group fibrosis of the mixed type, dominated by pericellular, perisinusoidal, perivenular as well as focal and portal fibrosis, was found. In all the subgroups perivenular fibrosis prevailed. The sinusoids were mostly slit-like, sometimes they were "capillarized." The latter is more pronounced in the third subgroup. The clearance of sinusoids was anaemic. The hepatic capsule was locally or diffusely thickened, hyalinized, sometimes infiltrated by lymphoid-histiocytic elements.

Key words: tuberculosis, fibrosis, steatosis, resistance, dystrophy.

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STUDY OF INTRACELLULAR PROCESS CARDIOPROTECTIVE EFFECT DERIVATIVE 3,2'- SPIRO-PYRRHOL-2-OXINDOLE COMPOUND R-86 ON MODELS PITUITRIN-ISADRINUM MYOCARDIAL INFARCTION AND ASSESSMENT OF ITS CYTOPROTECTIVE PROPERTIES IN THE CONDITIONS OF THIS PATHOLOGY

Introduction. Results of previous studies conducted by us activity body protector derivative 3,2'- spiro-pyrrhol-2-oxindole compound r-86 indicate that its inherent protective effect on the myocardium, which manifests itself in various models of ischemia of the heart, including heart attack and in conditions of infarction (MI). Therefore, it is reasonable next step of preclinical assessment of cardioprotective properties of biologically active substances are studying possible mechanisms for a new type of pharmacological activity.

The aim - to find out the possible mechanisms of intracellular metabolic cardiovascular protector activity derivative 3,2'- spiro-pyrrhol-2-oxindole compound r-86 in terms of pituitrin-isadrinum myocardial infarction and give a comparative assessment of cardiac cytoprotective action.

Materials and methods. To study the biochemical and cellular mechanisms of the protective action of compounds R-86 in ischemic myocardium model we used pituitrin-isadrinum myocardial infarction in sex-mature male rats Wistar, weighing 160-180 g MI created by the introduction within 3 days of coronary spastic agent pituitrin (AB Endokrininiai (Lithuania)), a dose of 1 U/kg us, and β-agonists isadrinum, 200 mg/kg intramuscularly (SigmaChemicalCo. (St. Louis, USA)). At the end of 7 days in rats with myocardial infarction in homogenates left ventricular determine the content of adenyl nucleotides, pyruvate, lactate, TBA-positive substances carbonyl groups of proteins, antioxidant enzymes, the level of L-arginine, the total activity of NO-synthase and the level of cardiac troponin I in serum from the right ventricle.

Results. To intracellular metabolite tropic mechanisms of cardiovascular protector activity derivative 3,2'- spiro-pyrrhol-2-oxindole compound r-86 in terms of pituitrin-isadrinum myocardial infarction include energy-stimulating effect, antioxidant effect corrective effect on the heart muscle imbalance in metabolism of nitrogen monoxide and weakening manifestation lactic acidosis. For these properties the compound R-86 significantly exceeds thiotriazoline and mexidol.

When preventive and therapeutic administration of a compound R-86 reduced cardiac destructive processes in the myocardium of rats with pituitrin-isadrinum myocardial infarction, as evidenced by the probable decrease in serum titer of right ventricular cardiac troponin I and relative control in 2.47 times ($p < 0.05$) . The effect on the specified cardiac markers compound R-86 significantly ($p < 0.05$) dominates mexidol in average 51.8%

Conclusions. 1. To intracellular metabolite tropic mechanisms of cardiovascular protector activity derivative 3,2'- spiro-pyrrhol-2-oxindole compound r-86 in terms of

pituitrin-isadrinum myocardial infarction include energy-stimulating effect, antioxidant effect corrective effect on the heart muscle imbalance in metabolism of nitrogen monoxide and weakening manifestation lactic acidosis. For these properties the compound R-86 significantly exceeds thiotriazoline and mexidol. 2. When preventive and therapeutic administration of a compound R-86 reduced cardiac destructive processes in the myocardium of rats with pituitrin-isadrinum myocardial infarction, as evidenced by the probable decrease in serum titer of right ventricular cardiac troponin I and relative control in 2.47 times ($p<0.05$) . The effect on the specified cardiac markers compound R-86 significantly ($p<0.05$) dominates mexidol in average 51.8%. The results of the experiment justify the appropriateness of further pre-clinical studies of the compound R-86 as a possible basis for creating a promising medicament to improve cardioprotection in acute myocardial ischemia.

Key words: pituitrin-isadrinum myocardial infarction, derivative 3,2'- spiro-pyrrhol-2-oxindole compound R-86, mexidol, thiotriazoline, cardiac troponin I.

ANTHROPOLOGICAL STUDIES

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Gender and age characteristics of HIV-infected patients with polytrauma

Introduction. The steady increase in the number and severity of multisystem injuries indicates not only medical but also social character problems. Of particular importance in this growth becomes socially excluded groups, particularly in HIV-infected [2] Despite organizational and therapeutic measures by health organizations, HIV prevalence is increasing worldwide and in Ukraine, on the other hand the above measures can increase the life expectancy of HIV-infected patients, which in turn increases the likelihood of addressing these patients for surgical care about injuries and other diseases.

The aim: a study of age-gender characteristics traumatic process in HIV-infected patients with polytrauma.

Materials and methods. We studied 116 cases of CAP in HIV-infected victims (core area) and 116 cases of CAP in victims without HIV infection (the control array) treated at the Center polytrauma DZ Ukrainian scientific-practical center of emergency medical care and disaster medicine MoH Ukraine 1999 in 2009. The patients' age main body responsible 19-53 years, control panel - 16-75 years.

Results. The advantage proportion of male victims of both arrays confirms the results of previous studies showing a greater risk of injury in men than in women. Value the proportion of men to women in the main array was 2.22 and in control panels - 3.30.

This figure indicates a greater proportion of women among patients with multisystem injuries mainly array, compared with the proportion of women in the control array, due to the peculiarities of the social status of women and the main array respectively and with a greater risk of injury**.** Basically array, a group of victims to 19 years the proportion of men and women evenly distributed in the group 20-29 years the proportion of men in 2.08 times prevailed over the proportion of women is even more significant in 3.67 times, was advantage the proportion of men in the group 30-39, equal proportion of men and women was also in the group of 40-49 years, 50-59 years group represented only by men. Summarizing the age characteristics of HIV-infected patients with polytrauma we have discovered some peculiarities of the traumatic process. Thus, the main body are affected age groups to 50 years, with the majority accounted for by age 20-40 years, which is 91.38% of the basic array. However, in the control array index for age 20-40 years is 49.14%, which is 1.86 times less than in the main array. While the proportion of victims under 20, the same in both areas. The share of 40-49 mainly in the array is less than 6.2 times control, and the group 50-59 years, 7.22 times lower mainly the array than in the control.

Conclusions: 1. Polytrauma in HIV-infected victims are not only medical but also social problem of society; 2. Among HIV-infected patients with polytrauma prevail person to 50 years; 3. Analysis of the reproductive structure found that among HIV-infected patients with polytrauma men prevail, and in some age groups represented only by males.

Key words: polytrauma, HIV-positive victims, sex, age.

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FEATURES OF PATHOGENESIS AND PREVENTION OF PORT-SITE HERNIAS AFTER LAPAROSCOPIC CHOLECYSTECTOMY

The frequency of port-site hernias after laparoscopic cholecystectomy is 3.4-6.7%. Among the main causes of port-site hernias development are the following: trocar size, type of trocar, port, trocar wounds dilation, technical errors during trocar wounds closure, trocar wound infection. Common risk factors of port-site hernias include elderly age, obesity, diabetes mellitus, anaemia, steroid therapy and others. The use of trocars of large diameter (10-12 mm) is considered to be one of the most common causes of port-site hernia. As to the type of trocar, the clinical studies showed that blunt trocars form smaller wound as compared to indirect ones and consequently reduce the risk of port-site hernias. The use of acute trocars is accompanied by hernias in 1.83%, whereas the use of blunt (conic) trocars in 0.17%.

Paraumbilical area, on which the trocars are most often set during laparoscopic cholecystectomy particularly, is the area where port-site hernia is the most frequently (75.7%) diagnosed. In most cases it is associated not only with trocar wound dilation for gallbladder removal of the abdominal cavity, but also with the anatomy structure peculiarities of this area. The broadening of white line and diastasis recti abdominis is observed on the paraumbilical area above and below the navel. It makes this area mechanically weak and can create preconditions for port-site hernia. Moreover, aponeurosis and muscles of the paraumbilical area are thinned as compared to other areas of the white line. Morphological peculiarities of aponeurosis and muscles of the paraumbilical area have not been studied in this aspect. In our opinion studying morphological peculiarities of aponeurosis and muscles of the paraumbilical area will make it possible not only to determine basic causes of port-site hernias, but also to work out preventive measures of their development.

The aim of the study. To study the causes of port-site hernias by morphological examination of muscular aponeurotic tissues of the paraumbilical area and to substantiate their prevention.

Materials and methods. To study features of pathogenesis of port-site hernias after laparoscopic cholecystectomy there was carried out morphological examination of muscular aponeurotic tissues of the paraumbilical area of 80 patients aged 30-75. There were 56 (70%) women and 24 (30%) men. All the patients were divided into 3 groups. The first group consisted of 30 patients who underwent laparoscopic cholecystectomy regarding urinary stone disease. Among them 21 (70%) patients had diastasis recti abdominis of 3±2.3 cm of the paraumbilical area. The second group included 30 patients with port-site hernias of the paraumbilical area after laparoscopic cholecystectomy. The third experimental group consisted of 20 patients who underwent supramedian laparotomy. Among them diastasis recti abdominis of 2+1.3 cm of the paraumbilical area was registered in 6 patients who underwent perforated duodenal ulcer surgery, and in 9 patients who underwent acute adhesive obstruction laparotomy. Morphological examination of muscles and aponeurosis was performed from the paraumbilical area.

The analysis of the effectiveness of preventive measures against port-site hernias development was conducted in 120 patients (aged 30-75) with urinary stone disease combined with diastasis recti abdominis who underwent laparoscopic cholecystectomy. There were 78 (65%) women and 42 (35%) men. All the patients were divided into 2 groups depending on the methods of prevention of port-site hernias. In the first group (60 patients) the prevention of port-site hernias was performed by means of classical closure of trocar muscular aponeurotic wounds with interrupted stitches (prolene 2-0).

Conclusions. 1. The main pathogenic element of port-site hernias development on the paraumbilical area after laparoscopic cholecystectomy is diastasis recti abdominis, which is observed in 70% of patients and is accompanied by thinned aponeurosis of this area, moderate aponeurosis atrophy, musculi recti abdominis, and increases after 10 mm trocar introduction. 2. Prevention of port-site hernias of the paraumbilical area during laparoscopic cholecystectomy can be achieved by the use

of lightweight polypropylene mesh, which is placed in peritoneal space before trocar wound closure.

Key words: diastasis direct muscle, atrophy of muscle-aponevrotych tissue, port-site hernias, laparoscopic cholecystectomy, prevention of port-site hernias.

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PRESENCE OF DUAL DIAGNOSIS OF DEPENDENT INDIVIDUALS OR THOSE WHO USE PSYCHOACTIVE SUBSTANCES

Introduction. Coexistence of mental disorders and mental and behavioral disorders caused by usage of psychoactive substances (UPS) is increasingly becoming a problem of psychiatrists and narcologists in connection of tendency of increasing dependence on UPS.

The aim of the study was to evaluate frequency of dual diagnosis detection (DD) in dependent individuals or those who abuses psychoactive substances, as well as to explore variety of coexistent mental disorders in these patients.

Material and methods. In retrospect there were 136 patients with the diagnosis of dependence or abuse of psychoactive substances. They were randomized into two groups: patients diagnosed with dependence or abuse of psychoactive substances - group of the dependents (GD, n = 104) and patients, who, except disorders related to the usage of psychoactive substances, had other mental disorders diagnosed additionally (group DD, n = 32). Control group (n = 100) includes persons who have only mental disorders.

Results. Frequency of dual diagnosis was 23.5% (per 136 patients) that in relation to the total number of patients which underwent medical treatment (n = 1184) was 2.7%. The most commonly diagnosed dependence was alcoholism, and the most frequently diagnosed disorders were psychiatric disorders of affective spectrum.

Conclusions. The most common variety of dual diagnosis is comorbidity of alcohol dependence and mood disorders such as depressive syndrome. Statistically mental disorders were detected more often as secondary to the existing dependence or harmful usage of psychoactive substances.

Key words: dual diagnosis, dependence, psychoactive substances, mental disorders.

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ESTIMATION OF DIRECT MEDICAL COSTS OF COMMUNITY-ACQUIRED PNEUMONIA TREATMENT OF THE PATIENTS WITH COMORBIDITIES

Introduction. One of the most important components of successful management of patients with community-acquired pneumonia (CAP) is a choice of clinically effective and economically advantageous treatment. Presence of comorbidities in the CAP patients leads to rise of hospital treatment costs due to direct medical costs. In Ukraine fragmental pharmacoeconomical studies of antimicrobial therapy of CAP have been performed but information about treatment of CAP patients with comorbidities is absent.

The aim of this study was to compare volume and structure of direct medical costs of community-acquired pneumonia (CAP) treatment of the patients with comorbidities and without them.

Materials and methods. Pharmacoeconomical study of 438 CAP in-patients (male - 213 (48,6%), mean age - 56,1±17,9) was conducted. Comorbidities were present in 359 (82,0%) patients and polymorbidities (two and more diseases) were registered in 216 (49,3%). The most frequent diseases were pathology of cardiovascular, respiratory, digestive system, diabetes mellitus and obesity. There were 339 (91,1%) patients with moderate severe CAP and 39 (8,9%) patients with severe CAP. Costs of diagnostic procedures, accommodation in the hospital and treatment were estimated. Costs of antibiotic, pathogenical, symptomatic treatment of CAP, medicines for comorbidities therapy and average costs of hospital treatment were calculated.

Results. It has been established average CAP costs is 2444,69±2328,63 UAH. Costs of moderate severe CAP was three times cheaper - 2046,25±777,86 UAH then severe CAP - 6521,04±6107,44 UAH ($p<0,001$). Polymorbidity causes statistically significant increase CAP costs in 1.4 times. Antibiotic therapy and accommodation was the most expensive without dependence of comorbidities presence in the CAP patients. Costs of diagnostic procedures was significantly higher in the CAP patients with polymorbidity - 213,76±200,58 UAH then without it - 141,97±33,16 UAH, or in the CAP-patients with one chronic disease - 151,31±56,15 UAH ($p<0,001$). Costs of symptomatic and pathogenical treatment was bigger in the CAP patients without comorbidities - 116,64±87,27 UAH., against - 85,44±69,75 UAH ($p<0,001$). Comparison of direct medical costs of CAP in the patients with different comorbidities revealed significantly higher costs of acute disease in case of congestive heart failure, diabetes mellitus, exacerbations of COPD and asthma.

Conclusions. Presence two and more comorbidities increases 1,4 times direct medical costs of CAP, the highest cost of hospital treatment of CAP is in the patients with congestive heart failure, diabetes mellitus, exacerbation of chronic obstructive pulmonary disease and asthma. The biggest part of direct medical costs of CAP in-patients is antibacterial treatment costs.

Key words: community-acquired pneumonia, direct medical costs, comorbidities.

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DESCRIPTION OF LIVER FIBROSIS IN CHILDREN WITH CHRONIC HEPATITIS C AT DIRECT AND INDIRECT MARKERS

Purpose. Investigation of liver fibrosis in children with chronic hepatitis C by direct and indirect markers of fibrosis depending on the virus genotype, viral load, activity and the duration of hepatitis.
Materials and methods. 50 children with CHC aged 3-18 years were examined. All patients were involved in clinical, laboratory and instrumental examination. Liver fibrosis was assessed by the index APRI, the level of hyaluronic acid (HA) in serum and the transforming growth factor β1 (TGF-β1) using the method of IFA.
Children with chronic hepatitis C, in contrast to the control group, had the significantly higher fibrosis studied parameters - concentration of CC, TGF-β1 and APRI index, than in the control group ($p < 0.005$ for all groups).
It was found that with increasing duration of illness the amount of COG in serum in children with chronic hepatitis C significantly increased ($p<0.05$ between groups with disease duration less than 5 and 10 years). The differences in concentration of TGF-β1 in groups of children with different duration of hepatitis has been found, while the average APRI index was the highest in children who suffered for more than 10 years and was significantly different from the values in groups with CHC lasting less than 5 years and 5-10 years. These results show that with increasing duration of CHC it is a significant progression of liver fibrosis.
Results. Chronic hepatitis C in children is characterized by the significant increase in concentration of HA, TGF-β1 and index APRI in the serum of patients, in comparison with a group of healthy children. The severity of liver fibrosis in children with chronic hepatitis C is more significant in children with genotype 1 of the virus and active duration of the hepatitis. It is a direct correlation of the markers of fibrosis in children with the duration of chronic hepatitis C and index APRI with the ALT level.
The study parameters of the studied markers of fibrosis in patients with chronic hepatitis C with a different virus genotype, viral load and hepatitis activity showed that significant difference in the number of CC patients in groups 1 and genotype 3 virus, different viral load and hepatitis activity was not found. The content of TGF-β1 was significantly higher in patients with genotype 1 virus. The statistical difference in index APRI was established only between groups of patients with active and inactive hepatitis. Children who had hepatitis with elevated aminotransferases, had higher estimated index APRI.

Correlation analysis of Tau Kendall showed that indicators of fibrosis (GC, TGF-β1, index APRI) between each other have a direct correlation of moderate intensity. The direct correlation between the values of CC, TGF-β1 and the age of child (τ=0,25 and τ=0,23 respectively, $p<0.05$) and direct correlation between the concentration of CC, APRI index and disease duration (τ=0,23 and τ=0,2 respectively, $p<0.05$), and between the index APRI and ALT (τ=0,33, $p<0.05$) was established. It was found the inverse correlation between the content of TGF-β1 in serum and viral load in our study (τ=-0,29, $p<0.05$).

Thus, chronic hepatitis C in children is characterized by active fibrogenesis, as evidenced by the significant increase in the serum of patients, in comparison with a group of healthy children, of the amount of hyaluronic acid, TGF-β1 and the value of index APRI. The duration of hepatitis, the genotype of virus and elevated aminotransferase indicators, to our knowledge, are the predictors of progression of fibrogenesis in children with CHC.

Conclusions. Chronic hepatitis C in children is characterized by active fibrogenesis, as it is shown by the significant increase in concentration of hyaluronic acid, TGF-β1 and index APRI in the serum of patients, in comparison with a group of healthy children. It is established that fibrogenesis in the liver in children with CHC for the studied parameters is more significant in children with genotype 1 of the virus, active hepatitis and the duration of disease more than 5 years.

Key words: chronic hepatitis C, children, markers of liver fibrosis.

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INFLUENCE OF IONIZING RADIATION ON HUMAN BODY

Introduction. At present time, because of rapid scientific-technical progress, depletion of natural resources and widespread transition to alternative forms of energy, there are many new questions about the consequences of human activity. One of the world's global problems is the rapid increase in the number of radiation as well as its destructive effects on the human body. For the first time a serious push for understanding and learning the magnitude of radiation damage resulted from the accident at the Chernobyl nuclear power plant (NPP) in 1986. At that time the scientists around the world studied the influence of ionizing radiation not only on the natural objects, but also on various tissues and organs of the human body. They studied direct consequences (radiation sickness, local lesions), carcinogenetic effects, chromosomal aberrations and genetic mutations. In particular, it is proved that ionizing radiation harmfully influences the state of oral tissues. Scientists noticed that liquidators of the Chernobyl accident had significantly degraded indices of dental status, namely the prevalence of carious lesions, periodontal disease and diseases of oral mucosa. Besides, it is scientifically approved that radiation negatively affects not

only physical health, but also the psycho-emotional state of people. It was noticed that the exposed population is in a constant state of high anxiety.
The aim of our study was to correlate the level of anxiety of patients with radiation injuries and their dental status in the remote periods after irradiation.
Materials and methods. We examined 15 patients (7 men and 8 women) who were hospitalized at Vinnytsia regional specialized clinical hospital of population radiation protection (VRSCHPRP). Each of them had a certificate with Chernobyl category (1-4) and asked for help in the dental office of VRSCHPRP. The age of patients was 52-75 years.
Results. The study was conducted before and after dental treatment. Primary documentation included: questionnaire with patient`s personal data, indices of dental status and determination of need in therapeutic, surgical, orthopedic dental treatment. To study psycho-emotional stress of patients the following measurements were conducted: determination of heart rate, blood pressure and skin-galvanic response of patients. We have noticed that the level of anxiety in patients with radiation injuries was mostly high, and the state of oral health significantly worsened.
Conclusions: It was confirmed that there is a interrelation between the level of psycho-emotional stress and dental status of patients with radiation injuries in the remote period after irradiation. Therefore, there is a need for a specific approach during dental treatment of patients after ionizing radiation.
Key words: ionizing radiation, radiation, effects of radiation on the human body.

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INFLUENCE OF CEREBRAL SMALL VESSEL DISEASE ON BRAIN TISSUE. DISTINCTIVE FEATURES OF BRAIN NEUROIMAGING CHARACTERISTICS IN PATIENTS WITH ACUTE STROKE AGAINST THE BACKGROUND OF LEUKOARAIOSIS

Introduction. Realizing the significance of cerebral small vessels disease (CSVD) for different pathological processes in brain we launched the investigation into it's influence on brain tissue and consequences of this influence in patients with acute stroke.
The purpose of investigation was to study distinctive neuroimaging features of brain tissue and main lesion focus in patients with acute stroke against the background of leukoaraiosis, to check the validity of CT-diagnostics in detection of CSVD manifestations.
Materials and methods. Neuroimaging data of 163 patients of stroke unit of Vinnytsia Regional Psycho-Neurological Hospital with acute stroke has been analyzed. 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 in leukoaraiosis group was higher than in group without leukoaraiosis (70,5±8,9 against 61,3±11,2; p<0,001). The rate of small lesion focuses (<10 ml) was higher in leukoaraiosis group than in group without leukoaraiosis (41,7% against 32,1%; p=0,076 in groups with ischemic stroke and 58% against 27%; p=0,027 in groups with hemorrhagic stroke). The average degree of brain oedema was lower in leukoaraiosis groups than in groups without leukoaraiosis (2,2±1,45 3,6±1,7; p<0,01 in groups with ischemic stroke and 4,35±1,8 against 2,67±1,37; p<0,01 in groups with hemorrhagic stroke). The rate of causes with lacunar infarctions was higher in group with leukoaraiosis than in group without it (41,7% against 18,4%; p<0,01). The rate of causes with multiple lacunar infarctions and bilateral type of lacunar arrangement was higher in group with leukoaraiosis than in group without it (52% against 22%; p=0,024 for causes with multiple lacunar infarctions and 72% against 28%; p<0,01 for causes with bilateral type of lacunar arrangement). The average of Evans Index was higher in group with leukoaraiosis than in group without it (0,283±0,03 against 0,268±0,032; p<0,01).

Conclusion. Obtained data shows that leukoaraiosis can influence such neuroimaging characteristic of brain tissue as susceptibility to ischemia, cerebral oedema, rate and characteristics of lacunar lesions and the degree of brain atrophy in patients with acute stroke consequently we should take into consideration presence or absence of leukoaraiosis treating the patients with acute stroke. Our investigation shows that spiral computed tomography can be used for detecting CSVD manifestations.

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

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FEATURES ANTHROPOMETRIC INDICES IN MEN AND WOMEN OF WESTERN REGION OF UKRAINE WITH ACUTE DEEP AND SURFACE PYOGENIC SKIN INFECTIONS

Introduction. Actual task of modern clinical anthropology is the study of the association of some morphological characteristics of the human body with the emergence and development of certain diseases. Individually-typological features of the person may serve as markers that reflect the peculiarities of clinical manifestations and allow predicting severity the course of certain diseases.

Aim of our work – set features anthropometric indices in men and women suffering from superficial and deep acute pyoderma.

Materials and methods. At the Department of Ambulatory Care, Family Medicine and Dermatology, Venereology, and human anatomy Lviv National Medical University named after Danyla Galickii conducted clinical and anthropological examination of 45 patients with pyoderma men aged from 22 to 35 years, and 48 patients with pyoderma women aged from 21 to 35 years.
Used the following methods: general clinical - to verify the diagnosis of pyoderma; anthropometry by the method of V. Bunak in modification of P. Shaparenko; statistical analysis of the results carried out in the license statistical package "STATISTICA 6.0" using nonparametric methods.
Results. Found that in patients with acute deep pyoderma women width of the distal tibia epiphysis was significantly greater ($p < 0,05$-$0,01$) compared with patients with superficial pyoderma women.
In patients with acute deep pyoderma women transverse mid-thoracic size has a tendency ($p = 0,065$) to larger values compared with patients with superficial pyoderma women.
Anteroposterior medium-thoracic size in women with superficial pyoderma has a strong tendency ($p = 0,058$) to lower values compared to women with acute deep pyoderma.
The width of the shoulders in female patients with superficial pyoderma significantly lower ($p < 0,05$) compared with women with acute deep pyoderma.
The rest of anthropometric parameters in patients with superficial and deep pyoderma men or women had no significant or trends differences.
Conclusion. Therefore, in patients women on deep pyoderma only the width of the distal tibia epiphysis, mid-thoracic size, anteroposterior medium-thoracic size and shoulder width significantly larger or have a tendency to higher values compared to patients with superficial pyoderma women. In patients with superficial and deep pyoderma men found no significant or trends differences all groups of anthropometric indices.
Key words: anthropometric indices, men, women, acute superficial pyoderma, acute deep pyoderma.

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PECULIARITIES OF SEXUAL DEVELOPMENT IN GIRLS WITH UTERINE BLEEDING WITH DIFFERENT SOMATOTYPES

Introduction. During puberty physical development of sex glands and reproductive organs formation finishes. The study of the reproductive system characteristics of

young organism is of great interest. There are certain peculiarities in formation of sexual development in girls with uterine bleeding

The aim of the study: To establish the peculiarities of relationship between abnormal uterine bleeding and characteristics of structure and sizes of the body leading to accurate prediction and diagnostics of menstrual cycle disturbances 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 women with different morphotypes, of which 58 – are girls with uterine bleeding, and 230 –are practically healthy girls. 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. 1. Girls with uterine bleeding have higer indices of the development of breast zero, first and second degree as compared to practically healthy girls, but girls with uterine bleeding values of Ma_3 are less than in practically healthy girls. 2. The indicator of Ah1 in girls with uterine bleeding is higher compared with practically healthy girls, but values Ah_2 and Ah_3 are lower. 3. In girls with uterine bleeding irregular menstrual cycle is found in 86.2%. 4. late menarche was found in girls with uterine bleeding without division into somatotypes as well as mesomorphic somatotype as compared to girls with uterine bleeding having ektomorfnoho somatotype. However, in girls with uterine bleeding having ektomorphic somatotype the first menstruation appeared earlier as compared to girls with uterine bleeding having ecto-mesomorphic somatotype.

Key words: menarche, pubarhe, aksilyarna, menstrual cycle, girls with uterine bleeding.

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SEX DIFFERENCES COMPUTED TOMOGRAPHY MESO-DISTAL SIZE OF TEETH DEPENDING ON THE FORM PRESIDENT OF HEAD

Introduction. Despite the considerable number of works devoted to the study of the teeth-jaw system, many questions odontology investigated insufficiently and remain controversial. In different regions received conflicting information about sex differences of teeth size.

Aim of our work – determine sex differences computed tomographic meso-distal sizes of teeth, depending on the shape of the head.

Materials and methods. Primary indicators computed tomographic head and teeth sizes of 44 boys and 57 girls from Podillia orthognathicbite derived from the data bank Scientific and Research Center VNMU named after Pirogov. To study were selected only scans youths with orthognathic bite, which was determined by 11-points by Bushan et al. (1990) and their cephalometric performance.

For this study used dental cone-beam tomography - Veraviewepocs 3D, Morit (Japan). Research conducted under the own developed schemes within the above characteristics. Volume three-dimensional image - cylinder 8x8 sm - thickness 0,2/0,125 mm, 0,11-0,48 mSv dose of radiation, voltage and amperage 60-90kV/2-10mA. In the upper incisors canines, small and large first molar teeth measured meso-distal distance between the most distant (contact) points and aproximal surfaces in lower incisors - at the cutting edge.

Measured the following cephalometric dimensions: the biggest girth of the head through the uppernose and inion; transverse arch, measured by tape from the right trestle point to the left; sagittal curve, measured by tape from glabella to the occipital point. Established the following distribution of craniotipe: boys mesocephals - 16 boys brachycephals - 19, girls mesocephals - 16 girls brachycephals - 26

Statistical analysis of the results was carried out by licensed statistical software package "Statistica 6,0" using nonparametric methods.

Results. Established that only value meso-distal sizes of the first upper right incisor and lower right first molar tooth small in boys mesocephals have any tendency ($p = 0.057$ and $p = 0.067$) to larger values compared with girls mesocephals.

The value of most meso-distal sizes (top right of the second and first small molar tooth, upper right canine, upper right second incisor, lower right first incisor, lower right second incisor, lower right canines, lower right first small molar tooth) in boys brachycephals significantly ($p < 0,05$-$0,001$) larger compared with girls brachycephals.

Conclusions: 1. Most of mesiodistal size teeth of the upper and lower jaw in boys brachycephals significantly higher compared to the same craniotypes girls.
2. Only mesiadistal size value lower right first small molar tooth and the first upper right incisor in boys mesocephals has tendency to higher values compared to girls mesocephals.
Key words: meso-distal sizes of the teeth, boys, girls, craniotipe, sexual dimorphism.

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DOPPLEROMETRIC CHARACTERISTICS OF CEREBRAL CIRCULATION IN WOMEN WITH CHRONIC PELVIC PAIN SYNDROME

Introduction. According to the World Health Organization, chronic pain syndromes occur in 20% of the world population. Pain plays a key role in the physiological processes of organism adaptation to conditions of external and internal environment, which are constantly changing. One of the most important aspects in the emergence of pathological conditions in the human body in general and the reproductive system in women in particular is the condition of central and autonomic nervous system. Autoregulation of the brain is a vulnerable process which can be disturbed under the influence of various processes that lead to dysfunction of the brain. Since the second half of the twentieth century dramatically increased the load on the nervous system due to the rapid development of science and technology, the intensity of personal relationships, the rise of pace of life that requires increased emotional stress. The problem of stress takes the major place in modern science. Stress is a general nonspecific adaptive reaction, which occurred in the process of evolution in response to stressful factors. Chronic stress is accompanied by a decrease of nonspecific resistance of the organism and is a nonspecific basis of a number of diseases, particularly chronic pelvic pain. Nowadays, chronic pelvic pain syndrome is considered to be a polyetiological multisystem pathology in the pathogenesis of which there are both central and peripheral disorders that make up the so-called "vicious circle" and determine the need for a multidisciplinary approach to the examination and treatment of patients.
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 female of control group. The cerebral circulation in the common carotid, vertebral and middle cerebral arteries was studied by ultrasonic high-frequency Doppler imaging.
Results. The results of the study of linear blood flow velocity in the common carotid artery show a statistically significant decrease of indexes in women with chronic pelvic pain mostly on the left compared to women in the control group. The main

group of women has a statistically significant decrease in linear blood flow velocity in the middle cerebral artery, a statistically significant increase of the pulsation index and decrease of the linear velocity of blood flow in the middle cerebral artery, compared with healthy women.

Conclusion. A set of Doppler indexes in the common carotid, spinal and middle cerebral arteries indicates cerebral circulation insufficiency in women with chronic pelvic pain syndrome, clinical manifestation of which are expressed psycho-vegetative and psychosomatic disorders.

Key words: chronic pelvic pain syndrome, brain circulation, ultrasonic high-frequency Doppler imaging.

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FEATURES SONOGRAPHIC PARAMETERS OF PANCREAS AND GALL BLADDER IN HEALTHY WOMEN OF PODILLYA OF DIFFERENT SOMATOTYPES

Aim of our work – set features sonographic parameters of pancreas and gall bladder in healthy women from Podillya of different somatotypes

Materials and methods. On the base of the Research Centre VNMU named after Pirogov conducted a comprehensive survey of 154 almost healthy young urban women, who in the third generation living in the Podilskiy region of Ukraine and had no complaints on time of the survey on the health and chronic disease in history.

Echometric indicators of the gallbladder, pancreas measured by ultrasound diagnostic system "CAPASEE" SSA-220A (Toshiba, Japan) convex transducer with an operating frequency of 3.75 MHz according to conventional methods. We determined: length, width, thickness, area longitudinal and cross-section of the gallbladder; thickness, width and height of the pancreatic head, thickness and height of the body and tail of the pancreas.

Anthropometric survey was conducted in accordance with the scheme V. Bunak. To evaluate the somatotype used mathematical scheme J.L. Carter, B.H. Heath. Fat, bone and muscle components of body weight were calculated by J. Matiegka formulas.

Statistical analysis of the results was carried out in the license package "STATISTICA 6.1" using nonparametric methods of estimation of the results.

Results. The length of the gall bladder in women with an average intermediate somatotype was significantly higher compared to women ectomorphs. The thickness of the gallbladder in women endomorphs somatotype was significantly higher compared to women ectomorphs and medium intermediate somatotypes and has a strong tendency to higher values compared to women mesomorph; and women endo-

mesomorph has a strong tendency to higher values compared to women ectomorphs. Area longitudinal cross section of the gallbladder in women ectomorphs somatotype was significantly lower compared with women endomorphs and mesomorphic somatotype. Cross-sectional area of the gallbladder in women ectomorphs somatotype was significantly lower compared with women endomorphs somatotype. Volume of the gallbladder in women ectomorphs somatotype was significantly lower compared with women endomorphs somatotype and has a strong tendency to lower values compared with the representative of average interim somatotype. The length of the pancreatic head in women ectomorphs significantly lower compared with women mesomorph and tends to lower values compared to women endo-mesomorph. The width of the head of the pancreas in women endomorphs and ectomorphs significantly lower compared with women mesomorph and endo-mesomorph; while women with ectomorphs and middle intermediate somatotype was significantly lower compared with women mesomorph and endo-mesomorph. Body length of pancreatic gland in women with ectomorphs somatotype was significantly lower compared with women mesomorph and endo-mesomorph. The width of the body of the pancreas in women with an average intermediate somatotype tends to lower values compared to women endo-mesomorph. The length of the tail of the pancreas in women with an average intermediate somatotype was significantly lower compared with women mesomorph; and in women ectomorphs significantly lower compared with women endomorphs, mesomorph and endo-mesomorph

The rest of the studied parameters (width of gallbladder and tail of pancreas) in women of different somatotypes have no significant differences.

Key words: pancreas, gallbladder, ultrasound, mature age, constitutional differences.

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FEATURES THE RELATIONSHIP BETWEEN INDICATORS OF PROFESSIONAL IMPORTANT PSYCHOPHYSIOLOGICAL CHARACTERISTICS OF HIGHER NERVOUS ACTIVITY OF STUDENTS LEARN THE BASIC DENTAL SPECIALTIES AND ITS PROGNOSTIC VALUE

Background. One of the most important tools for creating fully adequate to the requirements of a specific psychophysiograms that is clearly structured lists of specific evidence-based and practical-relevant requirements that certain profession makes to the level of individual physiological functions of the human body, which is used in conjunction with other statistical procedures analysis, confirming, in some cases, denying them top results should be considered correlation analysis

The purpose of the study is to determine the characteristics of the relationships between indicators of professionally important characteristics of higher nervous activity and establish their prognostic significance.

Materials and methods. For the professiografic and, above all, psychophysiografic, assessment features work by major dental specialties, among which according to the classifier of professions DK 0003-2005 were attributed specialties such as therapeutic dentistry, surgical dentistry, orthopedic dentistry, orthodontics, children's therapeutic and surgical dentistry, applied methodology expertise and dynamic monitoring of employment, is performed. Expert assessment of professional activities in the field of dentistry included ensuring proper phasing addition and scientific justification for such an integral part of professiogram as psychophysiogram, reflecting a number of requirements that apply to a specific profession, individual property rights, especially the psychophysiological functions of the organism and, above the characteristics of higher nervous activity. Data collected during the peer review, confirmed by the results of follow-employed, performed. Defining features of the links between performance indicators of professionally important characteristics of higher nervous activity of the organism students learn basic dental specialties and establish their predictive value was carried out using the procedures of descriptive statistics and correlation analysis based on the use of standard application package multivariate statistical analysis "Statistica 6.1 for Windows".

Results. In the research considering individual dental profession should be noted that the largest number of connections for specialty such as therapeutic dentistry for the characteristics inherent strength of excitation, however, the closest correlation between indicators registered the speed of simple and differentiated visual-motor reaction, the strength of excitation and inhibition of nervous endurance system and resistance phenomena monotony. The largest number of connections for specialty surgical dentistry typical figures for resistance to the phenomena of monotony, speed of simple and differentiated visual-motor reaction, strength of excitation and inhibition, however, the closest correlation between indicators registered the speed of simple and differentiated visual-motor reaction, endurance and strength of nerve processes excitement, strength of excitation and inhibition, endurance nervous system effects and resistance to monotony. The largest number of connections for specialty orthopedic dentistry characteristics peculiar to forces of excitation and inhibition of nerve processes and mobility, however, the closest correlation between indicators registered the speed of simple and differentiated visual-motor reaction, differentiated visual-motor reaction and strength of excitation, balance and mobility of nervous processes. The largest number of connections for specialty orthodontics inherent characteristics to balance the nervous processes and power braking processes visual-motor reaction differentiated speed, endurance nerve processes, mobility of nerve processes and phenomena of resistance to monotony, however, the closest correlation between indicators registered the speed of simple and differentiated visual-motor reaction, strength of excitation and inhibition processes braking power and endurance of the nervous system, balance the nervous processes and phenomena of resistance to monotony. The largest number of connections for specialty children's therapeutic dentistry for the characteristics inherent strength and endurance of excitation of the

nervous system, however, the closest correlation between indicators registered the speed of simple and differentiated visual-motor reaction, endurance and strength of the nervous processes of excitation, strength of excitation and strength braking processes, endurance nervous system effects and resistance to monotony. The largest number of connections for specialty children's surgical stomatology characteristics peculiar to the phenomena of resistance to monotony, simple visual-motor reaction speed, endurance and strength of the nervous system

Conclusions. In the course of research the features of relationships between indicators of professionally important characteristics of higher nervous activity of the organism of students learn the basic dental specialty, found that the largest number of statistically significant correlations between the characteristics of higher nervous activities that mark high psychophysiological readiness to perform the leading forms of dental activity, characteristic for such specialties as orthodontics, surgical and orthopedic dentistry, the lowest – for such specialties as children's therapeutic dentistry and therapeutic dentistry, found that most closely correlation registered between indicators of the strength of excitation and inhibition, speed of simple and differential visual-motor response, endurance nervous system, features of basic nervous processes and phenomena of resistance to monotony.

Key words: students, dental specialties, professional important characteristics of higher nervous activity, features the relationship, correlation analysis.

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ASSESSMENT OF THE STRUCTURAL-FUNCTIONAL CHANGES OF THE COLLAGEN IN THE WALL OF THE COMMON BILE DUCT IN ACUTE CHOLANGITIS IN PATIENTS WITH CHOLEDOCHOLITHIASIS

Introduction. Introduction. Occurrence of acute septic cholangitis observed in 23% of patients with gallstone disease (GSD) [Velyhotskyy 2014]. The main causes of acute cholangitis is choledocholithiasis, which occupies a leading place among the complications GSD [Godlevskiy, 2013]. The choice of a rational surgical tactics in this group of patients is extremely complex and unresolved.

On stage surgical treatment options using internal drainage of bile ducts that presenting options minimally invasive endoscopic drainage and biliodyhestyvnymy anastomosis (BDA), which carried out the traditional (laparotomnoy) access [Nychytaylo, 2015]. It is important to choose the best method that choledochotomy. Therefore the question of determining the criteria for evaluating and predicting the postoperative period biliodyhestyvnoho when creating anastomosis in patients with complications of choledocholithiasis in acute cholangitis remains open.

The purpose - to improve the results of surgical treatment CHOLEDOCHOLITHIASIS that complicated acute cholangitis, by analyzing the structural and functional changes in wall choledochitis based on quantitative indicators polarizing microscopy method (step birefringence (Go), phenolic index (GF)).

Materials and Methods. Analyzed the results of surgical treatment of 156 patients with choledocholithiasis that complicated acute cholangitis, for the period from 2010 to 2014na based surgical clinic №2 Department of Surgery Vinnitsa National Medical University N.I.Pirogov.

The average age of patients was 67,1±1,23 years (44 years min-, max - 84 years), of which 117 were women (75%), 78 men (25%).

Structure of major diseases, acute complication which was cholangitis, cholelithiasis (GSD) with acute calculous cholecystitis - 30 patients with GSD chronic calculous cholecystitis - 41 PHES - 85.

Assessment of the severity of patients with acute cholangitis conducted according to criteria Bahnenko SF (Patient age, leukocytosis, serum total bilirubin, diameter choledochitis According AoA) - 49 patients with mild, with an average 64-degree gravity 43- with severe acute cholangitis.

During surgery on laparotomnoy access mobilized supraduodenalnu of choledochitis. Performed choledochotomy length of 15 mm of choledochitis mobilized. Performed a complete revision of extrahepatic duct, during which biopsies were taken directly to the wall choledochitis choledochotomy place.

Statistical analysis of the results was performed using the statistical package SPSS-13.

Results. Among the surveyed patients had blood leukocytosis (10,6±6.5 x 10/9l). The presence of jaundice in 75%. Intermediate bilirubinemia amounted to 111,12 ± 17,38 mmol/l. The average rate of acute cholangitis duration was 12 days. During the operation, determine the diameter of the common bile duct and the nature of its contents. The average diameter choledochitis group is (15,3 ± 0,5) mm (min 7,2 mm - max 28 mm). In 116 cases, the total bile duct revealed a single calculus in 40 cases - 2 concrement. The average diameter of a concrement equal to (7,8 ± 1,4) mm (min - 1 mm, max - 26 mm).

Histological picture wall choledochitis was typical postmortem changes: mucosal been marked plethora vessel wall and with the presence of focal diapedeznyh hemorrhage, edema, muscle fibrous layer. The epithelium over a large flaky, ekskvamovanyy are various types of malnutrition. The muscular layer thickened by generalized edema. Collagen fibers and connective elements are in a state of mucoid swelling, marked focal overgrowth of granulation tissue. Choledochitis uneven wall infiltrated the number of red blood cells, plasma cells, macrophages, among which there are few neutrophilic lymphocytes. Connective tissue layer contains connective tissue proliferation of young and modified collagen fibers. Directly subepithelial layer is formed by a layer of collagen fibers with high optical power with little altered crystalline structure.

Analyzed clinical and laboratory results of surgical treatment of 156 patients with choledocholithiasis, acute cholangitis that complicated. Verification of the diagnosis

took place on the basis of clinical, instrumental, biochemical studies, including the evaluation of the severity of endotoxemia. Polarization microscopy were studied performance that brought determine morphological changes in the wall choledochitis - phenolic index (SP), coefficient of birefringence (Go). It was established that the rate of GF within 0,7289±0,013 and Ho - 10,7201±1,65 correspond reverse structural and functional changes in the wall choledochitis, within the GF - 2,1936±0,011, Ho rate - 5,0893±1,05 correspond to the state of irreversible morphologic changes choledochitis wall.

Conclusions. 1. The choice of surgical treatment in patients with choledocholithiasis complicated with acute cholangitis should be based on objectively researched signs of pathological changes that occur in the wall choledochitis, forecasting repayment changes to determine which individual medical tactics and choice of surgical correction.

2. To predict changes vstintsi choledochitis repayment should be investigated by the Global Fund and Go polarizing microscopy on which to predict the depth of the structural changes in the walls and choledochitis BDA risk failure in the early postoperative period based research reversibility and irreversibility zminstinky choledochitis. To reverse the structural and histological changes characteristic wall choledochitis are: GF 0,7289 ± 0,013, Guo 10,7201 ± -1,65. For irreversible changes choledochitis wall characterized by: average diameter choledochitis during AoA study 10,2 ± 1,2 mm GF - 2,193 ± -0,011, Guo 5,0893 ± 1,05.

3. In cases forecast to irreversible changes in the wall at choledochitis choledocholithiasis that complicated acute cholangitis, characterized by high ryzykomnespromozhnosti BDA, surgical treatment is advisable to direct the correction basic disease using methods of external drainage of bile ducts.

4. In the case of medium occurrence of failure BDA and relatively irreversible changes of collagen fibers in the wall of the main pathologies choledochitis correction and creating the combined supplement BDA biliary tract drainage.

Key words: acute cholangitis, choledocholithiasis, polarization microscopy, common bile duct, collagen fibers, birefringence step, phenolic index.

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PARAMETERS CENTRAL HEMODYNAMICS IN FEMALE VOLLEYBALL PLAYERS WITH DIFFERENT ROLES OF THE MESOMORPHIC SOMATOTYPE

Introduction. The problem of optimal functional state of the cardiovascular system of athletes determined by short-term training tasks to a particular sporting event, as well as its long-term, providing high sports achievements over a long period of time. The individual level of physical performance affects the value of blood pressure and cardiac output during muscular work[Grunovas et al., 2007], and, at the same time, it depends on the somatotypological characteristics of the body.

The aim of our study was to identify differences in rheocardiographic performance of central hemodynamics between female volleyball players with different sports role of the mesomorphic somatotype.

Materials and metods. The study involved female youth (age 16 to 20 years). Among them, 140 girls who have not played sports at the time of the survey were almost healthy, and 116 volleyball (the second adult category to the master of sports). For sports roles were divided into 3 groups: forwards - 78 (67.24%); binding - 29 (25%); libero - 9 (7.76%). We conducted anthropometric studies using methods Bunak [1941], somatotypological study - using the calculated modification method of Heath-Carter [1990], rheographic research - by means of cardiac diagnostic computer complex using a method Ronkin and Ivanov [1997]. Parameters of central hemodynamics calculated using formulas [Vinogradov, 1986]. Reliability of difference values between independent quantitative values determined using U-criterion of Mann-Whitney in the package "STATISTICA 5.5.

Results. After determining somatotypes, we have established in a group of girls who are not involved in sports, six constitutional types: with endomorphic type -2,86%, with endo-mesomorphic type – 5%, with mesomorphic type – 21,43%, with ectomorphic type - 22,14%, with ecto-mesomorphic type – 25,71%,with an average intermediate type - 22.86%. In the forwards were recorded six constitutional types: the endomorphic type – 1,33%, the mesomorphic type – 22,68%, the ectomorphic type – 25,33%, the ecto-mesomorphic type – 21,33%, the endo-mesomorphic type – 6,67% and average intermediate type – 22,66%. In binding identified five somatotypes: the mesomorphic type – 34,48%, the ectomorphic type – 24,14%, the ecto-mesomorphic type – 24,14%, the endo-mesomorphic type – 6,89% and average intermediate type – 10,35%. In libero identified four constitutional types: the mesomorphic type – 22,22%, the ectomorphic type – 22,22%, the ecto-mesomorphic type – 44,45%, the endo-mesomorphic type – 11,11%.

In order to identify advantages impact sports activities, including internal team specialization, or somatotypological accessories, our analysis of changes in central hemodynamics in volleyball separate roles, which belong to a particular constitutional type. In athletes with the mesomorphic somatotype indices of arterial systolic pressure had no significant differences when comparing groups of various sports roles, only it should be noted that in libero the figure was the lowest among all groups of comparison. The value of diastolic pressure in libero was significantly less than in forwards and binders. Features mean arterial pressure reflect the basic laws of changes systolic and diastolic blood pressure in athletes with the mesomorphic type. The established trend to higher values in libero, compared with the binding stroke volume, cardiac blood volume, stroke index. In libero the specific peripheral resistance lower by 40% compared to the attackers and by 36% compared with girls

who are not involved in sports, total peripheral resistance - by 32% less than in girls who are not involved in sports and by 19% than the attackers.

Conclusions. 1. We found that volleyball with the mesomorphic somatotype have differences in the parameters of central hemodynamics depending on the sport role.

2. The lowest blood pressure in a group of libero. Was found significantly lower values in their systolic blood pressure, compared with the attackers and binding and tendency to lower values mean arterial pressure values.

3. Forwards and connecting with the mesomorphic somatotype have more important volume velocity of the blood and the power of the left ventricle than girls who do not play sports the same constitutional type.

The obtained results make it possible to apply the method of stepwise regression analysis for the development of volleyball in separate somatotypes statutory individual parameters of central hemodynamics obtained by tetrapolar rheocardiography, depending on the anthropometric parameters of their body.

Key words: central hemodynamics, female volleyball players, sport roles, girls who do not play sports, mesomorphic somatotype.

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MEDICAL AND SOCIAL FACTORS AFFECTING ON WEIGHT NEWBORN IN THE WESTERN REGION OF UKRAINE

Introduction. Nowadays there exists a requirement for improvement and specification of the currently acting concept of preventive medical examination of pregnancy, especially multifetal pregnancy and prenatal diagnosis of a fetus, conducting the search of unidentified causative factors, which have an effect on a premature labor of children, and especially on their low birth weight. Imperfection of the today's system approach in the determination of the complex of negative factors, which influence over the formation of the children's state of health within the new social and political conditions of Ukraine's development, requires the argumentation of the integral model for preservation and improvement of children's health having low birth weight.

As of today, there is a considerable amount of internal and external causes, which have a significant effect on the formation of the state of health of a mother and her child. The variety of causes, which currently make this list, stipulates the topicality of the issue with due account for regional specific features. Of no small importance is the fact that while estimating the children's state of health especially the newborn, the investigators, mainly, concentrate their attention on the investigation of the clinical aspects of pregnancy pathological condition, and medico-social and medico-

demographical factors are left under-investigated. Only separate scientists analyze the above –mentioned issues as medico-social.

Besides the biological factors, like gestational age, mother's weight and height, way of life, dietary habits, smoking, alcohol drinking or caffeine intake, may influence over the birth weight. On top of that, there exist social-demographic and socio-economic factors, which, as it is known, have the effect on the birth weight. A good example of this is a work of Wasunna et all., who have detected that mother's education and household income are the important factors that influence over the birth weight.

Work objective: to study medico-social factors, which have effect on the children's birth weight in Western Ukraine.

Materials and methods. With the purpose of investigation of the socio-hygienic condition and risk factors of the children having low birth weight LBR (up to 2500 g) in the course of a scientific work there were used sociological research methods of investigation.

The work is grounded on the survey of two groups of respondents – the first (main) group consisted of 127 mothers with children having LBW. The second (control) group, which consisted of 113 mothers having children with standard birth weight.

The newborn children were weighted within the first day after their birth. In all the places where the investigation was carried out, there was used the same equipment. The body weight was measured by means of electronic medical balance for newborn children.

There were selected mothers who are permanently resident in Western Ukraine with live birth children who were born from singleton pregnancy. There were excluded from investigation the following categories of mothers: those with dead-born children, individuals with undetermined gender, newborn children from multifetal pregnancy or children with congenital defects or dimorphisms.

The authenticity of the received information was assured by the corresponding amount of sociological investigations, methods of groups' selection and anonymity of its performance. A selection principle consisted in the randomized including of women, who were in maternity hospitals, to the analyzed groups. In two cases there was selected a sufficient amount of observations, the necessary number of which was calculated according to Glenn's formula [5].

The received statistic data was grouped in an analytical table of scientific materials in a form of absolute values followed by their mathematical treatment on PC with the use of "Microsoft Excel", "SPSS" and "Statistica".

While carrying out medico-statistical analysis there was executed settlements of arithmetic average and average error (M ± m), relative values and probability of difference between the analyzed groups with the use of Student's t-test, Mann — Whitney U-test and Chi-squared test .

Conclusions. In the group of women recently confined, having children with low birth weight there was authenticated ($p<0,05$) differences in comparison with the control group concerning the following range of distinctive features, namely:

- ✓ average age of mothers at birth was 28,04±0,49 and it was higher than in the control group (26,47±0,43 years old);

✓ average age of father was 31,6±0,53 and it was also higher than in the control group – 29,58±0,53 years old;
✓ a part of lone mothers in the main group was 4,72±0,88%, whereas within the women belonging to the control group there was not defined such category of mothers;
✓ women from the main group suffered from domestic violence more often: 9,45±2,60% those surveyed, amitted the availability of domestic violence as a counter to 1,77±0,24% of those surveyed from the control group;
✓ 11,02±2,78 % of the representatives of the main group had uncompleted secondary education, which is much more than with women from the control group, where this index made 0,88±0,18 %;
✓ In the main group, the part of those with low income made 57,48±4,39 %, whereas in the control group the index equaled to 40,94±4,36 %.

2. There is a good reason to consider the above-mentioned differences as the possible risk factors of childbirth with low birth weight. In order to prove the cause-and-effect relationship there should be developed the complex models with the use of regression equations including the parameters determined by us.
3. The doctors who are engaged in the delivery of primary medical care should lay special emphasis on the importance of the preventive system implementation for the children born with LBW.

In this particular case, we consider it reasonable to continue the investigation with attraction of the bigger amount of pregnant women and those recently confined, with a purpose of even more detailed investigation of the environmental aspects that have effect on the birth of children with low birth weight, as well as to pay special attention to the medico-social factors.

Key words: medical and social factors, children with low birth weight, prevention of children born with low birth weight, perinatology.

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DISSEMINATION OF DENTAL CARIES, DENTOALVEOLAR ANOMALIES IN CHILDREN OF 9-12 YEARS TOMASHPIL AREA OF VINNITSA REGION

Introduction. Study the prevalence of caries, dentalmental anomalies at different periods of formation and occlusion presents scientific and practical interest.

The aim - to examine the prevalence of dental caries, dentalmental anomalies and their individual forms of nosology in children 9-12 years Tomashpil region Vinnytsia

oblast; determine the nature and structure of the dentalmental anomalies by age and sex.

Materials and metods. An epidemiological survey of 109 children Vinnitsa region, Tomashpil area with aim to study the prevalence of dental caries, teeth anomalies and prevalence of certain forms of nosological in the late alternating bite. To epidemiological survey involved children aged from 9 to 12 years, which been formed maxillodental systems.

Definition of occlusion was performed on the basis of proper closing of the first permanent molars in three planes: vertical, sagittal, transversal. Noted the anomalies of individual teeth, used for diagnostic classification of Engle (1899).

Results. It was established that the prevalence of dental caries in children of 9-12 years is 73.5%, in the 9-year - 70%, in the 10-year - 64%, in 11 years - 78%, in 12 years - 82%. Pathological types of occlusion were 41%. It was established that the percentage of pathological nosological forms of the total number surveyed by us kids was: prognathic bite - 8.5%, anterior bite - 3.8%, deep bite - 10,0%, open bite - 5.4%, cross-bite - 7.3%. Percentage of total occlusion pathological types was: prognathic bite - 20.5%, anterior bite - 9.1%, deep bite - 29,5%, open bite - 27,5%, cross bite - 13.6%. The prevalence of anomalies positions of individual teeth was 69.1%.

The prevalence of anomalies positions of individual teeth was 79%. Overcrowding of front upper teeth was 12%, lower teeth - 42%. Diastema met in 21% of patients, vestibular inclination of individual teeth was 17%, and oral slope - 8%.

The prevalence of dental caries in children 9-12 years is 82.1% (high level according to WHO criteria). In 9-year-olds - 79% (average), 10-year-olds - 81% (high), 11-year-olds - 83.5% (high level) in a 12-year-old - 85% (high) (Figure . 4). The intensity of caries is - 4,24 ± 0,32 (average). In boys caries was diagnosed in 52% of cases, and the girls - 48%.

Conclusions. The collected materials make it possible to analyze the prevalence of caries, dentalmental anomalies and their individual nosological forms for children Tomashpil district of Vinnytsia region.

Key words: epidemiology, prevalence, dentoalveolar anomalies, alternating late bite, dental caries.

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CLINICAL AND IMMUNOLOGICAL FEATURES OF ACUTE BRUCELLOSIS

Introduction. The article presents the results of examination of 120 patients with acute brucellosis. There were present detailed epidemiological clinical and immunological characteristics.

Brucellosis remained one of topical problem in many countries with predominantly oriented livestock farming. It occurs with damage to all organs and systems, which leads to adverse outcomes, disability and disability, which determines its high socio-economic importance. Along with that, brucellosis characterized by an imbalance of cellular and humoral immunity. At which the decrease of T- and B-cell immunity that is accompanied by activation of immunoglobulins (A, M, G) and significant violations of cytokine regulation in the form of increased proinflammatory cytokines (IL-1β, IL-6) and TLR-2. There fore important to study not only the characteristics of the epidemic process, clinical course and early diagnosis of this pathology and the study of immunological parameters, to predict the severity of the disease and choose the adequate pharmacotherapy.

The purpose of the work - Examine the features of acute brucellosis among patients in the Republic of Azerbaijan on the basis of clinical and immunological parameters.

Materials and methods. Under our supervision, 120 people with acute brucellosis were hospitalized at the Infectious Hospital in Baku. The average age of patients was 35,9 ± 2,8 years. Among those surveyed dominated by men - 75.3%. The control group consisted of 30 healthy individuals. Groups are representative for age and gender. The diagnosis of brucellosis is set based on complaints, medical history, epidemiological and clinical data and the results of serological blood tests (determination of IgM and IgG). Also, all patients was conducted determination of proinflammatory interleukin-6, anti-inflammatory interleukin-4 and TLR-2 (CD282) in serum. So, the content of interleukin-6 (IL-6) in serum were determined by ELISA using a set of "Human IL-6 Platinum ELISA" The content of interleukin-4 (IL-4) in serum were determined by ELISA using a standard set of "IL-4 ELISA. The contents of toll-like receptor TLR-2 (CD282) in serum were determined by ELISA using a set of "TLR-2 (CD282) Human ELISA Kit". Statistical analysis of the results is carried out using «STATISTICA 6,0» using parametric and nonparametric methods of estimation of the results.

Results. For the study of characteristics of the epidemiology of acute brucellosis among population, data from 120 patients who were hospitalized during 2013-2015y.y.Among surveyed dominated rural residents - 81.67%. Structure of patients with brucellosis age was distributed as follows: 18-29 years - 34.17%, 30-39 years - 30.83%, 40-49 years - 17.5%, 50-59 years - 16.67% , 60-69 years - 0.83%. The highest level of infection was registered among workers of farms and veterinarians.

The main route of transmission in 32.4% of cases contact in 21.9% - alimentary, at 8.2% - mixed. In 37.5% of patients a source of infection could not be determined. Analyzing seasonal features of brucellosis found that the largest proportion of patients with brucellosis recorded in summer and autumn compared to spring and winter. The main clinical manifestations of acute brucellosis were: fever with chills - 100% of patients, arthralgia - in 64.2% a sweating - 70%, increase in lymph nodes - in 43.3%, hepatosplenomegaly was detected in 74.2% of patients. Detected that the levels of interleukin-6 and TLR-2 were in 2 and in 2.1 times higher in patients with acute brucellosis compared with the control group, respectively. While the levels of interleukin-4 opposite was in1.5 times lower compared with healthy individuals.

Conclusions. 1. Among patients with acute brucellosis only 34.2% of the diagnosis was confirmed by PCR. 2. In acute brucellosis found significant changes in immunological parameters in a statistically significant increase in proinflammatory IL-6, TLR-2 and decrease anti-inflammatory IL-4, which shows the development of inflammation.

Key words: acute brucellosis, interleukin.

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SIMULATION USING DISCRIMINANT ANALYSIS POSSIBILITIES OF DISEASE AND FEATURES COURSE OF ACNE IN BOYS FROM PODILLYA

Introduction. Medical diagnostics, as a process of determining the type of nosology is considered as one of the most interesting, intelligent and simultaneously one of the most difficult kinds of medical activity. And promising in this regard is the use of modern medical information technology and software.

Aim of our work – build discriminant model capabilities of the disease and features of acne, depending on body size indexes of boys from Podilskiy region of Ukraine

Materials and methods

Done clinical laboratory and anthropological examination of 84 patients with acne of Podillya youths aged from 17 to 21 years. The obtained results are compared with data anthropo-somatotypological survey of 150 apparently healthy boys of similar age and region of residence with data bank Scientific and Research Center Vinnitsa National Medical University named after Pirogov.

Used the following methods: general clinical - to verify the diagnosis of acne; anthropometry by the method V. Bunak in modification P. Shaparenko; somatotype determination by the method J. Carter and B. Heath. Construction of discriminant models held in license statistical package "STATISTICA 6.0".

Results. Discussions

Built on the base of anthropometrical and somatotypological indices discriminant model allow predicting in youths from Podilskiy region of Ukraine the possibility of acne without (correct in 94.9% of cases, statistics Wilks lambda = 0.348, $p < 0.001$) and taking into account the severity of the disease (correct 95 3% - 95.6% of cases, statistics Wilks lambda = 0.420 - 0.407, $p < 0.001$). The probability of correctly divide patients according to the severity youths using anthropometrical and somatotypological indices practically absent, considering on a rather high values of statistics Wilks lambda.

The structure of models most often includes the diameter of the trunk (29.2%) and TSFF and covering body size (by 25.0%). The largest contribution to discriminate between healthy and patients with acne most often brings shoulder width (100%).
Prospects for future research are to develop such models considering somatotype study patients and broader clinical trial work correctly received discriminant models in different regions of Ukraine.
Key words: acne, boys, discriminant model, anthropometry.

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CORRELATION ECHOMETRIC SIZE OF THE UTERUS AND OVARIES IN DIFFERENT PHASES OF THE MENSTRUAL CYCLE WITH INDICATORS OF THE SIZE AND STRUCTURE OF THE BODY HEALTHY IN GIRLS WITH ENDO-MESOMORPHIC SOMATOTYPE

Aim of this work – establish connections sonographic features of uterine and ovarian performance with indicators of structure and size of the body in apparently healthy urban girls of Podillya with endo-mesomorphic somatotype in different phases of the menstrual cycle (MC).
Materials and methods. Primary indicators sonographic size of the uterus and ovarian, and anthropometric and somatotypological parameters in 108 apparently healthy urban girls of Podillya received from the bank of the materials Scientific and Research Center of Vinnitsa National Medical University named after Pirogov.
Ultrasound examination of the ovaries and uterus conducted using devices Voluson 730 Pro (4-10 MHz convex detector) and "Toshiba SSA-220A" (3.75 MHz convex detector) and at 7, 14 and 21 days of MC who answered its follicular, ovulation and luteal phase.
In sonographic examination in the different phases of MC was assessed: body length and length of cervix biggest size, wide of the body and anteroposterior size of the uterus (thickness), the thickness of the endometrium and myometrium, length, thickness and width of the right and left ovarian and their volume according to the formula F. Sample.
Anthropometric survey of women conducted by the scheme V. Bunak. Somatotype of girls we determined by the method J. Carter and B. Heath, component composition and body mass - by the method J. Matiegka and the American Institute of Nutrition (AIN).
The analysis of the links between sonographic parameters of the uterus and ovarian and indicators of structure and body size of girls endo-mesomorphic somatotype (n = 16) conducted in licensed software package "STATISTICA 6.1" using Spearman statistics.
Results. In girls with endo-mesomorphic somatotype in all sonographic size of the uterus and in dimensions part of ovarian identified significant correlation with

anthropo-somatometric parameters and component composition of body weight during the different phases MC.
A similar pattern was observed in girls with mesomorphic and ectomorphic somatotype in which almost all sonographic size of the uterus and in dimensions part of ovarian identified significant correlation with anthropo-somatometric parameters and component composition of body weight during the different phases MC.
For the length of the body of the uterus and cervix, uterus width and anteroposterior size of the uterus, the thickness of the myometrium during all phases of MC, and for endometrial thickness - during the follicular phase and ovulation phase inherent similarity connections as strength, quantity, direction, and quality (group size).
The width, length and volume of the right ovary during all phases of the MC are mostly straight, but different dimensions by group with connections anthropo-somatometric parameters. The thickness and volume of the left ovary during the follicular phase MC is mostly straight, and during ovulation and luteal phase MC - different dimensions by group feedbacks with anthropo-somatometric parameters.
Also studied communications sizes uterus and ovaries in all phases of the MC of total body size, width distal epiphysis of long bones of limbs, longitudinal, cover (excluding ovarian, uterine index, the right length, thickness and volume of the left ovary in ovulation phase , the length of the left ovary during ovulation and luteal phase), the size of the pelvis, muscle mass, determined by the formula Matejko and AIN, thickness of skin and fat folds (except the right ovary width, thickness and volume of the left ovary in the luteal phase) mainly direct by the direction.
The thickness of the endometrial, ovarian-uterine index, length of the right ovary, the width of the left ovary measured during the luteal phase of the MC, the volume of the right ovary, the width of the left ovary measured during ovulation have no statistically significant correlation with any anthropo-somatotypological parameter.
Key words: healthy girls endo-mesomorphic somatotype, correlations, echometric size of the uterus and ovaries, body size.

METHODICAL ARTICLES

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CLINICAL EXPERIENCE WITH "PARODONTOTSYDU" IN TREATMENT GENERAL PARODONT

Introduction. The proposed method of treatment of generalized periodontitis (GP), applied "Parodontotsyd", which is presented in the form of a solution, spray and gel, which have antimicrobial, anti-inflammatory and analgesic properties.

A significant prevalence, the irreversibility of the development and progression of disease in patients of any age, the emergence of foci of chronic infection in the body causing further search and development of new drugs for the topical treatment of generalized periodontitis.

The aim - to evaluate the therapeutic effect of the combined use of different pharmacological forms of "Parodontotsydu" generalized periodontitis in patients before and after the therapy during treatment by examining local changes in clinical indicators of the state of periodontal tissue and biochemical indices of oral liquid.

Materials and methods. In the course of work conducted clinical and laboratory research and treatment of 26 patients of both sexes (aged 40 - 50 years) with a pointed flow generalized periodontitis mild severity, with a depth of periodontal pockets of 2-3 mm, disease duration from 1 to 3 years without somatic pathology . Depending on the treatment the patients were divided into three groups: control (6 people) and two major (10 people).

In the treatment of patients in the control group was part of the common basic therapy that included professional oral hygiene, antiseptic irrigation, combined removal of dental plaque and applications on the gums and the introduction of the periodontal pocket 0.2% chlorhexidine bihlyukonatu, the show - open curettage, temporary splinting mobile teeth. Patients first main group, session after basic treatment in each visit gel "Parodontotsyd" injected into the periodontal pocket and applied by application to the edge of the ash exposure of 15-20 minutes, and patients second main group, combined input gel in periodontal pockets with imposition of 'which bandages, which prepared ex tempore, and consisted of equal parts of white clay and artificial dentin (5 g) with the addition of a solution "Parodontotsydu" to the desired consistency, duration of procedure is similar to the first main group. Out, all patients major groups administered spray "Parodontotsydu" 2-3 times a day according to the instructions of the drug.

We determined and analyzed the following parameters: clinical indices - (PMA Parma), bleeding index for Myullemanom content in oral fluid total protein, acidic and alkaline phosphatases.

Results. As a result of clinical trials found that "Parodontotsyd" produces a pronounced therapeutic effect on periodontal tissue in patients with generalized periodontitis pointed how mild severity. What does a significant decrease in the index PMA: the first study group - from $1,31 \pm 0,09$ to $0,09 \pm 0,03$ ($p<0.01$) and $1,31 \pm 0,09$ to $0,05 \pm 0.03$ ($p <0.01$) - in the second, while patients who used conventional therapy, PMA index was much higher. Performance test values Shylera-Pisarev also point to reduce the intensity and spread of the inflammatory process and the normalization of metabolism in the gums, patients first (I) of the main group - in 2,0 times, patients second (II) of the main group - 2.5 fold compared with initial values.

Biochemical studies showed that apply our therapeutic measures effectively inhibit inflammation in periodontal disease, evidenced by the reduction in total protein, acid (CF) and alkaline phosphatase (CF) in the oral fluid of patients all studied groups, but the most affected was the dynamics of reduction in total protein and alkaline phosphatase in the second main group study.

Conclusions. All the above mentioned confirms the effectiveness of the "Parodontotsydu" during local therapy in treatment of periodontal disease.
Key words: generalized periodontitis, local treatment, "Parodontocid".

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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: 1. 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. 2. 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. 3. 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: femoral neck fractures, total hip replacement, osteosynthesis intramedullary, the effectiveness of surgical treatment.

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INTERLOCKING INTRAMEDULLARY OSTEOSYNTHESIS IN OLECRANON FRACTURES TREATMENT

Introduction. *Purpose.* Olecranon fractures account for up to 40 % of all fractures around the elbow joint. The tension band wiring is a “gold standard” for the olecranon fractures fixation. The literature and our own experience describe around 18,5 – 45,6% unsatisfactory results. The purpose of this study was to develop technique for olecranon fractures fixation which improved results of the treatment.

Materials and Methods. This article described interlocking technique for intramedullar olecranon fracture fixation. The system consists of 7 mm cannulated cancellous screw with 2,8 mm locking hole and navigation system for less invasive use. Indications for interlocking screw fixation are olecranon fractures types 21A1, 21A3, 21B1, 21B3, 21C1 and 21C2 AO/ASIF classification and olecranon osteotomies. This study reviewed 19 interlocking screw cases in patients with olecranon fractures or osteotomies. All patients were investigated according to Meyo Elbow Perfomance Score and DASH score over the period of 5 days, 1 month, 2 and 6 months follow-up after surgery.

Results. Interlocking technique has improved results of olecranon fractures treatment and the rate of good and excellent results increased. At 5 days after surgery in 12 (52.9%) patients the range of motion over 100° was noted and in 10 (47.1%) patients -- between 50 and 100 °. There were no significant difference in the range of motion

after 1 month, but after 2 months in 18 (82.4%) patients a full range of motion was noted. After 6 months almost all (n = 20 (91.2%)) patients have full range of motion. The difference was statistically significant (P<0,01). The same results we noted in assessing the functional recovery of elbow joint according to Mayo score. There was significant difference in the periods of 5 days, 1 month and 2 months in daily skills rehabilitation. After 6 months patients have the same rate as after 2 months. The analysis of the elbow functional capacity according to DASH score showed good results - 3,53 ± 3,5 and 3,3 ± 2,7 points within 1 month and 2 months respectively and 0,8 ± 1,2 points after 6 months. The difference was statistically significant (P<0,01).

Conclusions. The proposed technique of interlocking intramedullary olecranon fracture fixation provides stable fixation with interfragmentary compression with the ability of minimally invasive use and creates conditions for the early rehabilitation.

REVIEW ARTICLES

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MODERN ASPECTS OF DENTAL CARIES PREVENTION IN WOMEN DURING PREGNANCY AND LACTATION

Oral cavity is subjected to reversible as well as irreversible changes due to hormonal changes during pregnancy. High level of occurrence and intensity of dental caries in women during pregnancy proves the need of modern approach to using of medicines and methods for dental caries prevention. In this article is reviewed the most effective preventive measures based on the latest scientific publications that are intended to improve the dental health of women during pregnancy and lactation using endogenous and exogenous facilities and methods prevention.

The aim of this research was to study the necessity of using different methods of dental caries prevention during pregnancy and lactation and to develop a plan of dental treatment and preventive measures for pregnant women, directed primarily on eliminating of the risk factors for development and progression of the disease.

The dental management of pregnant patients requires special attention. Dentists should delay certain elective procedures (physical therapy treatment, prosthetics, teeth extraction) so that they coincide with the periods of pregnancy which are devoted to maturation versus organogenesis. At other times, the dental care professionals need to alter their normal pharmacological armamentarium to address the patients' needs versus the foetal demands. Applying the basics of preventive dentistry at the primary level will broaden the scope of the prenatal care.

Regular examination of an oral cavity, treatment of caries and its complications and performing of professional hygiene of the oral cavity in women with physiological course of pregnancy should be carried out one time in trimester, with pathological – every two months. Caries prevention includes using of the simultaneous complex of free-medicinal prevention (strengthening of somatic health, rational and balanced nutrition with additional introduction in ration of seaweed, individual oral hygiene and its control) and medicinal prevention (sanitation of an oral cavity, local remotherapy, controlled intake of the calcium-containing drugs, multivitamins, probiotics).

Conclusion. Based on the analysis of modern literature sources the most effective prophylactic measures with combined usage of endogenous and exogenous facilities and methods for women during pregnancy and lactation were substantiated. They'll improve the dental health for this group of population and provide the antenatal caries prevention in the children.

Key words: prophylaxis of dental caries, periods of pregnancy and lactation.

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COMPLICATIONS DURING TREATMENT WITH METHOTREXATE (VIEW ON THE PROBLEM)

Methotrexate (MTX) is used in medicine for a long time, first as an antitumor drug, then from 1960 appear the first reports of the successful use of the drug to treat a variety of rheumatic diseases. It was the most appropriate drug in early and late stage of RA and was basis of combination of drugs for treatment schemes that made revolution in antirheumatic therapy. However, MTX also proved to be quite serious tool that has significant side effects due to its pharmacological properties and that must be considered both by doctor and patient.

Objective: to analyze current data regarding safety of MTX, use risks and recommendations on their prevention and treatment

Over the past decade rheumatologist developed rational strategy of application of MTX with definition of effective dosage, frequency of administration, monitoring methods, which were aimed at reducing the incidence of side effects, in particular, it was shown that low doses reach acceptable efficiency while simultaneously minimizing side effects. At the same time emphasizes that even the current recommendations do not provide a complete leveling of undesirable effects with MTX. The problem of safety of MTX consists in the specific properties of the drug. Its action consists in inhibition of dihydrofolate reductase, which is involved in the restoration dihydro folic acid in tetra hydro folic acid (carbon transporter pieces required for the synthesis of purine nucleotides and their derivatives). Accordingly MTX inhibits the synthesis, DNA repair and cell mitosis. Accordingly, the major toxic effect, such as damage of liver, lungs, kidneys and bone marrow requires

careful monitoring. Minor toxic effects such as stomatitis, malaise, nausea, diarrhea, headache and mild alopecia are common and often but react positively to the introduction of folate. The use of MTX may be associated with a number of adverse effects in a wide range of severity; the risk of most side effects depends on the dose and treatment regimen of methotrexate. According to national recommendations MTX prescribe at a dose of 10-15 mg/week followed by increase the dose depending on the effectiveness - by 5 mg every 2-4 weeks to 20-25 mg/week. To increase the effect of the drug and reduce the frequency of side effects possible replacement on its parenteral form. On the background of methotrexate therapy prescribe folic acid in a dose, which is half the weekly dose of methotrexate. Taking folic acid should be no earlier than the day after and not later than the next day taking methotrexate. So MTX toxicity in practice of rheumatologist, unfortunately, is pretty standard thing and implementation of recommendations does not ensure their prevention or effective treatment. Of course the use of low-dose folate $\leq$ 7 mg per week reduces the unwanted effects of therapy on the liver, but do not provide enough proven effect on the prevention of mucositis.

Conclusions. 1. Methotrexate is the most appropriate drug in early and late stage of RA and is basis of combination drugs for all treatment schemes that made revolution in antirheumatic therapy. 2. MTX toxicity is manifested in the practice of rheumatologists often, but implementations of recommendations do not provide their prevention or effective treatment. 3.There is a need to determine effective and safe strategy appointment of MTX with rheumatic diseases, particularly in RA.

Key words: rheumatology, methotrexate, complications.

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TREATMENT OF FEMURAL BONE FRACTURES IN TROCHANTERIC SEGMENT: CURRENT ISSUES (LITERATURE REVIEW)

Trochanteric fractures of a femoral bone constitute from 3% to 6% of all cases, and up to 52% of number of patients having fractures of a femoral bone. Women have fractures of such localization 4-6 times more frequently than men. As a rule, pertrochanteric and intertrochanteric fractures affect elderly people after low-energy traumas, that is caused by osteoporotic changes of skeletomuscular system.

In Ukraine, in accordance with world trends, conservative treatment gave place to active surgical approach. The main aim of treatment of elderly and geriatric patients is achievement of rigid fixation of a fracture including further early activation of a patient, that creates optimal mechanical and biological conditions for consolidation of

a fracture. Debatable issues are left that relate to time period for surgical intervention. Delaying with fixation of a fracture more than 3 days double the index of mortality during the first year after an operation. However, putting off an operation to stabilize a patient's state, compensate or subcompensate coexistent chronic diseases might be advantageous. It is necessary to estimate any delaying of surgical treatment very carefully, as continuation of bed regime before operation increases the number of probable problems, in particular such as deep venous thrombosis, congested pulmonary diseases, urinary tracts infections and developing of pressure sores.

The authors conducted analysis of materials of international (using PubMed database) and domestic publications, in which the advanced methods of treatment of such a pathology as well as positive and negative results of surgical approaches to treatment, advantages and disadvantages of modern implants (LCP, DHS, PCCP, PFN, spongiose screws, hip endoprosthesis) for osteometalosyntes, estimation of remote results of treatment and quality of life are described.

Conclusions. 1. The conducted analysis has shown that the treatment of trochanteric fractures of a femoral bone is the urgent problem of modern traumatology. The majority of patients are elderly people who require immediate mobilization just after a trauma and further social adaptation owing to high level of comorbidity. 2. Clear understanding of anatomy of femoral bone and hip joint, character of fracture according to the recognised classification system, estimation of patient's general and functional state make it possible for a doctor to recognize optimal method of treatment. 3. The choice of a fixative for osteometalosyntes of femoral bone fracture in a trochanteric segment in a greater degree depends on doctor's skills and experience in the course of mastering the corresponding technique. 4. The conducted analysis of numerous investigations concerning the estimation of treatment results of trochanteric fractures of femoral bone under different methods has indicated that the advanced metal structures provide better treatment results, lower rate of complications, early activation and rehabilitation of patients that affect the duration and quality of their life.

Key words: pertrochanteric and intertrochanteric fractures of the femur, classification, osteometalosyntes.

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CYSTIC DILATATION OF INTRAHEPATIC AND EXTRAHEPATIC BILE DUCTS

The cystic dilatation of the biliary duct are rare lesions generally seen in children. When patients with biliary cysts present as adults, they are more likely to have stones in the gallbladder, common duct or intrahepatic ducts and to present with biliary

colic, acute cholecystitis, cholangitis or pancreatitis. Modern cross-sectional imaging methods facilitates preoperative recognition and characterization of bile duct cyst enabling formulation of appropriate management strategy. Factors to be considered when performing surgery on patients with biliary cystic disease include: age, presenting symptoms, cyst type, associated biliary stones, prior biliary surgery, intrahepatic strictures, biliary cirrhosis.

The purpose of this paper was to determine the optimal method of diagnosis and surgical treatment of cystic dilatation of bile ducts based on an analysis of recent literature data and author's own clinical experience.

This paper reports many of the most recent data related to cysts of the bile duct and its ethiology, pathophysiology, classification, diagnosis, co-morbidities, pharmacological and surgical treatments. It also describes the clinical case of rare disease – cystic dilatation of bile ducts in patient aged 40 years old with impact on quality of life.

The fact is that traditional diagnostic methods had not pointed to biliary pathology at studied patient up to 38 years old. In contrast, it was emphasized that magnetic resonance cholangiopancreatography is a very accurate non-invasive investigation for the verification of biliary disorders in children and adults, that provides timely implementation of surgery. Surgical operations in patients with cystic dilatation of bile ducts marked the complexity of their implementation and should be carried out only in a specialized surgical hospitals. Reccurent choledocholithiasis and cholangitis that occurred more than 2 years after first operation at patient and the risk of malignancy dictated the need for excision of bile duct and related reconstructive surgery.

Conclusions. 1. Published data and conducted clinical observations suggest that cystic dilatation of intrahepatic and extrahepatic bile ducts is a rare disease that has no specific symptoms and that's why the diagnose is difficult.

2. The leading role in establishing the correct diagnosis belongs magnetic resonance cholangiopancreatography.

3. Planned surgery must to be performed in infancy based of primary radical surgical correction.

4. In urgent cases it is indicated performing of draining operations (cholecystostomy, choledochostomy) followed by radical surgery.

Key words: hepatic duct dilatation, diagnosis, surgical treatment.

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OBJECTIVE METHODS FOR FUNCTIONAL RESERVE DETERMINING OF THE KIDNEY OBSTRUCTIVE UROPATHY

Obstruction of the urinary tract occupies a significant place among urological diseases. Recently indication for this pathology use the term "obstructive uropathy" (OU). OU - extremely urgent issue fundamental and clinical medicine. The mechanisms of the processes occurring in the kidney and urinary tract obstruction, rather complicated. Given the common innervation of the renal parenchyma cap-pelvis system (CPS) and the ureter, any violation of kidneys reaction urodynamics cause and its blood vessels. Violation of the outflow of urine can be felt at different levels of the urinary system. Particularly noteworthy cases of upper urinary tract complete obstruction. Thus, disrupted the flow of urine, increased pressure in the lumen of the ureter, it inhibited peristalsis, increased pressure in kidney bowl, its cups. Expansion CPS accompanied by compression and thinning of renal parenchyma and, accordingly, actual violation of hemodynamics, leading to ischemia, hypoxia, of proliferative processes and functional disorders become organic nature, difficult situations developing chronic renal failure.

The feature OU course is that early clinical symptoms because of its specificity cannot be recognized until the development of complications, especially when unilateral lesions. Structural abuse for a long time compensated by intact nephrons, which are increasing in size, speed filtering club spectacle each individual nephrons remaining high. But clinical observations show that in some cases eliminate the causes obstruction after full recovery urodynamics is no continuing damage to cells and gradually significantly disturbed renal function. Not timely corrected uro- and hemodynamic, landslides threaten development in the kidney structural changes and continuing loss of its functions. To date, much attention is paid properly chosen method of functional assessment blocked kidney. For the diagnosis of kidney function using ultrasound, X-ray, magnetic resonance, radionuclide methods, computed tomography. Each of these methods occupies a niche in the diagnostic algorithm. Excretory urography performed to determine kidneys and ureters anatomical - functional state. In verification OU important place has ultrasonography - a non-invasive, affordable, harmless, and most importantly - informative method of investigation. To evaluate the morphological and functional condition of kidneys widely used methods of radionuclide diagnostics. Nephroscintigraphy processes to evaluate the severity of nephrosclerosis that is extremely important point. To study real perfusion techniques commonly used doppler, color doppler mapping, power doppler mapping vessels of the kidney. Violation of hemodynamics in OU leads to the tubular epithelium damage, which is rich in enzymes levels. Enzymology tests for patients with urinary tract obstruction characterized by high sensitivity, sufficiently informative.

Conclusions. 1. Modern methods allow to objectively evaluate the structural and functional changes in the kidney and upper urinary tract in patients with OU. 2. When the conditions obstructive uropathy partial or complete block of the kidneys, which leads to its functional disorders. The severity of disorders depends on the length of the structure, completeness block infringement bleed, reducing functioning parenchyma, joining infection. 3. Weather and quality of life of patients with OU defined timely, accurate diagnosis. Properly selected range of research methods, a clear interpretation of their results significantly increase the level of diagnosis,

contributing to the optimum, pathophysiological reasonable approach to eliminate the obstruction and provide opportunities to avoid unnecessary surgical interventions that positively affect the quality of life of these patients.

Key words: obstructive uropathy, X-ray, radionuclide, ultrasound, color doppler mapping, enzymology tests.

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MODERN CONCEPTS OF COGNITIVE COMPONENT OF HUMAN GAIT PATTERNING

Introduction. A review of the literature devoted to the study of the impact of additional cognitive tasks in the spatio-temporal parameters of gait. The modern neurophysiological idea of gait control mechanisms. Presents modern methods of research a gait.

Purpose: To specify the current views on the general principles of locomotion, examine the role of literary sources cognitive component in the formation of human gait pattern, to analyze current methods of gait.

Management rights movement has central nervous system (CNS). The highest growth of motor function are associated with bipedal locomotion and employment, so this feature in the top participating centers, including the cerebral cortex.

Management of gait is a complex process that requires the involvement of motor, perceptual and cognitive processes using the centers of memory, attention and executive functions. To study the effect of attention to process control using the method of execution walking dual tasks. The method is performed by human paramount problem that is a major consideration cent, and minor tasks simultaneously.

Simultaneously perform multiple tasks that require attention, forcing the brain to make choices between tasks, thus establishing a priority. In such cases, activated prefrontal and anterior cingulate cortex. Adequacy and significance of competitive information is determined primarily motivated to achieve the paramount goal and reduce hazards.

Conclusions 1. The cognitive component in the formation of the pattern of gait is an important component that can significantly change the settings walk and act as a sensitive marker for different neurophysiological disorders. 2. Review of the literature shows that the single publication devoted to studying the impact of additional cognitive tasks for spatial-temporal parameters of gait. Mainly studied the effect of additional tasks to individual performance of space-time loop stepper excluding age and gender aspects. 3. The development of modern technologies provides opportunities for a comprehensive study of human gait using modern hardware. As the main tool to study the effect of additional cognitive tasks on the

formation pattern of walking elected computerized system GAITRite®, which is one of the modern methods of investigation of human gait with scientific purposes in clinical practice and sports medicine. Prospects for further development are more detailed study of the impact of additional cognitive tasks while walking on neurophysiological gait control mechanisms by different age and sex groups studied.
Key words: gait spatio-temporal parameters, methods of research a gait, gait with simultaneous cognitive task, various age groups, various sex group.

CRONICLE

In memory of thecher

Gunko P.M., Gaydukov V.A., Vinnichenko A.V.
Invention and innovations in scientific heritage Pirogov