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© Kramar S.B., Volkov K.S., Lytvynyuk S.O.
Ternopil, Ukraine

MICROSCOPIC AND HISTOCHEMICAL CHANGES OF THE SKIN AFTER EXPERIMENTAL THERMAL TRAUMA AND APPLICATION OF CRIOLIOFILIZED XENOGRAFT SUBSTRATE

Introduction. The use of crioliofilized xenodermograft and its crushed substrate is promising in treatment of burns in recent years.
The aim of this work was to establish the histological and histochemical state of epidermis and dermis of the skin at different times after severe thermal trauma and with the usage of crioliofilized xenograft substrate.
Material and methods. Experimental studies were performed on 20 mature guinea pigs. Three degree burn was applied on the back of the animal skin by water vapor at a temperature of 96-97°C for 60 seconds under the ether anesthesia. The size of lesions were 18-20 % of the body surface. The early necrectomy of damaged skin was done on next day after the application of thermal injury. The wounds were covered with crioliofilized xenograft substrate. Animals were decapitated of the experiment under the ether anesthesia at 7th, 14th and 21st days of the experiment with the aim to study the characteristics of morphological and histochemical changes in the skin after burn injury.
Results. At the microscopic level on the 7th day of the experiment was revealed that in the area of burn wound was a uniform formation of granulation tissue involving leukocytes and macrophages. Also was observed the migration and proliferation of fibroblasts and update of capillary grid. Red blood cells, white blood cells of different species were in the lumen of microvessels and between the newly formed thin collagen fibrils of connective tissue.
Granulation tissue was rich in glycoproteins. There was moderate content of acidic glycosaminoglycans in connective tissue in the area of burn wounds.
We observed the edema of the papillary dermis and reticular layers and their moderate infiltration of leukocytes in the area surrounding the wound. The usage of crioliofilized xenograft substrate decreased the expression of inflammatory reaction in connective tissue. And also it improved the blood supply.
In the marginal zone was found significant thickening of the epidermis due to increase in mitotic activity of the cambial layer cells.

Young granulation tissue rich for fibroblastic cell line was observed microscopically on 14th day of experiment in the area of burn wounds. Fibrous structures and amorphous component of intercellular substance were formed. Histochemically was observed the increase in the content of acid glycosaminoglycans. PAS positive properties of granulation tissue were less expressed in compare with the previous period of the experiment.
In young connective tissue was observed intense vascularization. In the lower layers of the dermis were already formed available collagen fibers.
In the peripheral parts of the wound was recorded microscopically active boundary epithelization. The epidermis in this area was thickened with a lot of young keratinocytes which had intensely basophilic cytoplasm. The regeneration of the epidermis was held with the participation of skin appendages. Thin epidermal regenerate covered the granulation tissue.
Visual observations showed that on the 21st day of the experiment the wound surface was completely covered with young skin. Histologically was observed the germination of regenerating epithelial tissue strands from preserved appendages of the skin to the surface of the burn wound and was found the formation of epithelial islands. In the upper strata of the connective tissue were available collagen and thin elastic fibers that had mainly horizontal direction.
It was observed the reduction of the number of acidic glycosaminoglycans of the intercellular substance of connective tissue in compare with the previous term experiment.
It was established that the use of crioliofilized xenograft substrate impacts in the positive way on the reparative regeneration of structural components of the skin and accelerates the healing of the wound.
Key words: microscopic and histochemical changes, skin, thermal trauma, crioliofilized xenograft substrate.

© Khmara T.V. , Halychanska O.M., Holubovskyi I.A.[2]
Department of Human Anatomy name of M. Turkevich of Bukovina State Medical University, (1 Ryzska st., Chernivtsi, Ukraine, 58002); [2]Department of Topographic Anatomy and Operative Surgery of Vinnitsa National Pirogov Memorial Medical University (56 Pirogov st., Vinnitsa, Ukraine, 21018)

STRUCTURAL ORGANIZATION OF THE THYMUS GLAND IN THE SECOND TRIMESTER OF THE FETAL GROWTH

Introduction. According to research by some authors to 22 weeks of fetal development all the main components of the thymus formed. In gestational age 22-27 weeks thymus gland strom is less pronounced, which is probably due to the strong growth of parenchymal organ. On the content of cells in the lobules of the thymus Hassall authors noted the predominance of cases with a small number (less than 5), as in the period of 16-21 weeks and 22-27 weeks in the period (66.67% and 53.85% of

cases, respectively). The central role in the formation of Hassall corpuscles specific microenvironment in the medulla of the thymus, some researchers suggest. Thus, information about the features of the microscopic structure of the thymus in fetuses of different ages are not systematized.

Results. In early fetal period in the process of forming the thymus lobular structures, however, the particles are still not clearly separated by connective tissue. It should be noted that the periphery of the small size of the thymus lobes, are also few large segments where many medulla, and at the edges there are parts of the cortex slices. In the brain (central, bright areas) thymus gland lobules substance abundantly present concentrically arranged epithelioreticular cells - calf thymus (Hassall's corpuscles), various sizes. Stromal loose connective tissue grows together with the vessels in the lobules of the thymus gland in large lobules reaches the level of the brain substance, but does not share the last, probably because large segments.

In the microscopic study of a series of histological sections of the thymus fruit 200,0-215,0 mm parietal-coccyx length (TCD) found that the connective tissue is more developed and shared authority on numerous slices of the thymus. Connective tissue is completely penetrates the cortex, together with the vessels. In the medulla is the Hassall's corpuscles, but they are not as big in size as at the end of the 5th month of fetal development.

In Hassall's corpuscles epithelioreticular flattened cells arranged in circular layers 2-3. In the thymus, many small-sized particles, which predominates in the cortical substance. However, like the previous stage of development - large slices of the thymus, which is dominated by the medulla, cortex is determined by the periphery of lobules and connective tissue does not share fully thymus gland parenchyma.

Conclusions and prospects of further developments. 1. In the early fetal period of ontogenesis development medulla significantly ahead of the formation of the cortical zone - the area of medulla of the thymus gland is much more in it rendered numerous epithelioreticular stromal cells. 2. At the end of the 5th month of fetal development there is an intensive development of connective tissue strom, which grows between the slices of the thymus gland. 3. Starting with fruit 175,0-185,0 mm TCD observed intensive formation of particles of the thymus cortex, improves vascularization, which creates conditions for the formation of the blood-thymus barrier, further differentiation of stromal cells and almost complete development differons lymphocytes.

The study on the structural organization of the thymus gland in fetuses 4-6 months indicates a need for further clarification of its microscopic structure in fetuses and infants 7-10 months of man.

Key words: thymus, morphogenesis, fetus, human.

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Danylo Halytsky Lviv National Medical University (69 Pekarska Str., Lviv, 79010, Ukraine)

PECULIARITIES OF SKIN ULTRASTRUCTURE IN THE AREA OF WOUND HEALING UNDER OPIOIDS

Introduction. Drug addiction is recognized as a global medical-social problem of the 21st century proceeding from the epidemic character of its spread spreading. The moral and social burden of the use of narcotic substances is determined mainly by the development of angio- and neuropathies that reduce essentially the length and quality of life of drug addicts. The issue of the course of reparative processes in patients using opioids and opiates remains to be one of the most pressing problems for modern medicine. In scientific sources there are occasional publications dealing with the effects of narcotic substances on the reparative processes, whose data are mostly of a descriptive nature and dwell only on separate fragments of this new problem and are often contradicting. According to the opinion of P. D. Brown et al subcutaneous and intramuscular injections are the main factors of the risk of development of skin infections in such patients. The growing number of the users of injection drugs unequivocally leads to the growth of the number of micronecrosis cases. The above said explains the need for carrying out adequate morphological and clinical studies. The purpose of this study is to establish peculiarities of ultrastructure of the skin of white rat in the region of healing of a multiple post-injection wound following injection of opioid during six weeks.

Materials and Methods. The research is carried out on 24 mature white male rats aged 4,5 - 6,5 months and 130-250 g weight. The experimental animals were divided into 3 groups: the course of reparative process of the skin of white rats was studied after 2 weeks of injection of nalbufin to rats of the first group (5 rats), the reparative process of the multiple post-injection wound was studied in the region of lateral surface of the thigh. Healing of the multiple post-injection wound of the skin of white rats of the second group of animals (5 rats) was studied after 4 weeks of the experiment. Peculiarities of the reparative process of skin of the white rats the third group of animals (5 rats) were established after injection of nalbufin during 6 weeks. The control group consisted of 9 white rats to which physiological solution was injected.

Nalbufin was injected intramuscularly as follows: 1 week – 8 mg/kg, 2nd week – 15 mg/kg, 3rd week – 20 mg/kg, 4th week – 45 mg/kg, 5th week – 30 mg/kg, 6th week – 35 mg/kg.

The work was conducted using the method of electron microscopy. The animal was brought out of the experiment by an overdosage of intraperitoneal anesthesia using thiopental sodium (at 25 mg/kg). Sampling and standard transfer of the material for electron microscopy were made immediately after death of the animal. Ultrathin sections were prepared with the aid of ultramicrotome UZTP-3 and glass knives. Strips of silvery or primrose color were chosen for the study. The sections were first contracted in 2% solution of uranyl acetate and then in lead citrate solution. The study and photographing of the material were conducted with the aid of microscope UEMB-100 K at acceleration speed 75 kV and enlargement on the microscope screen 1000-124000x.

All animals are handled in accordance with the provisions of the European Convention for the protection of vertebrate animals used for experimental and other scientific purposes (1986), International Guidelines (2011) and the Guidelines on protection, care, and handling of laboratory animals prescribed by the Ukrainian legislation (2006, 2012). All experiments are approved by the University Animal Care and Use Bioethical Committee. The animals are housed under standard vivarium conditions.

Results. Discussions. After 2 weeks of nalbufin injections to the rats there had been found no significant difference in morphologic picture of the process of wounds repair in experimental and control animals. The electron microscopic study showed numerous immunocompetent cells, epidermocytes at the stage of mitosis and lipocytes in the wound defects and around them.

Extended profiles of granular endoplasmatic reticulum of moderate electron density have been found on fibroblasts' cytoplasm, Golgi complex elements structurized. Cytoplasmic membrane forms protrusions and invaginations. Ultrasructural peculiarities of polymorphonuclear neutrophil leukocytes testify to the activation of their phagocytic function. There is observed a considerable number of secretory granules in cytoplasm, passage of secretory granules into intercellular space. Lumens of hemomicrocirculatory channel links are wide. Nuclei of endotheliocytes are large, euchromatin prevail, which testifies to the high functional activity of endotheliocytes. Cytoplasm of some endothelial cells forms protuberances and microvilli. Characteristic is the capillary "budding". Ultrastructure of sebaceous and sudoriferous glands is preserved, which testifies to the formation of sound skin regenerate.

After 4 weeks of nalbufin injections there is observed a swelling of mitochondrions, an increase of tonofilaments, edema have been found in the cells of basal and spinous layers of skin epidermis in the region of the wound defect. Large vacuoles are formed in near-nuclear zone of epidermocytes. Lumens of capillaries of derma papillary layer are constricted due to edema of cytoplasm of endotheliocytes and protuberance of cytoplasm into lumen. There have also been found areas of adhesion of erythrocytes and thrombocytes to endothelium. Venules are plethoric. Lumens of venules contain acidophilic leukocytes, thrombocytes, erythrocytes. Interendothelial contacts are expanded, which indicates diapedesis of leukocytes through the venules' walls. Basal membrane of venules is fluffy.

Collagen fibers of derma reticular layer are fluffy, which testifies to an edema. Basal membrane of terminal secretory part of sebaceous glands is fluffy, edematic, cells of germinal layer are of changed form and sizes, nuclei fragmented, cells of internal terminal secretory part of sebaceous glands are edematic, karryorrhexis and karyolysis are observed. Epithelial cells of excretory ducts of sebaceous glands are edematic, electron density of their nucleus and cytoplasm insignificant, nucleolema forms invaginations, mitochondrions lucid, mitochondrial cristae destructurized. Epithelial cells of sebaceous glands are also disorganized. Observed are pycnosis of nuclei and vacuolization of cytoplasm. Spaces between cristae are expanded, matrix lucid.

Epidermocyte cytoplasm contains numeroous tonofibrils, vacuoles with a content of low electron density. Autochromatin prevails in nuclei, numerous nuclear pores, nucleoli enlarged. The wall of arterioles and precapillary arterioles of the papillary layer of skin is thickened, sclerotized. Mural thrombi have been detected in arterioles lumens. Hemocapillary lumens filled by accumulations of erythrocytes, their adhesion was found in places of fluffing of erythrocytes plasmolemmas on the luminal surface of endothelial cells. There is observed venous plethoris, basal membrane of the venules wall is fluffed, its collagen fibers are destructurized. Edema of connective tissue, numerous lymphocytes, histiocytes, eosinophil leukocytes, activated macrophages were discovered in perivascular spaces. Basal membrane of sebaceous glands is fluffed, fragmented. Intercellular contacts disrupted, epithelial cells of sebaceous glands are changed dystrophically, thinned, nuclei are wrinkled, hyperchromatic, chromatin condensed, nucleoli are not detected.
Mitochodrions lucid, cristae destrucurized, perinuclear spaces expanded, lucid. Cells of the terminal secretory part of sebaceous glands are hypertrophic because of edema, their nuclei are enlarged, nucleolemma forms invaginations, chromatin condensed, located peripherally, mitochondrions hyperplastic, cristae destroyed. Lumens of excretory ducts of sebaceous glands are filled with fragments of cells. Epithelial cells of excretory ducts are disorganized.
Conclusions. Results of the study demonstrate a clear dependence of the course of healing of a multiple post-injection wound of skin on the length of time of injection of opioid. Injection of nalbufin in a generally adopted therapeutic dose during 2 weeks can be regarded as safe for the course of the reparative process and for the formation of a sound regenerate. Injection of opioid during 4 and, especially, during 6 weeks predetermines slowing down and complication of the process of healing of a multiple post-injection wound of skin in the experiment, which is manifested on the ultramicroscopic level by the deep changes in both, epidermis and structural components of derma. The obtained results can serve as a morphological base for further scientific research in dermatology and surgery.
Key words: ultrastructure, skin, wound, rat, opioid.

© Zheliba M.D.[1], Chornopyshchuk R.M.[1], Burkovskyi M.I.[1], Urvan O.G.[2], Arzhenkova K.B.[3], Kukarieva Yu.V.[1]
[1]Vinnitsa National Pirogov Memorial Medical University, Department of General Surgery, Vinnitsa, Ukraine; [2] Vinnitsa Regional Pathological-Anatomical Bureau, Vinnitsa, Ukrain; [3]Clinical and Diagnostic Laboratory of Vinnitsa Regional Pirogov Clinical Hospital, Vinnitsa, Ukraine

OBJECTIVE CRITERIA OF THE COURSE OF AN EXPERIMENTAL PURULENT WOUND IN ANIMALS

Introduction. The study of new drugs locally applied to purulent wounds and comparison of their efficacy with the possibility to compare the results of different

research centers is impossible without the unified methodical approach to conduction of similar studies. In vivo studies occupy a prominent place because in comparison with in vitro studies they consider a wound as a complex pathologic process and do not have numerous limitations. There are a lot of experimental works involving animals in the existing literature that by comparison of the clinical and laboratory study results prove the advantages of a certain drug. Therefore, the information about objective criteria of the course of an experimental purulent wound, standardized against time and phase of the wound process, will allow to simplify performance of similar studies and most importantly to save the life of experimental animals.

That's why the *objective* of our study was performance of the clinical-laboratory examination of the blood and wound exudate at different stages of the wound process, supplemented by the morphological examination of the tissues in the wound of the experimental animals.

Materials and methods. The experimental study involved 8 mature male Chinchilla rabbits aged 1 – 1,5 years, weighing 3,4 ± 0,3 kg. An experimental purulent wound in the interscapular area was modeled for all the animals. For assessment of the course of the wound process the rectal temperature of the animals' bodies was determined and clinical evaluation of the wound was made. Blood samples from the marginal auricular vein and the wound area were also taken for determination of the white blood count, leukogram, C-reactive protein, seromucoid level, immunologic indices (phagocytic index, phagocytic number, basal and induced metabolic activity of neutrophilic leukocytes). The cytological and bacteriological study of the wound content as well as histologic examination of the wound tissues was performed. The neutrophilic granulocyte form factor was determined in the blood smears and impression smear of the wound content. The blood examination results of the same animals received before modeling of the pathologic process were taken as normal levels for the laboratory indices.

Results. The study results include the analysis of the performed clinical, laboratory, biochemical, microbiological, cytologic, immunologic, morphometric examinations of the blood and wound content, morphological study of the tissues and further determination of the nature of the change in the received indices and their objective assessment at different time periods depending on the phase of the course of the wound process.

Conclusions. In future the received results can be used for unification of the studies aimed at settlement of the problem of diagnostics and treatment of wounds with the possibility to study the wound process on the whole.

Key words: experimental simulation, purulent wound, wound process.

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Danylo Halytsky Lviv National Medical University, department of normal anatomy (69 Pekarska Str., Lviv, 79010, Ukraine)

THE MORPHOLOGICAL FEATURES OF THE SUBCAPSULAR AREA OF THE RAT LIVER IN NORMA

Introduction. The questions of the heterogeneity of the rat liver were detached in this paper, in particular, the subcapsular area was researched, because of the features of the development of the pathology within this area in comparison with the liver as a whole.

Materials and methods. The white healthy male rats, weight about 190-230 g., were used for the project. The samples from the rat liver has been taken for the research in random uniform method, hematoxylin-eosin staining and Schiff staining were used. The areas from liver histology as a whole and areas within the range approximately 250 μm from the liver capsule have been compared. The volume of the hepatocytes, the number of hepatocytes and the sinusoid to parenchyma ratio, the size of the sinusoid and the intensity of the glycogen accumulation were researched. Measurements were made with "ImageJ" software, as well as for glycogen intensity estimation. For ratio estimation and numbers of hepatocytes the "Stepanizer" software has been used.

Results. The hepatocytes within the subcapsular area more heterogeneous, without any zonal pattern, with brighter cytoplasm and higher average (mean) of volume of hepatocytes, moreover there were more gigantic cells have been found with diameters till 30-35 μm. The hepatocytes in the liver as a whole have classical zonal pattern – larger in central lobular areas and smaller in periportal areas.

The sinusoids in subcapsular area have average diameter 13,5±0,2 μm, and while in a liver as a whole 10,1±0,1 μm, but there are less occurs in subcapsular areas. Moreover, the sinusoids direction is radial in liver as a whole, while in subcapsular areas sinusoids parallel to the surface of the liver often occurs.

The Schiff staining has revealed homogeneity of the glycogen pattern in a liver as a whole, while within the subcapsular areas the hepatocytes with low density of the glycogen often occurs, as well as with the intensive accumulation in the form of granules.

The morphometry results are presented in table and in graph.

Conclusion. After the comparison of the subcapsular area and the liver as a whole, the next features of the subcapsular area have been found: the size of hepatocytes larger in subcapsular area, as well as larger heterogeneity of the shape and the size; lesser the number of hepatocytes in unit of volume in subcapsular area; there were lesser number of sinusoid in subcapsular area, although, larger their size; lesser the glycogen concentration within the subcapsular area.

These features of subcapsular area can help to reveal the specialty of pathology of the liver, as well as to explain the morphofunctional heterogeneity of the liver structure.

Key words: liver, hepatocyte, glycogen, rat, subcapsular area.

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Bogomolets National Medical University, Kyiv

ULTRASTRUCTURE OF MESENTERIAL LYMPHATIC NODES AND SPLEEN IN RATS WITH EXTRAHEPATIC PORTAL HYPERTENSION AFTER TREATMENT WITH VOBENZYM AND POLYOXYDONIUM

Introduction. The lack of data on morphological and functional changes in the organs of the immune system involved in the pathological process under extrahepatic portal hypertension, including the mesenteric lymph nodes and spleen and theoretical basis to prevent immunological complications we conducted experimental studies on laboratory animals.
Objective. To investigate the ultrastructural changes in the mesenteric lymph nodes and spleen in rats with extrahepatic portal hypertension after treatment by vobenzym and polyoxidonium.
Material and methods. The object of electron microscopic investigation was tissue of the spleen and mesenteric lymph node of 20 juvenile rats which were divided into two groups: 1 group (10 rats) – to whom in the age of 2 months surgically extrahepatic portal hypertension was modeled, 2 group (10 rats) - rats with extrahepatic portal hypertension that for 1 month were treated with vobenzym and polyoxidonium.
Results. It was determined that this schema of the treatment helps to achieve better preservation of ultrastructure of mesenteric lymph nodes and spleen, such as stopping of degenerative processes, as response to the invasion of intestinal bacteria, by activating phagocytosis, antibody stimulation, increased resistance of membranes to cytotoxic agents, inhibition of lipid oxidation. Furthermore processes of circulating immune complexes and proliferation of immune cells were normalized compared to untreated animals.
Conclusions. Positive changes give reason to believe that such combined scheme is an appropriate immune-modulating therapy under extrahepatic portal hypertension.
Key words: rats, portal hypertension, spleen, mesenteric lymphatic nodes, ulltrastructure, immunocorrection.

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Danylo Halytsky Lviv National Medical University (69 Pekarska Str., Lviv, 79010, Ukraine)

ULTRASTRUCTURAL ORGANISATION OF EYE-BALL CILIARY PROCESS OF RATS CAUSED BY OPIOID HAVING BEEN USED IN DIFFERENT TIME-PERIODS

Introduction. A pressing issue of modern medicine is a study of the effect of various pharmaceutical agents on the structure of organs. Opioids and opiates are more and more used in clinical practice.

However, in professional literature there are only occasional reports on the effects of opioids on the structural organization of the organ of vision. Still open remains the problem of the length of a safe application of opioids.

This is why *the objective of our study* is to establish peculiarities of ultrastructure of the vascular tunic of the eyeball following injection of opioid and substantiate the risks of the long-term application of nalbufin.

Materials and Methods. The research is carried out on 24 mature white male rats aged 4,5 - 7,5 months and 130-150 g weight.

The lab animals are divided into three groups: the first group (5 rats) is intramuscularly injected with nalbuphine for 2 weeks (I week - 8mg/kg, II week - 15 mg/kg); nalbuphine is intramuscularly injected to the animals of the second group (5 rats) for 4 weeks (I week - 8 mg/kg, II week - 15 mg/kg, III week - 20 mg/kg, IV week - 25 mg/kg); the third group (5 rats) is intramuscularly injected with nalbuphine for 6 weeks (I week - 8mg/kg, II week - 15 mg/kg, III week - 20 mg/kg, IV week - 25 mg/kg, V week - 30 mg/kg, VI week - 35 mg/kg). The withdrawal of the material is made in 2, 4 and 6 weeks correspondingly. 9 white rats which are administrated with normal saline solution served as a control group.

The work was conducted using the method of electron microscopy. The animal was brought out of the experiment by an overdosage of intraperitoneal anesthesia using thiopental sodium (at 25 mg/kg). Sampling and standard transfer of the material for electron microscopy were made immediately after death of the animal. Ultrathin sections were prepared with the aid of ultramicrotome UZTP-3 and glass knives. Strips of silvery or primrose color were chosen for the study. The sections were first contracted in 2% solution of uranyl acetate and then in lead citrate solution. The study and photographing of the material were conducted with the aid of microscope UEMB-100 K at acceleration speed 75 kV and enlargement on the microscope screen 1000-124000x.

All animals are handled in accordance with the provisions of the European Convention for the protection of vertebrate animals used for experimental and other scientific purposes (1986), International Guidelines (2011) and the Guidelines on protection, care, and handling of laboratory animals prescribed by the Ukrainian legislation (2006, 2012). All experiments are approved by the University Animal Care and Use Bioethical Committee. The animals are housed under standard vivarium conditions.

Results. It was established, that the deepest changes in ultrastructure under the effect of opioid take place in the ciliary processes of the vascular tunic of the eyeball. In case of injection of nalbufin during 2 weeks with the following interval of 2 weeks without injections changes in the ultrastructure of ciliary processes are insignificant and connected with the restructuring of their cells and organelles towards an intensive restoration of capillaries, basal membrane, epithelium. Capillaries of ordinary diameter were found in apexes of ciliary processes, cytoplasm contains numerous ribosomes and polysomes, young mitochondria, nuclei have considerable electron density, contain protuberances. Basal membrane bears against the capillaries' wall. Some presence of cytoplasm fragments was detected in endothelial cell zone, while the other part of cytoplasm with the nucleus decomposing by way of amitotic division

is located in the basal membrane system. Endotheliocytes of capillaries of the intermediate part and bases of ciliary processes by their structure are similar to those in the control group, but they are slightly consolidated, their cells contain more ribosomes and polysomes. Epithelial cells of the apexes of ciliary processes are practically unchanged, but in the areas of epithelial cells bearing against the basal membrane there are found numerous electron dense cells in the stage of interphase. In the intermediate part of ciliary processes ultrastructural organization of epithelial cells is unchanged, here were found cells of medium electron density in the stage of high specialization, which is shown by the well-developed apical folding of plasmolemma covered by the basal layer contacting with the posterior chamber of eye. However, in the areas adjacent to the ciliary processes' bases there are found elements of intensively decomposing structures, that by their contours only indicate their connective tissue origin.

Cells characteristic of the norm were found in the epithelium of ciliary processes' bases. However, the existing here ratio of the cells is shifted towards prevailing share of the "dark" poorly differentiated and "light" cells at the stage of differentiation to the intermediate highly specialized forms. There have been found almost none of the "dark" highly differentiated cells at the stage of decomposition.

After 6 weeks of the experiment (4 weeks of nalbufin injections with the following interval of 2 weeks without injections) there are observed changes in all constituent components of ciliary processes. Especially deep destructive changes take place in the vessels of ciliary processes. There we observe abrupt dilatation of capillaries, thinning of their walls. Connections of endotheliocytes are less tight, basal membrane is fluffed and discontinuous, medium electron density "intermediate" in the stage of interphase and electron density "dark" in the stage of decomposition cells prevail in the capillaries. A large number of lysosomes is noted in the "intermediate" endotheliocytes, Golgi complex hypertrophic, there were found some gigantic mitochondrions. "Dark" endotheliocytes protrude in the vessels' lumen. Along with the decomposing elements of endotheliocytes there was noted a hyperaggregation of erythrocytes, their hemolysis in the capillaries' lumen. Erythrocytes of irregular form and adhesion of erythrocytes with endotheliocytes were also noted there.

After 8 weeks of the experiment (6 weeks of nalbufin injections with the following interval of 2 weeks without injections) superficial layers of the apexes of ciliary processes are consolidated, absence of ciliary buds prevails. Insignificant number of preserved epithelial cells of medium electron density was found in the composition of ciliary processes, but they also contain numerous lysosomes, autophagolysosomes, especially in the areas adjacent to the basal layer that is also fluffed and often protrudes into the lumen of anterior chamber of the eye. Most often superficial layers of such cells are disorganized with the presence of mucoid swelling elements. Lysis of epithelial cells was detected in the intermediate part of ciliary processes, which is confirmed by the presence of a large number of destroyed "dark" epithelial cells and a small number of "dark" poorly differentiated cells that are also in the stage of lysis which is accompanied by the formation of amyloid filaments. There were also found "light" epithelial cells at the stage of formation of folds characteristic for control, but this process does not go to specialization as there have not been found any

"intermediate" forms of highly differentiated cells. On the contrary, such "light" cells have a hypertrophic Golgi complex, numerous lysosomes, autophagolysosomes, vacuoles. Their internal membranes system is fluffed. Electron density of epithelial cells in the base of ciliary processes is insignificant, there is observed vacuolization and lysis of cells with their subsequent penetration into the lumen of anterior chamber of the eye. Leukocytes were found in the preserved elements of basal membrane. There are also observed foci of cells of a low degree of differentiation. These cells have large nuclei and a narrow cytoplasm contour.

Conclusions and perspectives of further development. Correlation has been established between the duration of injection of nalbufin and the depth of changes in the ultrastructural organization of the vascular tunic of eyeball in the experiment. Results of the study appear to be a morphological ground for a safe application of nalbufin during 2 weeks. In case of injection of opioid during 4 week there have been detected changes in the ultrastructure of the vascular tunic of eyeball of the rat, that were partially compensated after 2 weeks of discontinued injections. Injection of opioid during 6 weeks predetermines irreversible destructive changes in the vascular tunic of eyeball of the rat, which is manifested by the phenomena of disorganization of both, endothelial and epithelial cells of ciliary processes.

The obtained results can serve as the ground for further searches for optimal methods of correction of changes in ultrastructure of organs resulting from the long-term application of opioids.

Key words: eyeball, ultrastructure, ciliary process, opioid, experiment.

© Kishchuk V.V., Rautskis P.A.
Vinnitsa National Pirogov Memorial Medical University (Pirogov str., 56, Vinnitsa, 21018, Ukraine)

MORFOFUNCTIONAL OF CHANGE OF MUCOUS GLANDS OF PHARYNGEAL TONSIL WHEN AT ITS PATHOLOGY

Introduction. Pharyngeal tonsil - limfoepitelialnogo body, which is part of the pharyngeal lymphoid ring-Valdeyyera Pirogov and, at the palate and lingual tonsils tube is actively involved in the formation of humoral and cellular immunity parts and plays a role in the regulation of the immune response, especially in childhood [Vavilov, 2003; Melnikov et al., 2004; Rautskis, Biktimirov, 2005; Layko et al., 2010].

Pharyngeal tonsil is diffuse lymphoid entity that does not have a connective tissue capsule, but has its own mucous gland ducts which empty into it crypts. Their secret moisturizes ciliated epithelium and keeps the whole body from drying out and damaging. Scientific research on the study of the morphological changes mucous glands GM, depending on its pathology (hypertrophy, inflammation), it is not enough.

The purpose of this research work was the histological examination of mucous glands removed by adenotomy in children.

Material and methods. Selectively collected tissue removed adenoids in children II-III degree for histological study in a specialized compartment disease ear, nose and throat Vinnytsia Regional Children's Hospital during the period from 2010 to 2014. Total 220 cases in children aged 2 to 14 years.

According to the hospital record cards all children were present well defined clinical indications for adenotomy. GM tissue samples were fixed in 10% neutral formalin solution. Fixed material excised pieces from the middle of the body from top to bottom so that the cut to the base fell adenoids.

Results. Mucous glands of pharyngeal tonsil and their ducts respond to pathological changes of the amygdala. In acute inflammation, manifested plethora, the current in the amygdala, the infiltration of neutrophils, eosinophils, plasma cells, with swelling of the mucous membrane and epithelial desquamation similar changes are found in the mucous glands and their ducts, which are localized at the base of the tonsils. Chronic inflammation of the pharyngeal tonsil and its hypertrophy and cause the displacement of ducts, their deformation, sclerosis and retention of secretions with the formation of cysts. Such changes are defined in sections acinar mucous glands. This contributes to the hyperplasia of lymphoid tissue tonsils marginalized sections, which migrates into the stroma of the mucous glands. These changes in the mucous glands must be considered when choosing a method of adequate treatment.

Conclusions. 1. Removed adenoids should be investigated histologically to clarify semiotics GM, especially when they relapse. 2. Pathology GM (inflammation, hypertrophy) in process mucous glands and their ducts, causing them sclerosis, hyperplasia, atrophy and formation of small retention cysts.

Key words: mucous glands of pharyngeal tonsil in children, pathology.

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Vinnitsa National Pirogov Memorial Medical University (Pirogov str., 56, Vinnitsa, 21018, Ukraine)

THE MORPHOLOGY OF THE KIDNEY REMAINING AFTER REMOVAL OF THE CONTRALATERAL

Introduction. The problem of single kidney diseases is one of the pressing in modern urology, as the number nefrektomiy does not tend to decrease and implemented most of the most active social and labor age. With continuously high incidence of renal cell carcinoma each year the number of radical nefrektomiy increases. Indications for laparoscopic nephrectomy is also all benign kidney and urinary tract, renovascular hypertension with renal dysplasia, ureteral calculus of various localization, again contracted kidney, polycystic kidney and other diseases.

In one kidney there are processes of gradual development of compensatory hypertrophy authority. Still not fully established morphological changes contralateral

kidney after nephrectomy without which it is impossible to determine the timing of the formation mechanisms of compensation and critical periods of development, to clarify the mechanisms of functional disability kidney directed drug therapy, predict the state body.

Objective: to establish the nature of changes in the structure of a single kidney remaining after nephrectomy.

Material and methods. Experimental study performed on 60 mature male rats weighing 155-160 g at the vivarium Vinnitsa National Pirogov Medical University. Maintenance and manipulation of the animals were carried out according to the "General ethical principles of animal experimentation" approved 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 the "Rules of preclinical safety evaluation of pharmacological agents (GLP)".

The animals were divided into 2 groups: intact animals (10 animals), which did not carry out any intervention; research animals (50 animals) that performing surgery - nephrectomy of the left kidney.

Rats under general anesthesia intra-muscular (chlorpromazine 10 mg / kg ketamine and 20 mg / kg) was carried out left-sided nephrectomy renal legs by crossing between the two ligatures, followed by removal of the organ. The animals were taken out of the experiment by intra-pleural administration of thiopental sodium 50 mg / kg every 7, 14, 21 and 30 days after nephrectomy.

Macroscopic evaluation and description kidneys of animals performed after their removal. In order to identify morphological kidney disorders fragments of tissue for histological studies were followed by fixation in 10% neutral formalin neutral solution and filling in paraffin by conventional methodology. Morphological kidney condition experiment evaluated based on histological examination by staining with hematoxylin drugs, eosin, toluidine blue and Van Ghisoni.

Results. Histological study of the kidneys intact rats showed that the structural components of the nephron organization has specific characteristics and it has no differences in the structure of young and mature animals. In svitlooptychnomu levels in the cortex of the organ observed renal corpuscles, which are round or oval structures. They have available vascular glomerulus and Bowman's capsule-Shymlanskaya. The capsule built from two epithelial layers, between which is a narrow space. Vascular ball of capillaries formed between a remote prynosnoyu and arterioles.

Morphometric found that the average value of areas of renal cells intact rats amount to 4813 ± 109 mkm².

Microscopically in renal cortex slices on day 7 after performed nephrectomy hypertrophied observed renal corpuscles. These vascular glomeruli of blood capillaries have wide gaps that krovonapovneni available mainly red blood cells. The nuclei of epithelial cells are round, light karioplazmu with small basophilic clumps of heterochromatin in some nuclei are large. In the cytoplasm of proximal observed include protein in the form of rounded, dark, different size structures.

Past histological study showed that 14 days after kidney nephrectomy experimental

animals occurred more pronounced changes in the vascular bed and organ parenchyma than in the previous term experiment. In the cortex dominated hypertrophied kidney cells, they observed blood supply hemokapilyariv vascular glomeruli. Increase education capsules. For proximal and distal convoluted tubules of nephrons characteristic is enhanced education. Apical epithelial cells damaged areas, especially in the distal nephron. There are far advanced krovonapovneni hemokapilyary perytubulyarnoyi grid.
Morphometric found that the average area of the renal cells in this experiment period equal to 5932 ± 128 mkm² that 1.23 times compared with those of intact animals. Past microscopic studies of renal cortex mature animals 14 days after nephrectomy performed showed the presence of hypertrophic kidney cells. In size they more than mature animals.
Conclusions. Adaptive-compensatory changes after nephrectomy performed manifested in the early stages of the experiment compensatory hypertrophy of the renal corpuscles area and reorganization of the vascular bed.
In the later stages of the experiment in part of nephrons developes morphological changes of destructive nature.
Key words: nephrectomy, single kidney, morphology.

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Vinnitsa National Pirogov Memorial Medical University (Pirogov str., 56, Vinnitsa, 21018, Ukraine)

BIOCHEMICAL AND MORPHOLOGICAL MARKERS OF NEURODEGENERATION IN RATS WITH HYPERHOMOCYSTEINEMIA AND ITS CORRECTION BY VITAMINS, ESMIN AND BETAINE

Introduction. Neurodegenerative diseases and neyrovaskulyarni often associated with impaired homocysteine metabolism. Certified relationship hyperhomocysteinemia (HHC) structural changes of the brain - silent heart attacks, leykoareoz, dilatation of the ventricles of the brain, micro- and rates of macroangiopathy. To correct HHC using vitamin and nevitaminni means, but their effect on the content of H2S in the brain, biochemical and morphological parameters neurodegeneration under conditions HHC remains outstanding.
The aim was to establish the influence of a combination of vitamins B6, B9, B12 and esminu (poly trace element product) and betaine on biochemical and morphological markers of neurodegeneration in rats with combined GHz.
Materials and Methods. Experiments conducted on 88 white laboratory male rats (250-270 g) according to general ethical principles of animal experimentation. Animals were in standard vivarium conditions with natural light mode day / night, received water and food ad libitum. Combined HHc caused by feeding rats a semi-synthetic "gipovitaminoznyh-methionine" diet (1% L-methionine, lack of vitamins B6, B9, B12) for 14 days. On the night of 14 animals were transferred to the main

diet balanced Oz all micro and makronutriyentamy, including two groups performed metabolic correction combination of vitamins B6, B9, B12 combined with Esminom (35 mg / kg) or betaine (450 mg / kg) . Substances were injected intradermally 1% starch gels 7 days. Control rats were intact. The animals were taken out of the experiment after 14 and 21 days. Material for biochemical studies were obtained in 64 animals for morphological - 24 animals.

Results. In rats who were vitamin deficiencies-methionine diet for 14 days, HC content in serum was higher at 12.0 times, and the H2S content in the brain was 2.6 times lower than in the control group rats.

After 14 days in rats with combined HHC found biochemical signs of neurodegenerative processes: serum NSE content was higher by 119%, and the content of BDNF by 45.5% lower than in the control group animals.

In rats GHz deficit against the background of H2S in the brain showed marked changes in all structural components of the sensorimotor area of the cerebral cortex. Revealed atrophic and destructive changes in the pyramidal layer Neyrotsytah.

Established biochemical and morphological markers of neurodegeneration in 88 rats with hyperhomocysteinemia (HHC) and its correction. The injection of vitamins B_6, B_9, B_{12} and polymicroelements complex Esmin provides effective elimination of homocysteine; normalizes H_2S content in brain; normalizes serum level of brain-derived neurotrophic factor and neuron specific enolase; reduces neurodegenerative, neuroinflammatory and neurovascular changes in the sensomotoric cortex of rats. Betaine reduces neurotoxicity HHC, but its efficiency is lower than combination of vitamins B_6, B_9, B_{12} with Esmin.

Conclusions. 1. Correction HHC vitamins B6, B9, B12 combined with complex polimikroelementnym esminom provides effective elimination of excess HC, normalizes H2S content in the brain, serum BDNF content and NSE, reduces the morphological features GHz-induced neurodegenerative changes in rats.

2. Betaine lowers Hz, adjusts the H2S content in the brain, reduces biochemical and histological signs of brain damage in conditions combined HHC, but the efficiency is inferior combination of vitamins B6, B9, B12 of Esmin.

Key words: Homocysteine, hydrogen sulfide, brain, neurodegeneration, Esmin, vitamins, Betaine.

© Kulygina V.M., Pylypiuk O.Yu.
Vinnitsa National Pirogov Memorial Medical University, Department of Therapeutic Dentistry (11 Medvedev str., Vinnitsa, 21036 Ukraine), virstyk87@rambler.ru

EXPERIMENTAL STUDY OF THE EFFICACY OF THE PROPOSED METHOD OF DENTAL CARIES PREVENTION USING AN ANIMAL MODEL OF ADJUVANT ARTHRITIS

Introduction. Prevention and treatment of dental caries holds one of the leading positions in dentistry. The role of juvenile rheumatoid arthritis in the complex of

factors of dental caries development in children is well-known. There is still a great need for treatment and prevention of dental caries in children suffering from this disease. However, development of dental caries in children and determination of its prevention efficacy using a model of experimental rheumatoid arthritis is understudied.

The *objective* of the performed research was to study the efficacy of the developed method of dental caries prevention using an experimental model of juvenile rheumatoid arthritis.

Materials and methods. The study involved 40 one-month albino rats. The rats of the 1st group were left intact, for the animals of the 2nd, 3rd and 4th group juvenile rheumatoid arthritis was modeled by hypodermic injection of 0,1 mg of complete Freund's adjuvant in the left hind paw (subplantarly). The rats were examined everyday and the clinical condition was evaluated on the 14th (the peak of the inflammatory process), on the 28th (forming of the chronic immune inflammation) and on the 58th day (completion of the experiment). General treatment of adjuvant arthritis in rats of the 2nd, 3rd and 4th group (from the 14th day of the experiment) was performed by intra-abdominal injection of baseline therapy drugs - Methotrexatum, glucocorticosteroid Methylprednisolone, nonsteroidal anti-inflammatory drug Meloxicam. For dental caries prevention the rats of the 3rd group were given traditional remedial-preventive drugs: calcium gluconate, the multivitamin complex "Vitrum Junior" and local applications of sodium fluoride. The rats from the 4th group were given a developed complex of dental drugs: vitamins "Alfavit", drugs "Calcemin" and "Imudon", and the cream "GC MI Paste Plus" with fluorine - Recaldent™ was used locally. The oral hygiene was maintained with the toothpaste "SPLAT Biocalcium", then "SPLAT Active" and mouthwash "Colgate® Plax Fresh Tea". After removal from the experiment the extension, intensity and depth of affection by dental caries were determined.

Results. A single subplantar injection of Freund's adjuvant induced development of an autoimmune inflammatory process (adjuvant arthritis) causing local and generalized body reaction in experimental animals. Adjuvant arthritis contributed to formation of changes of the peripheral blood typical of the chronic immune process: neutrophilic leukocytosis with moderate shift to the left, increase of eosinophils and basophil appearance. Development of the experimental juvenile rheumatoid arthritis was accompanied by 100 % extension and high intensity of dental caries, possibly caused by impaired phosphorus-calcium metabolism and calcium elimination due to intake of glucocorticoids. The peculiarity of teeth affection in case of adjuvant arthritis was a significantly higher number of carious teeth and cavities as compared to the intact animals ($p<0,001$), similar increase of the moderate-depth carious process ($p<0,001$) and occurrence of deep caries that proved negative influence of the chronic immune inflammation on the condition of hard tooth tissues. Standard prevention of the carious process did not contribute to considerable reduction of the indices of intensity and depth of affection by dental caries in experimental animals ($p<0,05$ as compared to the intact rats) proving its low efficacy. The drugs "Alfavit", "Calcemin", local application of "Imudon" and cream "GC MI Paste Plus" with fluorine - Recaldent™ had evident anticariogenic effect conditioned by the drug

content increasing local protection factors, structural-functional condition of hard tissues and mineralizing potential of saliva. The use of hygienic drugs contributed to cleaning of animals' oral cavity and anticariogenic effect due to bioactive calcium and sodium monofluorophosphate with the fluorine dose of 1000 ppm.
Conclusions. The results of the experimental study have proved advisability of the use of the developed method of complex dental caries prevention in children with juvenile rheumatoid arthritis.
Key words: juvenile rheumatoid arthritis, dental caries, children, prevention.

© Shaprinskyy E.V.
Vinnitsa National Pirogov Memorial Medical University, Department of surgery №1 (Pirogov str, 56, Vinnitsa, 21018, Ukraine)

STATE OF CELL PROLIFERATIVE ACTIVITY OF THE ILEOCAECAL SEGMENT MUCOUS AFTER LIGATION OF RIGHT COLIC ARTERY

Introduction. Despite modern advances in surgery of the esophagus in the world today there is no single method of esophageal replacement among the many techniques of operations that would satisfy all the requirements. Thus, the most common among them are: stomach, small or large intestine used for esophageal replacement, esophagus own tissues. Despite the large number of available methods and techniques of esophageal replacement the level of postoperative complications and postoperative mortality remains high – from 1,5 to 32 %. We have proposed and implemented in the clinic esophageal replacement by ileocecal segment. In the course of its performance there are questions concerning a choice of the transplantant feeding arteries, namely: at the expense of which arteries it will be stored blood supply: ileocolic artery or media colic artery. That is, during mobilization of the ileocaecal segment the ligation of appropriate feeding vessels will be performed, including right colic artery ligation. This situation brought us on thought to study changes of proliferative activity and apoptosis of the ileocaecal segment mucous after ligation of right colic artery by flow DNA cytometry method. The aim was to establish a process of cells adaptation to new conditions of blood supply after ligation of the right colic artery in the course of mobilization of ileocaecal segment with its next using at the subsequent esophageal replacement.
Materials and methods. The experiment was carried out on white rats, male, weighing from 250 to 300 g. Experiments were performed in accordance with general principles of experiment on animals adopted by the National Congress of Bioethics. Before research animals passed quarantine in a vivarium a current of week, contained in identical conditions, received an identical diet. There was not any special preoperative preparation. In total 18 rats were operated on. Operations were performed under ketamin anesthesia. The ligation of right colic artery with the subsequent studying of proliferative activity of the ileocaecal segment mucous was carried out in all animals of the first group (9 rats). There were also 9 rats in control

group. Animals were taken out of experience in 1, 3, 7 days by an overdose of ketamine and biopsy specimens were performed to study the cell proliferative activity of ileal and caecum mucosa.
Results. As a result of the conducted research it is established that on the first day of the experiment there are ischemic changes in the cells, on the third day of the experiment there is a tendency to normalization of indicators of a cellular cycle, that is, to reduction of the damaging ischemia factor is observed. For the seventh days of experiment this tendency proceeds and there is an adaptation of ileocaecal segment to ischemic chanes.
Conclusion. So right colic artery at a case of esophageal replacement by ileocecal segment can be tied up.
Key words: proliferative activity, flow DNA cytometry, ileum, caecum.

Yaremenko L.M. Grabovoy A.N.
Bogomolets National Medical University (Victory Avenue, 34, Kyiv, 03055, Ukraine); the National Cancer Institute (Lomonosova str., 33\43, Kyiv, 03022, Ukraine)

NEUROFILAMENT PROTEIN EXPRESSION IN THE RATS' SENSORIMOTOR CORTEX AFTER TRANSITORY ISCHEMIA

The aim of our study - to identify changes in the expression of NFP sensorimotor cortex in rats when simulating blood flow disturbances in the basin of the left carotid artery of different severity.
Materials and methods. Investigations were carried out on 80 adult male Wistar albino rats weighing 260-290 g. Aanimals were divided into 4 groups: group 1 - control (K), animals that have not experienced any action (n = 10); group 2 (MEA) - with microembolization blood vessels of the left hemisphere of the brain, (n = 35) [4]; group 3 (MEA+I) - animals with the IEA, who received 0.5 mg immunofana ("Bionoks", Russia), 1-10, 21-23, 30-32, 50-51 days of the experiment (n = 35). All surgeries were performed under general anesthesia thiopental (50 mg / kg). The brain was removed after 1, 3, 10, 30 and 90 days after the start of the experiment the animals after administration of thiopental sodium (200 mg / kg). Within 1 min autopsy conducted skull rat brain removed, was cut frontally into three parts, and the average was placed in buffered 10% formalin (pH 7.4, 40C) for 24 hours. The material compacted in paraffin and histological sections were made of 4 mm thick and stained them azur II-eosin. Immunohistochemistry (IHC) reaction for detection of NFP was performed according to the manufacturer's protocol with the primary antibodies against protein neyrofilamenty (NFP) (Monoclonal Mouse Anti-Human Neurofilament Protein Clone 2F11 (Dako, Denmark). To visualize the reaction products used IHC detection system EnVisionTM FLEX, (Dako, Denmark). Sections dokrashuvalysya hematoxylin Gill. As positive controls to use samples of rat brain reactivity to certain positive and negative controls for the procedure was performed

without the use of primary antibodies. The obtained histological preparations examined and photographed using Nikon Eclipse 80i microscope with camera DS-5SMc / L2 (Nikon, Japan) at standardized conditions (magnification h200, 1280x960 pixel RGB). In the obtained images was performed counting the number of NFP - positive cells ganglionic layer of the cerebral hemispheres (left and right) on the area 430h320 mm. The obtained data are processed by standard statistical methods.

Results. Thus, our observations showed that with degenerative and destructive changes in the brain in violation of its blood supply and ischemia is changing expression NFR. Using Monoclonal Mouse Anti-Human Neurofilament Protein Clone 2F11 (Dako, Denmark) allows detecting cerebral cortex of rat brain NFP composed of nerve fibers, but not perikarionah neurons. Here they can be detected only in single neurons in recovering from ischemic attack. Acute period after induction of ischemia is characterized by decreased expression of NFP, which is mohayichnyy character. In the acute phase after ischemic attack (1, 3 days after circulatory disorders) in the cells of destructive-degenerative change is reducing its amount, up to extinction.

The transition to renewable-compensatory processes after ischemic injury (day 10 of the experiment) accompanied by a decrease in the expression of NFR source of destruction that are visualized with it, compared with the control. Subsequently, there is a gradual increase in the number of elements in the NFR sensorimotor cortex, whose number is 90 days after transient ischemia modeling is twice bigger and more visible than in the control. The latter may be a factor that significantly affects the function of the affected brain regions.

As for glial scarring and in the walls of pseudo cysts formed expectedly turns sharply reduced expression NFR fibers.

Conclusions. Using Monoclonal Mouse Anti-Human Neurofilament Protein Clone 2F11 (Dako, Denmark) allows detecting cerebral cortex of rat brain NFP composed of nerve fibers, but not perikarion neurons. Here they can be detected only in single neurons in recovering from ischemic attack. Acute period after induction of ischemia is characterized by decreased expression of NFP, which is mosaic. Recovering from cerebral blood flow characterized by the appearance of rounded "cells" with high expression of NFP, which can be regarded as bulb growth. This allows indicates that in cerebral ischemia is massive damage to nerve fibers. What are regenerated ex. Recovering from ischemic injury is also characterized by focal hypo- and hyper-moderate expression of NFP, which persists for a long time.

Key words: cerebral ischemia, NFP, neurofilaments.

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Higher State Educational Establishment of Ukraine “Ukrainian Medical Stomatological Academy”, Poltava, Ucraine

CARBOHYDRATE SPECIFICITY OF NORMAL RAT ILEUM MUCOSA AND IN ADMINISTRATION OF CRYOPRESERVED PLACENTA ACCOMPANIED BY ACUTE ASEPTIC PERITONEAL INFLAMMATION

The aim of the research was to define the changes in carbohydrate specificity of the cell of structural components of normal rat ileum wall and after administration of cryopreserved placenta accompanied by the acute aseptic peritoneal inflammation.
Materials and methods. The object of the experimental study was ileum wall, extracted from 140 Wistar senior male rats. The animals were assigned into four groups. The carbohydrate determinants of ileum wall cell surfaces, where the structure impairment were the most pronounced (1, 7 and 14 day of the experiment) have been defined at different stages of the experiment by means of corresponding panel of lectins, i.e., HPA, PNA, SBA, PFA, LCA, SNA, WGA. The rate of lectinohistochemical response has been measured by the semi-quantitative method according to the stain intensity: 0 points – no response, 1 point – weak response, 2 points – moderate response, 3 points – strong response, 4 points – harsh response. The BIOREX-3 microscope with DCM 900 digital microphotohead has been used.
Results. The study of binding (marking) degree of the HPA galactose-specific lectin with receptors of villi and ileum crypts showed that in Group I (intact animals) the binding reaction was within 100% to 75%; no binding reaction with enterocytes without bordering was detected. The 100% reaction in villus and 75% binding reaction in crypt was detected on day 7-14 in Group II. In Group III the analysis of marking degree showed that the level of binding in villi and crypts accounted for 50-100% and 0-100%, respectively. In Group IV harsh marking in villus and weak marking in crypts was detected on day 7-14 of the experiment. While analyzing the parameters of binding degree of the PNA lectin in Group I, a strong marking in villi and weak response in crypt has been detected. In Group II a strong reaction, accounted for 75%, has been detected in villi and crypts on day 1 of the experiment. On day 7-14 of the experiment a strong reaction, accounted for 75%, has been shown by enterocytes with bordering. In Group III two types of cells, located in the villus from 50 to100%, responded on biding reaction. The analysis of Group IV showed the binding reaction with cells in villus at the level of 75-100% and 0-50% in crypt on day 1-14. In Group I the analysis of binding parameters of SBA (αGalNAc) lectin showed a strong response (75%) in the villus and 100% harsh response in crypt. The analysis of binding reaction parameters between the groups of animals singled out the Group IV. Intubation of mucosa in Group IV revealed that on day 1-14 of the experiment the staining was done by 75%, and 100% in villi. The surface of goblet cells was done at the level of 50-100% in crypt. In the intact group of animals intubation of ileum mucosa by fucosospecific lectin (PFA) revealed a weak response in villi and no response in crypt. In Group II-IV the analysis of parameters of expression showed that on day 1-14 a harsh and strong binding reaction with cells was detected in villi only, except Group II, where a strong and weak response in crypt was noted on day 7. The study of binding degree of mannose-specific lectin (LCA) with receptors of villi cells in all groups and time periods showed the level of 75-100%. In crypts it was 75% in Group II and 25% in Group III-IV. The findings of

binding degree of SNA sialo-specific lectin with receptors of villi cells and crypts of ileum in all groups showed no individual strong and harsh degrees of binding.
The analysis of staining intensity of ileum mucosa cells by sialo-specific lectin (WGA) in intact group of animals showed that in villus the staining reaction of enterocytes with bordering was at the level of 100%; in crypt the staining degree was shown by goblet cells only, accounted for 75%.
In Group II the binding degree of this lectin with cell surface in villus and crypt was detected on day 7 and all cells manifested a strong degree of binding. On day 14 almost similar picture was detected, except enterocytes without bordering and Paneth cells. In Group III the goblet cells in villus and crypt, as well as Paneth cells in crypt, were stained by 50% on day 7-14, except enterocytes with and without bordering (0%).
In Group IV the study of binding degree of lectin with cell surfaces revealed strong and harsh marking of enterocytes with bordering during the all time periods of the experiment. Only one type of cells, i.e., goblet cells, which reacted with the lectin by 75%, was detected.
Key words: ileum, lectins, cryopreserved placenta, inflammation.

© [1]Semenenko A.I., [1]Semenenko N.O., [2]Kondratskiy B.A., [3]Kobelyatskiy Y.Y., [4]Zvedenyuk Y.A.
[1]National Pirogov Memorial Medical University of Vinnytsia (Pirogova St., 56, Vinnitsa, Ukraine, 21018); [2]SE «Institute of blood pathology and transfusion medicine of AMS of Ukraine» (Generala Chuprynky St., 45, Lviv, Ukraine, 79044); [3]SE «Dnipropetrovsk medical academy of Health Ministry of Ukraine» (Dzerzhinsky St., 9, Dnepropetrovsk, Ukraine, 49044); [4]City Clinical Emergency Hospital, (Kievskaya St., 68, Vinnitsa, Ukraine, 21032).

MORPHOLOGICAL FEATURES OF THE BRAIN OF RATS WITH ACUTE CEREBRAL ISCHEMIA ON THE BACKGROUND OF THE INTRODUCTION OF 0.9% NACL SOLUTION

Introduction. It is constantly going search of drugs that inhibit the development of the most pathological responses in the area of ischemia, that prevent the development of irreversible changes, optimize the nerve cells of the brain, both in physiological conditions and the development of pathological processes at the present stage of treatment of acute cerebrovascular accident (CVA). Great interest paid to the impact on central hemodynamics of therapeutic measures that reduce the likelihood of cerebral ischemia in CVA.
The aim is to explore the dynamics of morphological picture of ischemic sensomotor cortex of rats without treatment and during treatment isoosmolar 0,9% NaCl.
Material and methods. Experiments conducted on 30 white male rats weighing 160-170 g. The experimental model of ischemia-reperfusion (IR) created by blending of clips on both internal carotid arteries for 20 min under anesthesia of propofol (60

mg/kg). 0.9% NaCl solution was administered intravenously in catheterized femoral vein in a dose of 2.5 ml/kg 2 times/day (5 ml/kg per day). The first administration was performed 30 minutes after the IR and then daily every 12 hours for 7 days. Control groups were intact rats and untreated animals with IR. Morphometry was performed at increasing × 100, × 200, × 400.

Results. The study showed that ischemia-reperfusion of brain triggers the emergence of many specific pathological changes in the vascular wall of a blood vessel microcirculation of sensomotor area of the cerebral cortex and directly in the substance of rats brain.

In the blood vessels microcirculation there are significant pathohistological changes in the cerebral cortex of sensomotor area and directly in the substance of rat brain in ischemia-reperfusion on the background of 0,9% NaCl introduction, namely vacuolar dystrophy, necrosis of endothelium of vascular wall, destroying the integrity of the walls of blood capillaries, expansion of lumens, full-blood that lead to disruption of the blood-brain barrier and increased permeability to the plasma and formed elements.

Course of 0.9% NaCl solution therapy of rats almost not braked the development of degenerative changes in the sensomotor cortex of ischemic brain which progressively deepened from the 1st to the 7th day of observation.

The effect which was received in the experiment after applying of 0.9% NaCl solution, is the basis for the study of the protective action of infusion preparations other groups in acute disorder of cerebral circulation.

Conclusions. 1. Ischemia-reperfusion brain triggers the emergence of many specific pathological changes in the vascular wall of a blood mikrotsyrkulyatrnoho bed cerebral cortex and sensorimotor area directly in a real rat brain. 2. Yearly therapy rats 0.9% NaCl solution hardly hampered the development of degenerative changes in the sensorimotor cortex of ischemic brain which progressively deepened from the 1st to the 7th day of observation.

Key words: brain, ischemia-reperfusion, a solution of 0.9% NaCl.

© Pivtorak K.V.
National Pirogov Memorial Medical University of Vinnytsia (Pirogova Str., 56, Vinnitsa, 21018, Ukraine)

SUBMICROSCOPIC CHANGES IN EXPERIMENTAL HEPATIC STEATOSIS

Introduction. Nonalcoholic fatty liver disease is one of the common chronic diseases. Nonalcoholic fatty liver disease may be a component of diseases associated with insulin resistance (metabolic syndrome, diabetes mellitus type 2, obesity).

Objective: to establish the nature of the changes of ultrastructure in experimental hepatic steatosis.

Material and methods. Experimental studies conducted on 40 white male rats

nonlinear adulthood. Prior to the experiments, the animals were kept in quarantine for 10 days. During this period, the animals received a standard full-synthetic casein-starch diet. Subsequently, animals were divided into 2 groups: control - 10 animals that continued to eat the same diet, and research - 30 rats, which created a model of liver steatosis, which was held for 8 weeks on hiperkaloriyniy diet with high fat and high cholesterol, containing about 30% fat (mostly saturated lipids) adding cholesterol (obtained by mixing 2 g cholesterol and 10 g lard 88 grams of granules normal balanced diet).

After creating animal models of hepatic steatosis control and experimental groups examined ultrastructural changes in hepatocytes and endothelial vascular microcirculation of the liver.

Sections 40-60 nm thick was studied by electron microscope PEM-125 K.

Results. Liver intact laboratory rats (control group) has lobed structure. Hepatic particles formed beams - trabecular located parenchymal cells - hepatocytes and sinusoidal hemokapilyaramy type. Most hepatocytes are polygonal shape and polarity expressed structure. In vascular cell surface are numerous vypyachuvannya plasmolemma as microvilli, which are immersed in the Diss area and close to the endothelial cells.

For typical endothelial podovhasta form of nuclear are thickened and cytoplasmic areas with thin and perforation. These small slit-like structures provide an active exchange between the content of trans capillaries and hepatocytes. The nuclei of the endothelial cells also podovhasti may have small intussusception.

For normal hepatocyte ultrastructure typical round shape of the nucleus, they karioplazma contains one or two nucleoli. Between clearly konturovanymy nuclear membrane is perynuklearnyy narrow space, kariolemi many nuclear pores.

The cytoplasm of hepatocytes is full of well-developed organelles. Typical podovhasti moderately dilated tubule granular endoplasmic reticulum with numerous ribosomes, short tank puhirtsi vacuoles and Golgi complex. The smooth endoplasmic reticulum tubules presented and bags that are located mainly in the cytoplasm of vascular areas. Dyktiosomy Golgi complex are paranuklearno or near the bile capillaries. Submicroscopic they created tanks and vacuoles microbubbles. Mitochondria podovhastoyi or round, with moderately electron dense matrix, well defined Christie.

Conclusions. 1. Conducted submicroscopy studies have shown that in experimental steatosis in the liver on the background of disorder of the microcirculation develop significant changes in plasmatic, nuclear and intracellular membranes of endothelial cells and hepatocytes. 2. Destabilization and destruction of cellular and organelles membranes have a negative effect on the metabolic and functional capabilities of the body.

Key words: hepatic steatosis, modelling, hepatocytes, electron microscopy.

Odessa National University named after I.I.Mechnikov (Champagne Lane., 2, Odessa, 65058, Ukraine)

RATS' BRAIN REACTIVITY BEHAVIOURAL CORRELATES THROUGHOUT THE INTERICTAL PERIOD OF CHRONIC CONVULSIVE PERIOD

Aim of our work – to investigate the dynamic of the rats' motor, explorative and stereotypic behaviour in the "open field" during the interictal period of the picrotoxin- and pilocarpine-induced chronic convulsive syndrome.

Materials and methods. The experimental trials were performed using male Wistar rats weighting 180-320 gr. The following groups were identified. Group #1 (n=9) – intact animals received i.p. 0,9 % NaCl solution. Group #2 –rats (n=12) that were kindled via daily i.p. picrotoxin (0,9-1,1 mg/kg) administration. Group #3 (n=6) – picrotoxin kindled rats received i.p. naloxone (1,0 mg/kg). Group #4 (n=6) – picrotoxin kindled rats received i.p. naloxone (10,0 mg/kg). Group #5 (n=12) –rats received i.p. pilocarpine (280 mg/kg). Group #6 (n=6) – pilocarpine rats received i.p. atropine (1,0 mg/kg). Group #7 (n=6) – pilocarpine rats received i.p. naloxone (1,0 mg/kg). Group #8 (n=6) – pilocarpine rats received i.p. naloxone (10,0 mg/kg).

All rats were tested in the "open field". throughout the beginning, the middle and the end of the interictal period. The following indexes were determined: total number of the quadrates crossed, the number of the central quadrates crossed, the number of the vertical slayings, the number of the rats' looking into the "open field" floor holes, the number of grooming episodes, the number of both urinations and defecations.

All data received were calculated using ANOVA statistic criteria followed by Neuman-Keuls post-hoc test. $P<0,05$ was chosen as the minimal index of the statistical significance.

Results. The expressed changes in motor, explorative and stereotypic behaviour were recorded in rats during the interictal period of picrotoxin- and pilocarpine-induced seizures. The greatest degree of its manifestation was registered at the beginning and the end of nonconvulsive period.

The following dynamics of the "open field" investigated indexes was observed in picrotoxin-kindled rats: hypolocomotion → its reestablishment → hypolocomotion together with stereotypic behaviour depression. Rats with pilocarpine-induced chronic convulsive syndrome revealed a gradual reduction of the investigated "open field" elements of behavior which reached their minimal expression at the end of the nonconvulsive period.

Opioid system activity increases in rat brain at the end of nonconvulsive period that precedes spontaneous seizures development that we consider as the sign of epileptic system activation and the dynamic balance "Epileptic System - Antiepileptic System" shift to side of epileptic system that must be taken into account from the fundamental point of view for detailed understanding of the brain reactivity mechanisms during this nonconvulsive period as well as in case of perspective schemes of complex pathogenetic correction performing out.

Key words: brain reactivity, chronic convulsive syndrome, picrotoxin, pilocarpine, interictal period, “open field”.

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Poltava

THE MORPHOLOGICAL CHARACTERISTIC OF THE HEMOMICROCIRCULATY CHANNEL OF THE PERIPHERAL AREAS OF THE LUNGS OF RATS AFTER THE INFLUENCE OF IMMOBILIZATIVE STRESS

Introduction. Today the most common disorders in the structure of morbidity Ukraine are respiratory diseases. Among the reasons that lead to an increase in bronchopulmonary diseases, prominently occupies the influence of different stressors, under which the lungs arise distinct structural change, facilitating the development of diseases of the respiratory system.

The aim of the study was to establish the morphological changes that occur in hemomikrotsyrkulyatornomu line peripheral regions of the lungs Wistar rats under the influence of immobilization stress.

Materials and methods. The study was performed on 60 white male rats Wistar, weighing 240-260 grams, aged 8-10 months. Rats were divided into 3 groups of 20 animals each. The first group consisted of animals to reproduce experimental model of acute immobilization stress. The second group of rats exposed to experimental chronic immobilization stress. Third, control group, were similar to intact animals.

Experimental work performed in accordance with international requirements of bioethical norms and relevant regulations of Ukraine.

Results. To play the experimental model of acute immobilization stress rats immobilized in a horizontal position on the back for 6 hours. Effect of chronic immobilization stress rats modeled by fixing the same way every day for 21 days. Slaughter of fasting rats conducted by decapitation under intraperitoneal thiopental sodium anesthesia. For histological study of rat lung slices were fixed in 10% neutral formalin solution and 4% aldehyde solution hlyutarovoho napivtonkyh for making cuts. After conducting the corresponding alcohols by increasing concentration, lung slices were placed in paraffin by conventional methodology. Microtome sections were stained with hematoxylin-eosin, the Hart - Van ghisoni and Mallory. Stained sections carried 0.1% solution of toluidine blue.

Histological examination channel peripheral regions of the lungs of rats experimental groups showed after playing experimental model of acute immobilization stress on forefront, pushing changes and violations. All levels channel defined phenomenon of blood stasis occurring in the peripheral regions of the lungs accompanied by the emergence of foci of vascular diapedesis of red blood cells in the interstitial connective tissue and alveolar education. Morphometric study showed a significant increase in lumen diameter capillaries more than doubled compared with the control

group, respectively 7,31 ± 0,71 and 3,62 ± 0,25 mm in the left lung and 7,64 ± 0,69 and 3,68 ± 0.22 m on the right (p <0.01). The diameter of the lumen of the left lung venules increased from 19,01 ± 1,14 mm by 34.9% and reached 25,64 ± 1,76 mm (p <0.01), and the right - of 18,72 ± 1, 07 to 26,08 ± 1,59 m, ie 39.3% (p <0.01).
Significant morphological changes in blood vessels channel peripheral regions of the lungs in rats were observed after exposure to experimental chronic immobilization stress. Arterioles were due to spasmodic contraction of smooth myocytes. The diameter of the lumen of capillaries increased significantly compared with the control group, the left lung to 45.3% (from 3,62 ± 0,25 to 5,26 ± 0,41, p <0.01) and 48.9% in right (from 3,68 ± 0,22 to 5,48 ± 0,39, p <0.01). The diameter of the lumen of venules left lung has increased by 10.8% (from 19,01 ± 1,14 to 21,07 ± 2,17, p <0.01) and 10.4% at the right (from 18,72 ± 1,07 to 20,66 ± 1,17, p <0.01). All levels hemomikrotsyrkulyatornoho channel effects found blood stasis, perivascular leukocyte infiltrates determined, focus diapedesis of red blood cells from the blood vessels in the interstitial connective tissue and alveolar education.
Conclusions. The researches have shown that the immobilizative stress courses significant morphological changes in the hemomicrocirculation of the peripheral areas of the lungs of rats. In such case the diameter of the capillaries and vanules enlarges reliably, in all links of the hemomicrocirculaty channel the stasis of blood, diapedes of erythrocytes from the vessels into the interstetional connective tissue and alveoli gaps are determined, what can course the appearance and development of the respiratory system disorders.
Key words: lung, stress, rats.

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Kiev

MICROSCOPIC PICTURE OF THE ADRENAL GLANDS DURING THE MONTH IN RATS, WHICH THE FIRST SEVEN DAYS WERE INJECTED SOLUTION OF HAES-LX-5%

Aim of our work - to study within a month morphological state of adrenal glands at the tissue and cellular levels of structural organization in rats when applying the first seven days of the experiment solution of HAES-LX-5% in comparison with analogous entering of 0.9% NaCl solution and Lactoproteinum with sorbitol.
Materials and methods. 90 male white rats weighing 160-180 g were divided into 2 groups: group number 1 - rats that underwent intravenous infusion for 5-6 minutes at a dose of 10 ml/kg in the inferior vena cava 0.9% solution of NaCl; group number 2 - rats that underwent intravenous infusion over 5-6 minutes at a dose of 10 ml/kg HAES-LX-5%.
Infusions of solutions were conducted in the inferior vena cava after it's aseptically catheterization through the femoral vein. The catheter was sewn under the skin, its lumen along the entire length was filled with volumetric solution of heparin (0.1 ml

heparin in 10 ml 0.9% solution of NaCl) after each injection. Infusion performed once a day during the first 7 days. Shaving of animals, catheterization of the main vessels and decapitation of animals carried out in conditions under propofol anesthesia 60 mg/kg i/v.

Removal of material for histological examination carried out on 1st, 3rd, 7th, 14th, 21st, and 30th day of the experiment. Adrenal glands were fixed in 10% neutral formalin solution. After fixing material washed, the water was removed in a series of increasing alcohol concentration, conducted through the chloroform and poured into paraplast. Sections of 7-8 micron thick tissue prepared on a rotary microtome, placed on glass, stained with hematoxylin-eosin and were poured into Canada balsam. Histological examination of adrenal glands was performed on the Olympux BH51 microscope at magnifications: x4, x10, x20, h40, x100.

Results. Discussions. In rats, which during the first seven days was conducted infusion with solution of HAES-LX-5% at a dose of 10 ml per kg during 30 days histological structure of adrenal gland was similar to that of rats who received 0.9% solution of NaCl.

Comparing the histological structure of adrenal glands of rats, which during the first seven days spent infusion solution HAES-LX-5% at a dose of 10 ml per kg with animals that the first seven days of the experiment treated with sorbitol solution Lactoproteinum in the same dose, found that plethora in blood vessels, regional standing and increased adhesion of leukocytes to endothelial cells in postcapillary venules and infiltration of leukocytes in vascular spaces in animals injected solution HAES-LX-5% were less pronounced than in similar terms when used sorbitol solution Lactoproteinum.

Thus, obtained differences indicate that the application of the sorbitol solution of Lactoproteinum compared with HAES-LX-5% marked more immune defense reaction of cells and more intense activation of processes aimed at eliminating products of damage and stimuli that results in maximum recovery under these conditions in the affected area.

Key words: morphology, adrenal gland, rats, solution HAES-LX-5%, 0.9% solution of NaCl, Lactoproteinum with sorbitol.

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State Enterprise "Ukrainian Research Institute of Transport Medicine Health of Ukraine", Odessa, Ukraine

STRUCTURAL AND FUNCTIONAL FEATURES OF HEALING OF FRACTURES OF THE FIBULA USING APIPHONOPHORESIS DEPENDING ON THE DOSE OF BEE VENOM

Introduction. Authors in the experiment on 60 white male Wistar rats were evaluated apiphonophoresis impact on the structural and functional features of the

fibula fracture repair and the possible dependence of the intensity of the reparative process doses of bee venom.
Material and methods. The animals were ranked in 3 groups. The I group (20 rats), - animals in which the fracture healed without external influences. II group (20 rats), - animals in which the healing fracture was performed phonophoresis bee venom. The cycle consisted of 9 manipulation procedures used slurry native bee venom in petrolatum oil in increasing the dosage: 1-3 procedure 0.3 mg per procedure; 4-6 0.6 mg; 7-9 0.9 mg. III group (20 rats) - which in the process of repair of the fracture was performed using a cycle phonophoresis "Apizatron." The cycle includes nine procedures used for each 0.3 mg of venom. Assessment of the repair process in I group animals was performed at 3, 7, 14 and 21 day of the experiment; animals II and III group at 7 and 14 days of experience as between 7 to 14 days of fracture was seen as the most active period of the repair. Fracture simulated intersection fibula bolt cutter animals in a deep nembutal anesthesia. Status reparative process was evaluated by histology fracture area, carrying light microscopy histological preparations decalcified bone. The results of the research showed that in groups II and III fractures around 7 day experience is a slight swelling with small lymphocytic infiltration in the case not corrected fracture flow in this period of observation infiltration and swelling of the tissues around the fracture fiber decay significantly.
The periosteum-defined cells with enlarged juicy kernels also looks periosteum and animals I group.
Results. Feature II and III groups was that in contrast to the I group dense bone is continuously applied in the field of fracture. Dense Matter bone in this area brightly eosinophilic color with lots of osteocytes in separate locations with rich, well-colored kernels. In the bone canal occurs accumulation of histiocytes and lymphoid cells. After 14 days of the experiment the animals II and III groups, the tissue surrounding the fracture zone of the ordinary kind. Thick solid substance, the color, the number and arrangement of osteocytes not differ from controls. In the bone channel from dense matter determined by massive languages, sometimes merging. Such a picture in the group of animals I determined by 21 days of the experiment. Of particular note is that the difference between the histological pattern of fracture in animals II and III groups, we have not identified.
Conclusions. The authors suggest that the phonophoresis native bee venom and “Apizatron” accelerate the process of restoring the dense bone material. The authors attribute this to the activation of the functional activity of semi osteocytes and in particular to activation of protein-synthesizing function of these cells. The authors note that the activation of the reparative process does not depend on the dose of bee venom. Obviously bioactive components of bee venom are strictly defined as independent of the total amount of their entering the body.
Key words: fracture, bee venom, phonophoresis.

Kiev, Lugansk

HISTOLOGICAL STRUCTURE OF THE MID-SHAFT ZONE OF HUMERUS DURING APPLICATION TIBIAL DEFECTS WITH ADMINISTRATION OF SODIUM BENZOATE

The study was *aimed* at finding histological structure of the mid-shaft zone of humerus in adult rats with defect in tibia after 60-day *per os* administration of sodium benzoate in various concentrations and mexidol.

Material and methods: for the experiment we selected 280 male thoroughbred rats with initial body weight of 200-210 grams.

The first group (K) comprised animals that received daily *per os* 1 ml of 0.9% solution of sodium chloride, the second and the third groups (SB1 and SB2) received *per os* 1 ml of sodium benzoate in dosage of 500 or 1000 mg per kg of body weight, the fourth group (D) comprised animals with defect in both tibiae made when in groups 2 and 3 sodium benzoate was discontinued. The fifth and the sixth groups (DSB1 and DSB2) comprised the animals who received sodium benzoate and had defects in tibiae also made after sodium benzoate discontinue and the seventh and eighth groups also received mexidol in dosage of 50 mg / kg.

Readaptation terms constituted 3, 10, 15, 24 and 45 days. Upon expiration of each term, the respective animals were withdrawn from experiment by means of decapitation under general anesthesia. The sections of HE stained of the mid-shaft zone of humerus were put to standart morphometry. The data obtained was analyzed using variation statistics methods by means of standard software.

Results and discussion. Sodium benzoate in dosage of 500 mg per kg of body weight affects cell structure of humerus shaft yet adverse effects of it reduce fast enough after discontinue and after the 15^{th} day of observation alterations are not well distinguishable. Alterations of bone structure are visible as narrowing of main layers of cortical bone, osteons and total area of cortical bone, and widening of canals of osteons and bone marrow cavity. Dosage increase up to 1000 mg per kg of body weight worsened adverse effects of sodium benzoate on bone tissue and after intake discontinue bone structure returned to initial state by the 24^{th} day of observation.

Defect in proximal portion of tibia also resulted in decrease the periosteal bone formation of the humerus. In the group DSB1 bone formation decrease was observed from the 24^{th} day of observation. In the group DSB2 bone formation decrease was observed from the 45^{th} day of observation. The simultaneous administration of sodium benzoate and mexidol at dosage of 50 mg / kg body weight smoothed decreasing periosteal bone formation in humeral diaphysis after application defect of the tibia.

Conclusions: 1. Defect in tibia after 60-day administration of sodium benzoate is accompanied by decrease the periosteal bone formation in humeral diaphysis compared with the group without administration of sodium benzoate. 2. Under dosage of sodium benzoate of 1000 mg / kg, the severity of the changes was larger than that at a dose of 500 mg / kg.3. The simultaneous administration of sodium benzoate and mexidol at dosage of 50 mg / kg body weight smoothed decreasing periosteal bone formation in humeral diaphysis after application defect of the tibia.

Key words: skeleton, bone defect, diaphysis, sodium benzoate, mexidol.

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SO " National institute of phthisiology and pulmonology named after F.G. Yanovsky NAMS of Ukraine", laboratory of pathomorphology (M. Amosova str., Kiev, 03680, Ukraine)

HISTOLOGICAL STUDY OF THE LOCALIZATION, VOLUME AND THE "AGE" OF THE FIBRIN MASS FOR PULMONARY TUBERCULOMAS WITH VARIOUS ACTIVITY OF SPECIFIC INFLAMMATORY PROCESS

Introduction. Recently it was shown that in many cases of surgical resection of pulmonary tuberculomas there is a high level of specific inflammation activity in lung tissue. But correct definition of the level of specific inflammation activity at pulmonary tuberculomas in some cases connects with great difficulties because clinical state of patients doesn't directly correlate with morphologic level of specific inflammation activity in lung tissue.
It was supposed that determination of localization and volume of focuses of fibrin masses and its "age" in lung tissue affected tuberculosis such as tuberculoma can serve as additional morphologic sign during histological determination of the level of specific inflammation activity.
Aim of this study was the histological examination of the localization of fibrin masses, their "age" and relative amount in various structures of the lung tissue at pulmonary tuberculomas in cases with morphologically different activity of inflammation.
Material and methods. Forty five cases of pulmonary tuberculomas (surgical resection of lung segments) were included in study. Areas of investigation were inner content of tuberculomas, perifocal regions and lung tissue far from the macroscopic lesions. Serial tissue sections with five micron thick were stained by hematoxylin-eosin and MSB-method in Zerbino modification. All cases were divided to two groups: high level of specific inflammation activity (30 cases, 1 group) and moderate level of activity (15 cases, 2 group). First of all activity of inflammation was defined according to classical set of histological signs.
For semi-quantitative analysis of volume of fibrin masses in lung tissue the next conventional scale was used: + – small, ++ – moderate, +++ – large amounts. «Fibrin age» was determined according to color in sample: orange color corresponds young fibrin (0-6 hours), different tones of red – to mature (7-24 hours) and grey – to old (more than 48 hours). Microscope Olympus CX41 was used, and work magnifications – x 100, x200.
Results. Character, "age" and volume masses of fibrin in necrotic content of tuberculoma were analyzed. At high level of specific inflammation activity fibrin masses were prevailed in the center and look like small clots (all cases of 1 group). In 20 (66,7 %) cases mature fibrin was revealed in large amounts. Diffuse pattern of

fibrin deposits and type of “caseous pneumonia” were in 18 (60,0) and 17 (56,7%) cases respectively. At moderate level of activity diffuse pattern of mature and old fibrin deposits prevailed, 18 cases. Overall amount of fibrin was smaller than at high level of activity, especially of young and mature fibrin.

Masses of fibrin of different volume and “age” were revealed in region neighboring to tuberculomas in structures: tuberculous nodules, accumulations of cells of inflammation nature and zones of exudative reaction in alveoli.

Mature fibrin in moderate quantity presented in tuberculous nodules in four cases with a high level of specific inflammation activity, and in one case with a moderate level of activity. Under high level of activity specific cells accumulations were in 17 (56,7 %) cases with young or mature fibrin in great or moderate amounts. At lowering activity of inflammation only in 2 (13,3 %) cases was small masses of fibrin ($p<0,001$).

Exudative reactions namely fibrinous exudates in alveoli are a characteristic sign of exacerbation of tuberculous inflammation and as a rule it present near to tuberculoma. At high level of inflammation activity a young fibrin in the alveoli exudates was in 18 (75,0 %), in small amounts; a mature fibrin was in all 24 cases.

At moderate level of inflammation activity just in 2 (13,3 %) cases small amounts of young fibrin were revealed in exudate. Mature fibrin in moderate amount was in 2 (13,3 %) cases too, and in small quantity – in 5 (33,3 %) cases.

Conclusion. There are essential differences concerning amounts of fibrin and it “age” in histological structures of lung tissue and which are connected with different activity of specific inflammation.

The high level of specific inflammation activity namely progressing tuberculosis in form of tuberculoma is characterized by presence of fibrin deposits of different “age” and amount in many structures. Diagnostic signs includes large or moderate amounts of young or mature fibrin in inner content of tuberculoma ($p<0,001$), in specific cells accumulations near tuberculoma, and prevailing of moderate amounts of mature fibrin in alveoli exudates ($p<0,05$).

The moderate level of specific inflammation activity namely stabilization of process in pulmonary tuberculomas is characterized by large deposits of old fibrin in inner content of tuberculoma ($p<0,001$). Outside of tuberculoma in some cases a very small amounts of mature fibrin can be revealed.

That’s why a presence of fibrin of different “age” and in different volume can be as criterion for morphologic determination of the level of inflammation activity at pulmonary tuberculomas.

Key words: pulmonary tuberculomas, fibrin, the morphological level of activity.

ULTRASTRUCTURAL CHANGES IN THE ENDOTHELIUM OF INTRAORGANIC HEMOCAPILLARES UNDER THE CONDITION OF BURN DISEASE TREATMENT BY THE COMBINED HYPEROSMOLAR SOLUTIONS

Introduction. The article presents data in relation to the structural changes in the endothelium of hemocapillares in adenohypophysis, thymus, adrenal gland, ren and aggregate lymphoid nodules of ileum during experimental burn disease in rats and its treatment by the combined hyperosmolar solutions. Hyperosmolar solutions administered intravenously protects the damage of vessel wall.

The aim of this study was to investigate the ultrastructural changes in the endothelium of blood capillaries of internal organs in the treatment of burn disease by infusion combined hyperosmolar solutions.

Material and methods. Rats were divided into 7 groups: I - intact animals; II, III, IV - rats without thermal injury, undergoing a single infusion of 0.9% solution of NaCl, HAES-LX-5% laktoproteina with sorbitol, respectively, at a dose of 10 ml / kg; V, VI, VII - animals with burns that a similar scheme was introduced separate study drugs.

Experimental burns caused by applying to the lateral surfaces of the trunk 4 animals copper plates (2 plates on each side), which previously were held for 6 min. in water at a constant temperature of 100 degrees. The total area of the burn in rats was 21-23% with an exposure of 10 sec., Which is sufficient to form a second degree burn and development of shock moderate.

Intravenous infusion solutions were performed within 5-6 min. at a dose of 10 ml / kg body weight. The solutions were injected into the inferior vena cava, for which it was cannulated aseptically via the femoral vein. Catheter inserted into the femoral vein, sutured under the skin. The first administration solutions was performed 1 hour after modeling pathological condition following infusion generally performed daily for 7 days.

Results. The most typical manifestation of the common pathological changes were functional alteration of different cells of the vessel walls and their hemomicrocirculatory bed, increasing paravasal and intercellular spaces as a result of degradation of the intercellular substance, the development of cell-cell expressed and paravasal edema.

Typical of the marked animals was to expand the lumen of the blood capillaries and venules, stasis of red blood cells and the formation of aggregates of the type of "rouleaux".

We have determined that the deterioration of cell structures and higher requirements for recovery mechanisms are gradually deplete the compensatory-adaptive possibilities of endothelial cells until their alteration. These changes do not have a total character, however, dramatically deepening morphofunctional heterogeneity of the endothelial monolayer.

Development of pathological processes in microvascular endothelial cells of the blood of animals V studied the experimental group (0.9% infusion solution NaCl) is reduced to: partial to total and edema; dehydration cytoplasmic matrix with a sharp

increase in the electron-optical density of the cytoplasm; progressive depletion of endothelial cells with coated cytoplasm and organelles reduced amount; cell death due to necrosis or apoptosis. The developed endothelial apoptosis appears sharp osmiofiliey cytoplasm with its fragmentation. When necrosis of endothelial cells are destroyed tsitolemmy releasing the contents of the cells in the vessel lumen.
In rats with burn injuries that were introduced hyperosmolar solutions (VI and VII groups of animals) in the studied organs are not revealed substantial damage to the endothelial cells of blood vessels and bleeding and are not registered signs paravasal and intercellular edema. This testifies to the properties of the combined angioprotective hyperosmolar solutions.
Even after 3 days in the studied organs of animals with burn injury, which was introduced lactoprotein with sorbitol (VII experimental group) in the lumen of certain blood capillaries and venules revealed amorphous elektronnoplotnoe content. It should be noted that the total electron density of the intravascular contents is usually substantially less than the density of erythrocyte cytoplasmic matrix in the vascular lumen.
In this study we have determined that the burn disease of the internal organs are damaged not only cells but also the intercellular substance. Morphological manifestations of the latter is the loss of structuring intercellular substance, optical "enlightenment" and an increase in its volume.
Conclusions: 1. A common manifestation of pathological changes in the adenohypophysis, adrenal, thymus, kidney and group lymphoid nodules of the ileum in burn disease is damage to endothelial cells of blood capillaries. 2. Structural change of endothelial cells of capillaries of the internal organs in burn disease leads to a decrease in the selectivity of the endothelial barrier and the appearance of zones of flow. 3. The use of infusion Laktoproteina with Sorbitol and HAES-LX-5% provides improved plastic processes, energy supply, transport, secretory and barrier function of endothelial cells of blood capillaries. 4. Laktoprotein with Sorbitol and HAES-LX-5% of burn disease exhibit cyto- and angioprotective properties inhibit the development of edema, hemorrhage, and prevent the appearance of alteration of cells contribute to repair organs.
Key words: burn disease, infusion therapy, endothelium of the hemocapillares, electronic microscopy.

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Odessa, Ukraine

FEATURES OF STRUCTURAL AND FUNCTIONAL CHANGES IN THE LIVER IN EXPERIMENTAL CHRONIC ALCOHOLISM AND APPLICATION SOLUTION BUBBLED XENON

Authors in the experiment on 67 white outbred male rats breeding investigated the effect of washing the abdominal cavity with saline enriched xenon on the condition of

the structure and function of the liver in chronic alcoholism. Animals were ranked into 3 groups: Group I 7 animals (intact) served as controls; II group - 30 animals, which were created chronic alcoholism; III group - 30 animals with chronic alcohol abuse, starting with the 15-day experience in a day, the abdominal cavity was washed with physiological enriched xenon. Total carried 5 washes. Chronic alcoholism was carried out daily, for 30 days, intragastric introduction of 25% alcohol in volume of 1% of body weight.

At the conclusion of experiment histological preparations stained with hematoxylin-eosin, were evaluated changes in the structure of the liver of experimental animals. In the blood biochemical methods ALT and AST, the content of the average molecular weight (MAW_{254} and MAW_{280}).

The results of these studies have shown that chronic alcoholism does not change lobular structural and functional organization of the liver. The hepatocytes near the central veins was organized in the beam; the remaining area is the location of their segments rather disordered. Hepatocytes contain the core of medium size with a different color intensity. Cytoplasmic lumpy, slightly basophilic. Many hepatocytes significant size fat vacuoles. On the periphery of the slices are determined and eosinophilic hyaline inclusions. The vessels of the liver is moderately full-blooded.

At the same time determined by the decrease in activity of ALT and AST, which indicates that inhibition of transamination processes. The content of bilirubin and its fractions almost unchanged, indicating that bile production and preservation processes of bile excretion. Increased creatinine, urea and the average molecular weight, i.e., there are signs of development of endogenous intoxication.

Lavage abdominal cavity with saline enriched xenon has a positive impact on the structure of the liver and its functions. In the liver hepatocytes located in lobules beams, almost the entire area among segments. For peripheral portion slices small foci of loose connective tissue, hepatocytes individual lipid inclusions. The cytoplasm of hepatocytes homogeneous, most hepatocytes single core, but there are also dual core.

According to the biochemical studies ALT and AST almost correct, the content at the same time reduced the average molecular weight, i.e., it can be assumed that the normal protein metabolism. At the same time, the content of urea and creatinine remained elevated; it can be assumed that the normalization of catabolic processes does not occur, although they are somewhat lower in intensity.

The authors suggest that under the influence of xenon in the liver in chronic alcoholism is improving protein metabolism, which positively affects the structure and function of the liver. However, the state of nucleic acid metabolism significantly influence xenon, which is associated with the peculiarities of the biological activity of xenon.

Key words: chronic alcoholism, liver, molecules of average weight.

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Ternopil

MORPHOLOGICAL AND HISTOCHEMICAL CHANGES OF THE LUNGS IN THE LATER STAGES AFTER EXPERIMENTAL THERMAL TRAUMA

Introduction. Thermal injury accompanied by the development of structural and metabolic disorders of the skin and all organs and systems and leads to the development of burn disease followed by multiple organ failure. Most common respiratory insufficiency, which develops due to the direct thermal lesions of the respiratory tract, the action of toxic combustion products and exogenous and endogenous toxins.

The aim of this study was to establish the morphological and histochemical condition of the lungs of animals in the stage of toxemia and septykotoksemiyi after experimental thermal injury.

Material and methods. The experiment was carried out on 24 mature white male rats. The animals were kept in a vivarium SHEI "Ternopil State Medical University Horbachevsky Ministry of Health of Ukraine." Pet care and all manipulations were carried out in accordance with the provisions of the "European Convention for the Protection of Vertebrate Animals used for experiments and other scientific purposes" (Strasbourg, 1986) and in accordance with the "General ethical experiments animals "approved the First National Congress on Bioethics (Kyiv, 2001).

Third degree burn was applied under ether anesthesia copper plates heated in boiling water to a temperature 97-100^{o}C. Lot Size destruction constituted 18-20% of body surface epilovanoyi rats. Experimental animals were decapitated 14 and 21 days, which corresponds to late stages of burn toxemia and septykotoksemiyi disease.

Results. Histological examination of the lungs 14 days after thermal lesions observed significant destructive changes vasculature, bronchial tree, the stroma and parenchyma. Increased vascular permeability caused by burn toxemia, causes perivascular, peribronhialnoy, interstitial edema and accompanied by disorganization and ground substance and fibers of connective tissue. It was established that in the later stages after burn injury (14 and 21 days), occur significant vascular disorders, destructive-degenerative changes of bronchi, respiratory portion of the lungs and changes in their histochemical parameters.

In the experiment on mature white rats histological and histochemical research of the lungs was studied in the stage of late toxemia and septicotoxemia after thermal trauma, III degree.

During the most intense septykotoksemiyi expressed macrophagal reaction observed alveoli, where they form a whole field - or clusters form chains. Polymorphism macrophage cells presented typical large irregular shape with a rounded bright core and multicore giant dvohyadernymy and alveolar macrophages.

Conclusions. In severe thermal injury at 14 and 21 days of experiment taking place in the lungs expressed frustration vessels and bronchial inflammatory changes in body cells increase and atelectasis dispersion and enhanced emphysematous alveoli. Histochemical found destruction and disruption of intercellular substance components of connective tissue, which manifests severe interstitial, perivascular and peribronhialnoy sclerosis.

Key words: lungs, histological and histochemical changes, thermal trauma, late toxemia, septicotoxemia.

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Vinnitsa National Pirogov Memorial Medical University, Ukraine

ANALYSIS OF KIDNEY STRUCTURE SAFETY IN RATS AGAINST THE BACKGROUND OF THE USE OF POLYFUNCTIONAL INFUSION SOLUTION HAES-LX-5%

Introduction. The use of new infusion solution on the basis of hydroxy-ethyl-amylum is a current trend of pharmacotherapy of urgent conditions that lately has been improved and obtained a wide variety of medicines on this basis. That is it requires a thorough scientific study of possible changes in different organs, first of all, in experimental conditions.
The objective of our study was to estimate a dynamics of morphological kidney structures under the influence of infusion solution HAES-LX-5%, during 7 days of test observation on rats.
Material and methods. The obtained data give evidence of comparison of infusion solution influence with rats' renal physiological parameters.
Results. Thus, the bore of blood capillaries is full of erythrocytes. The capsular space is visualized clearly. The juxtaglomerular cells are without pathological changes. The cover cubic epithelial tissue of proximal tubules includes cytoplasmic projections into the bore of tubules, it also includes nucleuses with moderate amount of heterochromatin, a little enlargement of their bores can be seen. The cytoplasm of epithelial tissue is homogeneous, oxyphyle. In the bores of some tubules the remains of albumen can be found. The stroma is typically developed, the capillaries are full-blooded. In the distal tubules the epithelial cells are of usual histologic structure, including clear nucleuses. The blood capillaries of the strom are not changed.
Conclusions. 1. The use of polyfunctional solution on the basis of hydroxy-ethyl-amylum – HAES-LX-5% for rats have not caused renal tissues damage during the experiment on rats during 7 days, at the dose of 10 mg/kg. 2. Supervision over the dynamics of kidney structures in one, three and seven days of use of tested solution, on the other hand, protected cytoarchitectonics of kidneys and corresponded to morphological characters of intact animals. 3. The obtained results make it possible to continue the study in order to identify the protective characteristics of infusion solution HAES-LX-5% in conditions of urgent conditions (against the background of experimental burn disease).
Key words: ambustial illness, morphological changes of kidneys, solution HAES-LX-5%.

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SHEI “Ternopil State Medical University named after Gorbachevsky” MPH of Ukraine (Ruska str, 12, Ternopil, 46001, Ukraine)

MORPHOFUNCTIONAL STATE OF THE VESSELS OF THE LIVER IN EXPERIMENTAL THERMAL TRAUMA

Introduction. Burn disease that occurs in severe burns, takes one of the first places among other diseases and traumatic injuries, has a high mortality rate, the complexity of disease, duration of treatment and a high degree of disability [Бігуняк, 1995; Гунас, 1998; Козинець та ін., 2008].

Setting the pathogenesis of body systems at thermal injuries at this time is an actual problem in medicine.

Despite the great importance of the digestive system in effects on the body different damaging and stress factors, in the scientific literature we have little data about the structural changes in the largest gland of digestive system - liver when burns.

So important is making morphological research the state of vessels of the liver in experimental thermal injury using the modern histological techniques [Шкурупий, 1989; Гунас, 1998; Нетюхайло та ін., 2011].

The aim was to establish the morphological changes of the in blood vessels of the liver in experimental thermal injury.

Materials and methods. Experiments carried out on 24 mature guinea pigs. The burn applied under the ether anesthesia by water vapor at a temperature of 96-97 C on the shaved back skin surface for 60 seconds. Under such conditions developed burn of IIIA - IIIB degree. Area of destruction was 18-20% of the body surface of animals.

To establish the morphological changes of the liver, experimental animals were decapitated on 7, 14 and 21 days (respectively - early and late stages of toxemia and septicotoxemia).

For histological examination the liver was fixed in 10% neutral formalin with further pouring in paraffin. The obtained sections were stained with hematoxylin and eosin, examined in light-optical microscope and documented using a microscope MICROmed SEO SCAN and video system "Vision CCD Camera".

For electron microscopic study of tissue, pieces were fixed in 2.5% glutaraldehyde solution, after fixation was performed using 1% tetroxide solution of osmium in phosphate buffer [Горальський та ін., 2011].

Further processing was carried out according to conventional methods. Ultrathin sections made on ultramicrotome LKB-3 (Sweden), contrasted by uranyl acetate, citrate lead according to Reynolds method and studied in the electron microscope ПЕМ-125 К.

Results. Discussion. Histological study of the liver on day 7 of the experiment showed that in the early stage of burn disease toxemia holes in the central and underlobular veins significantly expanded, filled with blood cells, mainly erythrocytes.

There is also a plethora of vessels triads. Around the triads marked leukocyte infiltration.

The study of the structural components of the microcirculation of the liver showed dilated capillaries holes, increased in size edematous endothelial cells with light cytoplasm, round-oval euchromatin or pyknotic nucleus.
Near sinusoidal spaces of Disse sometimes not clearly defined.
Much more than in the capillaries of the intact animals observed Kupffer cells that have a compact basophilic nuclei and wrong outlines plasmolemma.
Submicroscopic studies of capillaries suggest about violation of structural organization of all its components. The holes of the most blood capillaries are expanded.
For endothelial cells is typical edema, enlightenment of the cytoplasm, reduce of number of pinocytosis bubbles.
In round-oval nuclei prevails euchromatin and karyolemma have rare intussusception.
In the cytoplasm there is a small number of organelles: short expanded tubules granular of endoplasmic reticulum, few number of ribosomes and polysomes.
Golgi apparatus is well defined is and its components are vacuolated. Edema of mitochondrial is accompanied by matrix enlightenment and reduction of cristae. In the cytoplasm of endothelial cells there is a few number of lysosomes.
Spaces of Disse are uneven, have a widened sections and snug fit of endothelial cells to the vascular pole of hepatocytes. In the lumen of blood capillaries often observed active macrophages.
They are increased in size, have a large area of cytoplasm. Plasmolemma of macrophages is uneven, forms numerous cytoplasmic grow and intussusception, indicating the active phagocytosis of these cells.
14 days after burn injuries in the liver we can observed destructive and necrobiotic changes in lobules, desolated central vein in the background of plethora in vessels of triads.
Around portal tracts in loose connective tissue of stroma observed leukocyte infiltration.
In some areas of hepatic particles, sinusoid is dramatically expanded and with full blood filling; also found empty, with small lumen of capillaries, that are narrowed.
For ultrastructure of capillaries in this term experiment are typical expanded holes, altered wall components.
In the cytoplasm of endothelial cells was observed little number of pinocytosis organelles and vesicles. Spaces of Disse are uneven, have expanded and narrow area, and a small number of microvilli.
Microscopic examination of the liver in the stage septicotoxemia (21 day of the experiment) set more significantly expanded and blood supply vessels, foci of necrosis and leukocyte infiltration of the gland parenchyma.
There is a plethora of central veins and sharp plethora around lobular arteries and veins of triads.
There is a moderate plethora in liver parenchyma in some areas are expanded sine wave.
In the intermediate zone of hepatic lobes and around portal tracts we can see broken lobed-beam structure of organ. In these same areas we can see narrow spaces of Disse.

Submicroscopic study of blood capillaries at 21 day of the experiment testify to a deep damage all components.
Capillaries with wide lumen filled with blood cells.
Endothelial cells of blood vessels have oblong or irregularly shaped nuclei with intussusception.
In the near nuclear area of the light swollen cytoplasm observed little number of organelles, some are dilated, deformed tubules of granular endoplasmic reticulum, little number of ribosomes, small with a light matrix of mitochondria have irregular contours, isolated christie.
In some areas mitochondrial membrane are fuzzy and destroyed. Disse spaces in many parts are narrow, microvilli are badly observed, some of them are destroyed.
Conclusions and prospects for further development. Conducted microscopic and electron microscopic studies of liver in the dynamics of experiment after severe thermal injury found that in stage of a toxemia typical changes in blood vessels that are adaptive-compensatory in nature.
1. In the later stages after the burn (stage of late toxemia and septicotoxemia) found significant degradation of veins, capillaries and vessels of triads, inhibition of regeneration.
Obtained results testify to expediency continuing research morphofunctional state of liver after experimental thermal injury in terms of corrective factors.
Key words: liver, vessels, histological and electron-microscopic changes, thermal burn.

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Vinnitsya State Medical University named after N.I.Pirogov

THE MACRO- AND MICROSTRUCTURE OF HUMAN FETAL SPINAL CORD WITH TERATOMA

Introduction. Thanks to advances in molecular biology significantly advanced histological methods of research that using modern immunohistochemical approaches allow to study the organization of the nervous system tissue elements not only in rules but also in pathology.
*Purpose***.** Setting anatomical and histological features of the structural organization of the spinal cord teratoma of human fetuses.
Material and methods. An anatomical and histological, immunohistochemical and morphometric study of spinal cord 2 human fetuses aged 17 - 18 weeks of fetal development.
Results. Area ependymal (matrix) layer cervical segments at the cervical thickening is 0,021±0,005 mm2. Area ependymal layer thoracic segments is 0,018±0,005 mm2. Area ependymal layer at the lumbar segments is relatively much higher than the area ependymal layer thoracic segments and is 0,019±0,005 mm2. With respect to the smallest area ependymal layer we found at the sacral segments, which was

0,016±0,005 mm2. The largest area ependymal layer occupies within the final ventricle and its value is 0,060±0,005 mm2. The average area of neural stem cell (NSC) cervical segments is 60,6±3,1 mm2. Similar morphological parameters NSC thoracic segments averaged 52,8±2,5 mm2. The average area of the NSC at the lumbar segments is 56,6±1,9 mm2. At the level of the sacral segments NSC area is 55,4±2,2 mm2. Cytoarchitectonic neutral germinal center (NGC) of teratoma is similar to the matrix layer of the spinal cord. The average area of the matrix layer NGC is 0,081±0,022mm2. NSC of teratoma ellipse and have a spherical shape. The average area of NSC ellipse shape is 28,9±2,4 mm2. The average area of NSK spherical shape is 40,5±3,1 mm2.

Conclusions. The average area of the matrix layer NGC dominates not only the square matrix layer segments of the spinal cord, but the square matrix layer at the end ventricle. NSC of teratoma as NSC spinal cord and ellipse with a spherical shape, but are smaller degree of proliferation and differentiation, as well as size.

Key words: prenatal period, spinal cord, teratoma.

ANTHROPOLOGY RESEARCH

© **Sherstuk S.A.[1], Protcenko E.S.[1], Remneva N.A.[1], Sorokina I.B.[2]**
1 V.N. Karazin Kharkiv National University, Ukraine; 2 Kharkiv State Medical University, Ukraine

EVALUATION OF MORPHOLOGICAL AND FUNCTIONAL STATE OF THE THYROID GLAND OF THE CHILD, MATURED BY THE PRESENCE OF HIV INFECTION OF THE MOTHER

Introduction. Many authors have studied the influence of various exogenous and endogenous factors on the morphology of the thyroid gland, but morphological changes developing in the thyroid gland of children dying before the age of 6 months, to HIV-infected mothers, no one was. Given the fact that the feature of the present stage of HIV infection is a significant increase in the incidence of HIV infection among women of reproductive age and pregnant women, which causes a range of issues related to the health of children born to them.
Objective. The aim of this study was to identify the immunohistochemical features of the thyroid gland of children dying before the age of 6 months, from HIV-infected mothers
Material and Methods. TG were measured and weighed. Cut pieces, which, after fixation in 10% neutral formalin and postings alcohols of increasing concentration, embedded in celloidin - paraffin. Produced thick serial sections of 5-6 microns. The sections were stained with hematoxylin and eosin, pikrofuksinom Van Gisone and method of Mallory. Immunohistochemical study was performed using the indirect method Koons modification M. Brosman (1979). T3 and T4 are detected by MAb to T3 and T4 firm Chemicon international (a Serological company). Immunohistochemical study was carried out in the luminescent microscope «Axioskor 40" using the software Biostat. exe. Histological, morphometric, research was carried out on the microscope Olympus BX-41 programs using Olympus DP-Soft (Version 3: 1) and Microsoft Excel. The density of the cellular elements 400 recalculated by increasing at 10 the limited fields of view. All digital data is processed by methods of mathematical statistics using variations and alternative analysis.
Results. Histology of thyroid group D-1 is close to the colloid-desquamative type and characterized by few follicles and islets desquamated thyrocytes. A significant portion of the breast epithelial cells and made connective tissue stroma with blood vessels, as well as the field of desquamated follicular epithelium. Follicles are often determined closer to the peripheral portion slices and usually have irregular shapes with papillate protuberances wall, which is lined by cuboidal or columnar epithelium. Immunohistochemical study in the group D-1 showed a decrease in the emission intensity of thyrocytes in preparations treated as MAb to T3 and mAb to T4. In our

study, the type of structure gland colloid desquamative that, apparently, due to the stress of compensatory capacities of the organism even from the prenatal period. Thus, we can assume that children who die before the age of 6 months to HIV-infected mothers were exposed as intrauterine hypoxia and post-natal, which was the cause of the development of the existing morphological changes.

Conclusion. In the thyroid gland of children dying before the age of 6 months, from HIV-infected mothers, there was a change in the secretion of type merokrinovogo emergency Holocrine indicating voltage compensatory possibilities cancer due to the influence of antenatal and postnatal hypoxia. Immunohistochemical examination of the thyroid gland of children dying before the age of 6 months, from HIV-infected mothers showed a decrease in the emission intensity of thyrocytes in preparations treated as MAb to T3 and T4 to the ICA.

Key words: thyroid gland, HIV-infection, children.

© **Gunas I.V., Pinchuk S.V., Shayuk A.V.**
Vinnitsya medical university, Ukraine

CORRELATION COMPUTED TOMOGRAPHY SIZES OF LUMBAR SPINE ON THE MEDIAN-SAGITTAL SECTIONS WITH ANTHROPO-SOMATOTYPOLOGICAL PARAMETERS IN HEALTHY GIRLS OF PODILLYA

Introduction. Finding correlation communications between anthropo-somatotypological parameters and dimensions of the structures of the lumbar spine in practically healthy persons is a promising and fruitful direction of modern medicine. And they are interesting first of all because opening the door to the "individual" medicine, allowing the use of "constitutional markers" in the allocation of contingent risk in relation to spine pathology.

Aim of our work – establishing correlation communications of computed tomographic sizes of the lumbar spine on median-sagittal sections with anthropo-somatotypological parameters in healthy girls of Podillya.

Material and methods. It was a preliminary survey of 1722 urban youths (17-21 years) and girls (16-20 years) on belonging to Slavonic ethnic group, living in the third generation in the territory of Podilsky region Ukraine, and also the absence of complaints about health during the test and chronic diseases in history. Selected 537 girls with a special questionnaire conducted a screening assessment of health status, which resulted in removing 655 of investigated. 247 boys and 235 girls, after psychophysiological and psychogigienic survey, was make a series of clinical and laboratory examinations. After clinical and laboratory examinations, 168 boys and 167 girls were included in the total group of healthy people who had anthropometric survey. Of these, 82 boys and 86 girls were held a CT scan of the lumbar spine and chest within the limits of planned prophylactic examinations under voluntary written consent of their parents or investigated.

Committee of bioethics Vinnitsa National Medical University named after N.I. Pirogov found that the studies are not contrary to the fundamental bioethical standards of the Helsinki Declaration, the European Convention on Human Rights and Biomedicine (1977), the relevant provisions of the WHO and the laws of Ukraine (Minutes № 8 of 14.04.2010).

Results. Computer tomography studies of the lumbar spine was performed using helical X-ray CT scanner ELscint Selekt SP according to the standard protocol of the study of the spine in the median-sagittal projection.

Statistical analysis of the results conducted in the package "STATISTICA 5,5" (belongs to VNMU named after Pirogov, license number AXX R 910A374605FA) using nonparametric methods.

Most of vertical and transverse dimensions of the vertebral bodies have significant direct relationships with all groups of somatotypological and anthropometric indicators (except rear height of the lumbar spine and the middle and posterior height of the vertebral body L-5 that correlate mainly with covered size and thickness of skin and fat folds).

Conclusions. The vertical dimensions of all intervertebral discs (except the intervertebral disc between D12 and L1-vertebra) have significant direct relationships with most covering size and thickness of skin and fat folds and significant feedback with the width of the face. The average width of the body of L1- and L1-2 vertebral has reliable feedback with the greatest width of the head.

Perspectives for further research consist in determining the connections of computed tomographic sizes of the lumbar spine on median-sagittal sections with anthropo-somatotypological parameters healthy boys and girls from Podillya with various somatotypes.

Key words: computed tomography, lumbar spine, morphometry, anthropometry, healthy girls, correlation.

© **Zaporozhchenko M. B.**
Obstetrics and gynecology chair № 1 the Odessa national medical university, Ukraine

IMMUNOHISTOCHEMICAL STUDY OF UTERINE LEIOMYOMA IN WOMEN OF REPRODUCTIVE AGE

Introduction. The leiomyoma of the body uterus is the most common benign tumor of the female reproductive system, occurring in 20-50% of cases. Modern Immunohistochemical studies are widely used in medicine today to study the metabolic profile, determining the amount of vessels and proliferative activity in the tumor.

The aim of the study was to immunohistochemical study of uterine leiomyoma in women of reproductive age for a differentiated approach to the diagnosis, prevention and treatment.

Material and Methods. Histochemical were analyzed materials leiomyomas of the uterus removed during surgery in 245 women of reproductive age. Measured markers CD34, CD45, Ki-67, α-SMA immunohistochemistry by detecting the monoclonal antibody corresponding to antigen receptors. Assessing the level of expression was carried out and the extent of label staining intensity.
Results. Eexpression level of CD34 - a marker in the tumor tissues of the uterus was 0 - 1 point, the prevalence of the process - 9.6% at leiomyoma simple type; at leiomyoma with proliferative type - 3 points and 68.0% ($p < 0.05$). Prevalence is higher in the endothelium of blood vessels of the endometrium and myometrium in the process of mitotically active proliferating leiomyomas (30.8%) compared with the simple leiomyomas (5.2%) ($p<0.05$). Indicator intensity of CD45 expression in endothelial cells was 0-1 points, the prevalence of the process - 3.5% at a simple leiomyoma. In cytogenic stromal elements corresponding figures were 1 point and 5.3%. Prevalence in endothelial cells was 28.3%, coloring - 2 points at women with proliferative leiomyoma type; in cytogenous stromal elements - 3 points and 77.3% ($p < 0.05$). Level of Ki-67 In stromal cells is 8.7% at a simple leiomyoma, in mitotically active leiomyoma - 59.1% ($p < 0.05$). Ki-67 expression was 3 points in leiomyomas proliferating in the nuclei of endothelial cells. A large number per unit area and a significant leukocyte infiltration of the endometrium was characteristic For leiomyomas proliferating cells.
Conclusions. Different histological types of uterine leiomyoma differ neoangiogenesis, proliferation of endothelial cells in the vessel wall and the degree of uterine blood supply, resulting in differences in the mechanisms of their growth and development. Immunohistochemical features of uterine leiomyoma proliferative type are characterized by significantly different manifestations of severe stromal – parenchymal relationships, violations of proliferation, apoptosis, neoangiogenesis, expression of growth factors and inflammatory processes. Reliable morphological methods for the diagnosis of leiomyoma development options is immunohistochemical methods for the determination of markers of vascular endothelial cells (CD34), proliferation (Ki-67), which are diagnostic criteria when planning a timely impact on the morphological changes in uterine leiomyoma.
Key words: immunohistochemistry, uterine leiomyoma, reproductive age.

© **Androsova O.S.**
Donetsk National Medical University named after M. Gorky of Health of Ukraine, Department of Pathophysiology (Lenin Ave., 16, Donetsk, 83003, Ukraine)

MORPHOLOGICAL FEATURES OF LIVER DISEASE IN HIV-INFECTED PATIENTS DURING COINFECTION WITH HEPATOTROPIC VIRUSES AND RECEIVING HIGHLY ACTIVE ANTIRETROVIRAL THERAPY

Introduction. HIV continues to occupy a leading position among the health issues around the world. One of the most frequently recorded abnormalities in HIV-infected

have liver disease. Etiological structure of liver disease are varied. Changes in the liver in HIV-infected persons other than viral hepatitis may be caused by tuberculosis, cytomegalovirus infection, toxoplasmosis, cancer.
Application in recent years highly active antiretroviral therapy has reduced mortality from AIDS 7-8.
The aim of our study was to identify morphological features of liver disease in patients with HIV infection in patients receiving highly active antiretroviral therapy and co-infection with hepatotropic viruses.
Material and Methods. Liver biopsy conducted on 28 patients, among whom were 20 (71.43%) men and 8 (28.57%) women. The histological preparations were stained with hematoxylin-eosin, Van pikrofuksynom for ghisoni. The degree of fibrosis was assessed by METAVIR system
Results. In 62.79% of established morphological signs of the disease with a combination of viral hepatitis B and C. The 15 observations were diagnosed with tuberculosis. Histologic examination of the liver established development and widespread destructive forms of tuberculosis with collapse and necrotic reactions without the formation of granulomas. Installed morphological changes nonspecific nature. Patients who used drugs (29 people), the signs of toxic hepatitis, fatty degeneration of hepatocytes, necrosis, lipofuscin in liver cells. When addiction and HIV installed parenchymal protein dystrophy
This article contains data of morphological changes in the liver of the patients with HIV infection during coinfection with hepatotropic viruses, which damages liver and receiving highly active antiretroviral therapy. It is shown that co-infection with hepatotropic viruses, in most cases are identified minimal or moderate signs of histological activity in the presence of fibrotic and cirrhotic expressed changes in the organ.
Conclusions. 1. Morphological picture in liver tissue in patients with HIV-infection during treatment with highly active antiretroviral therapy is characterized by toxic organ damage with signs of protein malnutrition prevalence liver different degree. 2. When co-infection caused by hepatotropic viruses are identified minimal or moderate signs of histological activity in the presence of fibrotic and cirrhotic pronounced changes in the body.
Key words: HIV infection, liver, highly active antiretroviral therapy.

© **Aslanova R.A.**
Medical Faculty of the University of Trakya, Turkey (Kocasinan Sevki Arman str. 42, Edirne, 22001, Turkey)

HISTOPATHOLOGICAL CHANGES IN PREECLAMPTIC PLACENTAS

Introduction. Pre-eclampsia - a pathological condition complicating pregnancy and is characterized by a violation of the vascular, nervous, endocrine and immune systems. This is a specific syndrome that clinically after 20 weeks of pregnancy

hypertension, proteinuria and edema. Preeclampsia occurs in 2-7% of pregnant women and is the leading cause of death of women in childbirth in the United States and Western Europe. Despite numerous studies, etiology and pathogenesis of pre-eclampsia is not fully understood.
The purpose of this study was to evaluate the histological structure of placentas, and a comparison of normal pregnant women and pregnant women, in whom the gestational period was complicated by preeclampsia.
Material and methods. This article presents the results of histological examination of placentas from healthy pregnant women (105) and pregnant women with preeclampsia (105). Histological studies showed that comparely with the control group, in preeclamptic parturients, morphological markers of chronic placental insufficiency of varying degrees, which manifest as abnormality of villous tree maturation, sclerotic changes of the villi`s stroma, the presence of severe atherosclerosis, as well as the identification of severe and mild pathology in chorion are most often identified.
Results. Acute atherosclerosis was detected in 29 (67.4%) patients of early preeclampsia group, 16 (25.8%) women at the late pre-eclampsia, while the control group did not reveal a single case. Chorionic mild pathology was detected in 22 (51.2%) of pregnant women with pre-eclampsia early, at 31 minutes (50.0%) with severe pre-eclampsia, in 3 (33.3%) of women with preterm labor and in 20 (20 8%) of pregnant women with timely delivery. Chorionic severe pathology was detected in 18 (41.9%) women with early preeclampsia in 29 (46.8%) patients with late pre-eclampsia, one (11.1%) in the case of a group of pregnant women with preterm labor and 3 (3.1%) patients in obstetric patients with timely delivery.
In the control group of women with preterm birth and with timely Sinsitiyal "knotting" detected in 4 (44.4%) and 62 (64.6%) cases, respectively. Calcification was found in 11 (25.6%) and in 14 (22.6%) of pregnant women with signs of early and late pre-eclampsia, one (11.1%) and in 19 (42.2%) women in the control group of pregnant women with premature and with timely delivery, respectively.
Conclusions. 1. Histological studies have shown that postpartum women with a diagnosis of "pre-eclampsia" is often identified morphological markers of chronic placental insufficiency of varying degrees, manifest violation of the maturation of chorionic villi, sclerotic changes of the stroma, presence of severe atherosclerosis, as well as the identification of severe and mild disease chorionic.
2. Comprehensive assessment of histological parameters in preeclampsia may be indicative of the detection of structural and functional disorders with increasing severity of preeclampsia and forecasting future pregnancy.
Key words: healthy pregnancy, preeclampsia, placenta, histopathological study.

© **Galchyn K.S.**
Shupyk National Medical Academy of Postgraduate Education, the chair of child, social and forensic psychiatry.(103, Frunze str., Kyiv, 04080, Ukraine)

ATYPICAL AUTISM CLINICAL MANIFESTATIONS PECULIARITIES IN CHILDREN

Introduction. Mental illnesses in children- is one of the main social problem in the world. A high share of all mental disorders in children belongs to mental developmental disorders, in particular, to autism spectrum disorders (ASD).

In the last decade the autism spectrum disorders distribution increased in the whole world, among different population segments, in different countries, so it can be considered the risk zone for all humanity.

The term "autism" was first introduced by Eugen Bleuler [1910] to mark deep withdrawal from reality and extreme desocialization of personality within schizophrenic thinking and concentration on affective experiences.

According to American Autist Association, "autism" is a deep inborn disorder of bio-neurological character which is usually manifested in the first 3 years of life. Individuals with autism suffer from demaged communication and social interaction; they may have high abilities in certain spheres which are accompanied with deep violation of domestic skills.

According to International Statistical Classification of Diseases and Related Health Problems (ISD-10), atypical autism (F 84.1)- is the type of general mental developmental disorders which differ from the autism in the age of onset or in the absence of, at least, one of three diagnostic criteria. The classification clearly determines the age of onset: only after three years of age. If autism spectrum disorders are manifested at other age, according to this classification, the absence of clear disorders in one or two out of three autism psychopathological spheres is necessary: difficulties in the areas of social interaction, communication and stereotyped behavior patterns. Also, according to ICD, atypical autism is most frequently diagnosed in children with deep mental retardation and very low functioning level. The disease also occurs in individuals with severe specific developmental disorder of receptive speech.

Also, in this category in ICD-10 moderate mental retardation with autistic signs (F. 84.11), atypical child psychosis (atypical autism without mental retardation) (F.84.12) are included.

The ambiguity of the diagnostic criteria in practical medicine leads to the tendency of obscurity in the atypical autism diagnosis. Most frequently child psychiatrists diagnose atypical autism with mental retardation. It's a pity, but late (after 3 years of age) manifestation of autistic disorders (social interaction difficulties, communication disorders , stereotyped behavior) are seldom taken into account by doctors.

The aim: the analysis and the research of atypical autism clinical manifestations peculiarities in children.

Materials and methods. The work is based on the research of atypical autism syndrome clinical manifestations peculiarities in children which were observed and treated in pediatric department of Zhytomyr regional psychiatric hospital № 1.

Results. Atypical autism clinical manifestations have all autistic signs of ASD: damaged social interaction in the form of absence of the reaction to other people's

emotions , qualitative damage of communication(verbal and non-verbal) skills such as eye contact avoidance, retardation or absence of speech communication; repeated stereotyped behavior and ritual actions. The further development of the disease depends on many factors: genetic, family, constitutional.

Conclusions. Atypical autism according o clinical manifestations belongs to autism spectrum disorders, the linking factor with other nosological autism forms is the classic triad of disorders: social interaction; repeated stereotyped behavior; ritual actions and the fear of any changes in the environment; but the peculiarity of atypical autism signs is the absence of at least one of three diagnostic criteria. Also, the disease can develop only after three years of age. Clinical manifestations of atypical autism are strictly individual; that's why the treatment and corrective measures should be individualized. So, the analysis and the research of atypical autism manifestations peculiarities convincingly testifies to the necessity of further complex research of this rather urgent problem in child psychiatry.

Key words: autism, children, clinical manifestations, atypical autism.

© **Gaystruk N.A., Nadezhdin M.V., Stenyansky R.P., Nedibalyuk O.V.**
Vinnitsya medical university named after N.I.Pirogov, Ukraine

DETERMINING THE PREDICTIVE VALUE OF HYPERHOMOCYSTEINEMIA AS A RISK FACTOR FOR FETAL DISTRESS IN PREGNANT WOMEN WITH GESTATIONAL AND CHRONIC PYELONEPHRITIS

Introduction. Pyelonephritis in pregnant women is urgent practical problem obstetrics. Often pyelonephritis is accompanied by dysfunction of the placenta and 20-30% leads to the formation of fetal distress. In the pathogenesis of fetal distress plays an important role activation of free radical oxidation of lipids, oxidative modification of proteins, imbalance in the system vasoconstrictor / vasodilators and development of endothelial dysfunction.

Objective: The aim of our study was to evaluate the role of hyperhomocysteinemia in the formation of fetal distress in pregnant women with pyelonephritis.

Materials and methods. It examined 30 healthy pregnant women (group 1) and 90 pregnant women with pyelonephritis. Patients with pyelonephritis were divided into 2 groups: gestational pyelonephritis (group 2, n = 40); chronic pyelonephritis in the acute stage (Group 3, n = 50). Among pregnant women with pyelonephritis (n = 90) was marked fetal distress in 40 people, which is 50%.

Results. The high prevalence of complications such as pyelonephritis pregnant is an unsolved questions of pathogenesis, early diagnosis, prognosis, effective prevention and treatment of fetal distress in pregnant women with chronic pyelonephritis. It was found that pregnant women with gestational body and to a greater extent with chronic

pyelonephritis The expressed metabolic disorders. Under these conditions, growth recorded homocysteine in serum.

Conclusions. 1. Increase of homocysteine in the blood serum of pregnant women with pyelonephritis above 14.1 mmol / L is unfavorable prognostic sign and indicates a high probability of intrauterine fetal disorders. 2. The analysis showed that the increase in homocysteine content above 15.0 mmol / l in pregnant women with pyelonephritis increases the likelihood of fetal distress in 4-5 times.

Key words: pyelonephritis, hyperhomocysteinemia, distress, pregnant, ROC-analysis.

© **Guminsky Yu.I.[1], Shepitko V.I.[2], Shkolnik E.Ya.[3]**

[1]Vinnitsa National Pirogov Medical University (Pirogova str., 56, Vinnitsa, 21018, Ukraine); [2]Ukraine Medical Dental Academy (Shevchenko str., 23, Poltava, 36011, Ukraine); [3]Hospital ambulance (str. Kyiv, 68, Vinnitsa, 21032, Ukraine)

FEATURES OF DISTRIBUTION SOMATOTYPES AND CRANIOTYPES IN HEALTHY AND PATIENTS WITH ACUTE PURULENT SINUSITIS BOYS AND MEN

Introduction. Many researchers consider it necessary to conduct somatotypuvannya healthy and sick persons for each territorial and age-sex group. The basis of the individual typological diagnosis should be based somatotype as well as the additional information - kefalometrychnyh complex, functional, and other indicators that ultimately enables the doctor to assess the specific unique personality of the subject. In the practice of medicine by now widely used approach for the average person, excluding its constitutional identity, which reduces the effectiveness of implemented prevention programs and is methodologically incorrect.

Purpose: to define the features and distribution Somatotypes kraniotypiv healthy and patients with acute purulent sinusitis boys and men skirts.

Materials and Methods. On the basis of NDC VNMU im.NIPirogova conducted anthropological examination of 45 patients with boys aged 18 to 21, and 55 male patients aged 22 to 25 years, the third generation residents of Podolsk region of Ukraine. Committee on Bioethics Vinnitsa National Medical University MI Pirogov found that the studies did not deny the main bioethical norms of the Helsinki Declaration, the European Convention on Human Rights and Biomedicine (1977), the relevant provisions of the WHO and the laws of Ukraine (protocol №19 of 08.11.2012).

Assessment of somatotype was conducted by a mathematical scheme for the Heath-Carter [Carter, 2003].

Results. This article describes the features of distribution somatotypes and craniotypes in healthy and patients with acute purulent sinusitis boys and men of Podillya. Established significantly greater values percentage particles mesomorph in patients studied. Identified significantly greater percentage value particles

mesocephalic in patients compared with healthy and significantly higher values of percentage particles mesocephalic and brachycephalic compared with dolichocephalic in a group of studied patients.
Conclusions. 1 Installed significantly greater percentage value of shares mesomorph in patients compared to healthy. 2. Significantly higher values mezotsefaliv percentage shares in patients compared with healthy people and significantly more value and percentage shares mezotsefaliv shorthead compared to dolichocephaly in patients confirm the existence of internal connections between specific private constitutions and specific structural and functional condition of the body. 3. Applied us anthropological approach will facilitate primary prevention among persons who by reason of their general and tend to the Constitution of acute purulent sinusitis.
Key words: craniotype, somatotype, acute purulent sinusitis, cephalometry, anthropometry, maxillary sinus.

© **Korchinskyi V.S.**
Vinnytsia Institute of Economics and Social Sciences Higher Educational Institution "Open International University of Human Development" Ukraine (str. Sobornaya, 11, Vinnitsa, 21050, Ukraine)

PREVENTIVE PHYSICAL REHABILITATION OF PERSONS WITH HIGH CARDIOVASCULAR RISK

Introduction. Cardiovascular diseases occupy first place among all diseases in the world today. In the developed world on the brink of XX and XXI centuries in first place among the causes of death went cardiovascular diseases (COD). The mortality rate from heart disease in Ukraine reaches 64%, and is one of the highest in the world. Among the most important issues facing today COD coronary heart disease (CHD), hypertension (AH), cerebrovascular pathology and peripheral atherosclerosis.
Objective: to explore the features the application of methods of physical rehabilitation for the prevention of diseases of the cardiovascular system and assess their significance in the correction of risk factors.
Material and methods. The study was conducted on the basis of clinical sanatorium "Chmielnik". The study covered 50 patients with a mean age (55 ± 1,5 g.) Of which formed two groups of 25 people, regardless of gender. The first group - almost healthy persons who have risk factors for cardiovascular disease in the form of dyslipidemia. The second group included patients with diabetes mellitus type 2 mild in 12 patients with diabetes found stable angina functional class 1. Methods of physical rehabilitation includes medical morning gymnastics, dosed walking, walking, running and massages. Do medical and morning hygienic gymnastics performed once per day. Persons conducted the study, performed the continuous exercise testing on bicycle Simens-Elema: for patients with coronary artery disease with angina functional class 1 primary power load was 150 kgm / min. (25 W), and further increased the same amount; healthy patients who had risk factors - 300 kgm /

min. (50 W) with a gradual increase of the same amount. The duration of each stage load 3 minutes. The sample performed under control of ECG and blood pressure.

Results. In response to exercise maximum dose in patients of Group 1 experienced a significant increase in the concentration of total cholesterol and low density lipoprotein cholesterol. In the next 3 hours after its termination, these indicators remain elevated. The contents of triglycerides in the blood serum immediately after stopping exercise maximum dosage increased and continued to grow in the next 3 hours supervision.

In group 2 patients after dosed physical load changes of serum lipoprotein fully consistent with the nature of changes in the patients performed maximal dose exercise. When dosed exercise intensity of 60% in patients with type 2 diabetes and coronary heart disease one functional class manifested as increased concentrations of total cholesterol and LDL cholesterol zilnosti, but it was insignificant and short-lived. In the next 3 hours after dosed physical load, these figures reached reference value. There was no reduction of HDL cholesterol, but triglycerides after dosed physical load increased and maintained through the next 3 hours supervision.

Conclusion. 1. The main risk factors for cardiovascular diseases are: hypertension, obesity, dyslipidemia, diabetes, smoking, inactive lifestyle, heredity, age, male gender. The most common among them in the population Ukrainian population are: smoking - 67%, dyslipidemia - 50%, inactive lifestyle, 40%, 33%, obesity, hypertension - 30%, and the least common is diabetes - 3.8%. Neobhidnoprovodyty active primary and secondary prevention.

2. In applying methods of physical rehabilitation for the correction of risk factors is necessary to consider the clinical and functional condition of the body and cardiovascular system, exercise tolerance, risk factors and the dynamic intensity of physical activity.

3. Each time a dynamic high-intensity exercise provoked the development of dyslipidemia. Each time dynamic exercise of moderate intensity (60% of the individual maximum tolerance) in patients with diabetes mellitus type 2 and mild stable angina functional class 1 showed no adverse effect on the metabolism of lipids and carbohydrates.

Dynamic physical activity of moderate intensity are able to adjust the dyslipidemia and exogenous carbohydrate metabolism.

4. In developing rehabilitation and training programs for people with risk factors in the form of dyslipidemia and patients with diabetes mellitus type 2 is appropriate to include in the complex therapeutic measures dynamic exercise of moderate intensity physical natural factors.

5. Prevention of cardiovascular disease is detected early risk factors. Complex physical rehabilitation help improve lipid and carbohydrate metabolism. Patients with high cardiovascular risk recommended the appointment of lipid-lowering drugs.

Key words: cardiovascular diseases, physical rehabilitation, prevention.

Vinnitsa National Medical University named by N.I. Pirogov, Department of Human Physiology (str. Pirogova, 56, Vinnitsa, Ukraine, 21018); * Clinic State Institution "Institute of Epidemiology and Infectious Diseases. L.V.Hromashevskoho NAMS of Ukraine "(st. Amosov, 5, Kyiv, 03680, Ukraine)

COMBINED ANTIVIRAL THERAPY OF CHRONIC HEPATITIS C FOR HCV/HIV COINFECTED PATIENTS

Introduction. In this work were studied the effectiveness of Chronic hepatitis C treatment for the HIV-infected persons.

Increased life expectancy of patients with HIV-infection in the application of effective antiretroviral therapy increases the impact of liver failure that develops as a result of HCV-infection. The actual problem is the treatment of chronic hepatitis C in HCV / HIV koinfikovanyh.

The aim - to evaluate the effectiveness of combination antiviral therapy of chronic hepatitis C in patients with co-infection.

Materials and Methods. In our study included 130 patients with co-infection with HCV / HIV, which are dominated by men (80 persons, representing 61.5%). The average age of patients was 33,11 ± 2,34 years. The criteria for inclusion of patients to research the confirmed diagnosis of HIV-infection: HIV antibodies (by ELISA with confirmation by IB) and confirmed the diagnosis of HCV-infection: the presence of antibodies to HCV (ELISA) and RNA-HCV (PCR).

Number of CD4 lymphocytes was determined by flow cytometry standard for flow cytometers Cytomics FC 500 Beckman Coulter using monoclonal antibodies CD45-FITC / CD4-RD1 / CD3-PC5 in clinical-diagnostic laboratory SI "Institute of Epidemiology and Infectious Diseases. L.V.Hromashevskoho. "Determined absolute number of CD4 cells in a microliter of peripheral blood and the percentage of CD4 cells in a population of peripheral blood lymphocytes.

Results. It was found that sustained virologic response frequency was in 1.9 times higher in hepatitis C patients with genotypes 2 and 3.

Stand virological response was achieved in 61.5% (80/130) of patients (95% CI 53.2% to 69.9%) co-infection with HCV / HIV. The study did not show depending frequencies of stand virological response demographics (age, gender) and the way HIV.

We have established the influence of genotype C virus genotype on treatment efficacy.

There was no statistically significant effect of viral load to achieve sustained virologic response regardless of genotype of the virus.

Conclusion. 1. The effectiveness of treatment of chronic hepatitis C infected with HCV / HIV patients independent of gender, age, route of HIV and injection drug use history.

2. Frequency sustained virological response was 1.9 times higher in patients with genotypes 2 and 3 hepatitis C and not dependent on the starting level viremia.

3. There was no impact of the initial amount of CD4, as well as the relationship between clinical stage of HIV-infection and the efficacy of antiviral therapy of chronic hepatitis C.

Key words: HIV infection, chronic hepatitis C, sustained virologic response.

© **Didyk N.V.**
Vinnitsa National Medical University MI Pirogov, Department of Internal Medicine of the Medical Faculty №2 (Pirogova str., 56, Vinnitsa, 21018, Ukraine)

PECULIARITIES OF STRUCTURAL REMODELING OF ARTERIA IN THE COURSE OF HYPERTENSIVE DISEASE OF THE II STAGE AND EXTRASYSTOLE

Introduction. Significant incidence of hypertensive disease among Ukrainian population determines directing of search of new methods of management and treatment of patients suffering from this pathology. Our research is focused on study of changes of intima-media vascular wall of patients suffering from hypertensive disease as well as patients suffering from hypertensive disease and coexistent extrasystole.

Material and methods. 120 patients have been examined (42 men and 78 women) of the age of 27 to 81 (average 59,8±1,0) years old suffering from hypertensive disease of the II stage as recommended by Ukrainian Association of Cardiologists (2008) and extrasystol (more than 30 episodes per hour of research) of different topography and 30 persons (13 men and 17 women) suffering from hypertensive disease of the II stage of the age of 30 to 76 (average 56,4±1,7) years old without rhythm disturbance). The first clinical group was formed by 54 (45%) patients suffering from repeated supraventricular extrasystole (SE) (average 62±2 SE per hour of research). The second clinical group was formed by 42 (35%) patients suffering from repeated ventricular arrhythmia (VA) (average 37±2 VA per hour of research). The third group was formed by 24 (20%) patients suffering from both repeated SE and VA (average 48±3 SE and 32±3 VA per hour of research). Statistical processing of results was performed with a help of the programme StatSoft „Statistica" v. 6.0). During the II stage of treatment all patients after ineffectiveness of antiarrhythmic effectiveness of Bisoprolol 10 mg (was prescribed during the I stage) were prescribed Sotalol dosage 80-320 mg per day. Antiarrhythmic effectiveness of drug preparation was estimated during the first, the second, the third, the sixth months of treatment.

Results. The results of treatment demonstrate that existence of repeated SE and VA at patients suffering from HD of the II stage in contrast to patients without arrhythmia and repeated SE associates with severer vascular dysfunction that is defined by signs of rather high rigidity of big arteries (significant reduction of original size of brachial artery diameter), severer defects of endothelium-depending vasodilation (reduction of increment value of brachial artery diameter during the test with decompression, reduction of periodicity of registration of normal reaction and increase of paradoxial

vasoconstriction of brachial artery during the test with decompression) and significant reduction of general vasodilational potential, increase of frequency of cases with dissociation in the nature of endothelium-depending and endothelium-independent reaction of brachial artery. Latest changes were registered at 90 (60,0%) of examined patients whereby the most frequent their variants were: 1) reduced reaction of brachial artery as for decompression + normal response on test with nitroglycerine (29,7%) and 2) paradoxial vasoconstriction in reply to decompression + reduced reaction on taking nitroglycerine (22,4%).

Conclusion. Therfore, obtained data have shown the absence of background for exception of existence of common pathogenetic development mechanisms of vascular dysfunction and pathogenetic arrhythmogenesis of patients suffering from HD that requires the further research.

Key words: cardiovascular system**,** arrhythmia, bisoprolol, sotalol, remodeling of arteries.

© **Dmitrenko S.V.**
Vinnitsa National Medical University M.I.Pirogov (Pirogova str., 56, Vinnitsa, 21018, Ukraine)

SOCIAL ADAPTATION OF PATIENTS ICHTHYOSIS: GENDER, AGE AND HEREDITY FEATURES

Introduction. Recent advances in dermatology allow to diagnose and monitor the progress of ichthyosis in most patients, which opens the possibility for a more complete social adaptation of this group of patients. But today is not sufficiently studied the impact of individual factors on the course, the manifestations of disease, social adjustment of patients and their ability to integrate into society. So important is the study of the possibility of social adaptation of patients with ichthyosis.

Objective. To explore the features of social adaptation of patients with ichthyosis Podolsk region concerning gender age and sex with features.

Materials and methods. We conducted a cohort study and analysis of the clinical and laboratory features of 70 patients with ichthyosis ichthyosis respect to age, gender, living and working conditions, the presence of bad habits, heredity, the number of calls per year, date of diagnosis, concomitant diseases.

Results. of our study can establish a high level of social adaptation of patients in our population, as indicated by the low level of disability, prevalence among patients with a significant percentage of people engaged in physical labor, especially among men. Men suffering from ichthyosis share of people employed in manual labor was 54% of the group, which indirectly indicates a fairly minimal impact of the disease on the possibility of adapting socially. The nature of the disease, according to a number of sources, a significant impact on the nature of work in women as among them is found those engaged in physical labor. Perhaps it is also due to benefit most patients stay just in rural areas, which narrows the possibility of social adaptation in the form

of mental work. The relatively narrow residence recorded among patients in both gender groups in rural areas, reflecting the distribution of urban and rural population of Vinnitsa region, according to official statistics. Our results indicate a significant influence of genetic factors for the development of ichthyosis found a high frequency of related genetically determined diseases in our population of patients.

Conclusion. We found that it is the presence burdened hereditary history is accompanied by a distinct clinical manifestations of the disease. Among females significantly higher number ($p<0.05$) patients who have blood relatives with ichthyosis, although the higher number of male genetic material diseases. We have identified certain age, gender features Podolsky patient population requiring further consideration in the diagnosis, treatment and clinical examination of patients with ichthyosis.

Promising future research is the study of gender and age characteristics of clinical manifestations of ichthyosis.

Key words: ichthyosis, gender, age, hereditary characteristics.

© **Sarafinyuk L.A., *Sarafinyuk P.V.**

Department of Physical Education and therapeutic physical training, Vinnytsia National Medical University named after Pirogov; * Department of Biology, Vinnytsia State Pedagogical University named after Mykhailo Kotsyubynsky (Ostrog str., 32, Vinnytsya, 21001, Ukraine)

RELATIONSHIP OF SPIROMETRIC AND ECHOCARDIOGRAPHIC PARAMETERS WITH TOTAL AND LONGITUDINAL BODY SIZE

Introduction. Today is a very promising combination of different aspects of the constitution, one way of it is determination of intersystem correlations. Quite promising is the study of the relationship of the cardiorespiratory system indicators with anthropometric characteristics that have the greatest degree of genetic determination.

The aim of our study was to investigate features relationships of spirographic and echocardiographic indicators with total and longitudinal body size in males adolescence.

Materials and methods. Carried out survey of 103 urban boys aged from 13 to 16 years. Anthropometric studies performed by the method of Bunak, spirographic studies performed on the machine Medgraphics Pulmonary Function System 1070 series by the method of the American Pulmonologists Association, echocardiography was performed in three standard positions in M and B modes on the device "Ultramark-9". Statistical analysis was conducted in the package "STATISTICA 5.5" using Spearman statistics.

Results. We set features of correlations length, weight, body surface area and height of anthropometric points with spirographic indicators and diameters of the heart

chambers, the thickness of their walls, systolic and diastolic volumes, obtained by echocardiography in adolescent boys.
Conclusion. 1. Total and longitudinal dimensions of the body have reliable numerical relationships with most of cardiorespiratory parameters (except the diameter of the left atrium and forced inspiratory stream). 2. Spirometric indices with anthropometric data sizes have mainly strong correlation echocardiographic - medium strength. 3. Obtained results of correlation analysis make it possible to determine the feature of echocardiographic and spirometric indicators taking into account individual constitutional characteristics of body.
Key words: correlation, anthropometry, spirography, echocardiography, teenagers.

Nochvina E.A.
Vinnitsa National Medical University named after N.I. Pirogov, department of Obstetrics and Gynecology № 2.

ANATOMIC-FUNCTIONAL STATUS OF PELVIC ORGANS IN WOMEN WITH THE SYNDROME OF CHRONIC PELVIC PAIN

Introduction. Based on general theoretical concepts, pain can be seen as a natural and quite adequate systemic reaction to a specific disease process. Chronic pelvic pain, on the one hand can be a symptom of a gynecology, physical and mental illness, and on the other hand to have enough self and even nosological significance, being an important part of peculiar symptom "pain-disease", known in the world of literature as a syndrome of chronic pelvic pain.
The aim of our study was to investigate the anatomical and functional characteristics by pelvic ultrasound examination and medical diagnostic laparoscopy to determine the degree of morphological changes of the genitals in women with chronic pelvic pain syndrome.
Materials and methods. To address the goals and objectives were prospectively examined 350 women of reproductive (18-45 years) age with chronic pain syndrome in the lower abdomen. The study was conducted at the city hospital "Mother and Child", NVP OOO "Medivin" Vinnitsa, clinical bases of the Department of Obstetrics and Gynecology № 2 VNMU them. Pirogov.
The criteria for the inclusion of women in the main group was the presence of pain (6 months) in the area below the navel, in the vagina and lumbosacral area.
All women of the main group were divided into subgroups: subgroup I - 223 women with chronic pelvic pain without organic gynecological pathology; II subgroup - 127 women with chronic pelvic pain and organic gynecological pathology.
The control group (100 women of reproductive age) has been allocated by random sampling of excluding women from dyshormonal violations organic and inflammatory disorders of the reproductive system.
Ultrasound examination apparatus for PHILIPS ATL-HDI 4000, PHILIPS HD-11 CE studied the anatomical and functional condition of the uterus, ovaries and fallopian

tubes. Measured the size of the uterus and ovaries, endometrium thickness, the presence of dominant follicles and ovulation signs, formation, development and regression of the corpus luteum, the presence of structural changes in the pelvic organs.

Laparoscopic interventions performed to patients of the main group on the machine "Karl Storz" (Germany) in the first phase of the menstrual cycle.

Results. Analyzing the results of the ultrasound examination of the uterus and its adnexa, it was found that a core group of women with chronic pain syndrome in the lower abdomen and genitals organic changes has an increase in the average volume of uterine myoma due to the presence of units and ovarian cysts, leading to increase in the average size of the uterus and its adnexa.

The patients of core group with chronic pelvic pain without morphological changes of organs diagnosed slight decrease in the average volume of uterine and ovarian mostly left relative to rates in women in the control group.

This fact may indirectly indicate a hormonal imbalance that leads to dynamic changes in the uterus and ovaries. Ovulation was pronounced in the study of the functional state of the ovaries in women of most of all studied groups, but the study of the characteristics of the functional state of the corpus luteum by ultrasound signs indicated reduce of the thickness of the endometrium in the mid-luteal phase of the menstrual cycle in patients of the main group, and the absence in most cases it secretory changes.

Ultrasound examination of patients with chronic pelvic pain is a highly informative method of research, however, the comparison of different methods suggests that laparoscopy is the most informative diagnostic method that allows to establish the existence of a functional and organic gynecological pathology based on anatomical and morphological characteristics of internal genitals and helps diagnose initial and minimal pathological process of pelvic organs that are not available when using other diagnostic methods, helped verify the final diagnosis and prescription of pathogenetic treatment.

Conclusion. 1. Established that a core group of women with chronic pain syndrome in the lower abdomen and genitals organic changes there is an increase in the average volume of uterine - 66,7 ± 0,01 mm 3 and ovaries (17,47 ± 0,04 cm3 - right and 20,7 ± 0,03 cm 3 - left), which increases the average size of the uterus and its appendages.

2. In the main group of patients with chronic pelvic pain without morphological changes of organs diagnosed slight decrease in the average volume of uterine - 36,9 ± 0,01 mm 3 and ovaries (mainly left - 8 ± 0,09 cm3). This may indicate a hormonal imbalance.

3. Established reducing the thickness of the endometrium in the mid-luteal phase of the menstrual cycle in patients of the main group.

Key words: internal female organs, anatomical and functional status, ultrasonography, laparoscopy.

Vinnitsa National Pirogov Memorial Medical University (Pirogov str., 56, Vinnitsa, 21018, Ukraine)

PHYSICAL CAPACITY AND PROCESSES OF FATIGUE AT A STATIC LEVEL EFFORTS MAXIMAL VOLUNTARY FORCE

Introduction. The overwhelming majority of studies on physiological mechanisms of physical work (strength, endurance, fatigue, training, reaction of operating systems and its other aspects) have been made using local loading when mass of muscles taking part in contraction is 10-12 per cent of the total muscle mass during the work of upper extremities or 25-30 per cent during functioning of lower extremities. Therefore the study of muscle working capacity and fatigue in different types of mostly isometric muscle contractions with the participation of large muscle block comprising 50 per cent or more out of the total muscle mass of a human being is of great theoretical and practical interest. A satisfactory experimental model of such contractions is the work of a human being with an isometric tensometric dynamomer-training device providing wide participation of the majority of muscle groups. It is known that the maximum productive power (MPP) can be maintained by a human being not longer than 10-15 seconds. During this period of time only fibers with mostly glycotic type of energy supply manage to become tired or stop functioning as a result of inhibition (Saplinskas, 1980; Kots 1981; Broman et al., 1985). Continuation of maximum voluntary efforts is accompanied by an involuntary reduction of tension to a certain stable level (Zamostyan, 1981; Kots et al., 1980; Broman et al., 1985), and the tested person subjectively feels the same tension as he felt at the beginning of his efforts. Such prolonged retentions of subjectively felt MPP are practical and methodological way for analysis of participation of muscle structures of different functional profiles in supporting efforts at different stages of fatigue.

*Purpose of study***.** Study of patterns of muscle working capacity, fatigue and training during isometric exercises of large muscle blocks.

Materials and methods. A series of such studies involved 25 tested persons with prolonged ten- minute retention of statistic efforts on the level of MPP.

On this curve the initial rapid tension rise lasting about ten seconds is changing into its rapid reduction, in which two periods can be distinguished: rapid and slow fall. Starting with the 3-4th minute a stable level of retaining tension settles. A series of additional maximum conations were used for assessment of reserve capability of the mechanisms of voluntary control of muscle activities at the end of retention period.

The parameters of the received tensogram were the following: maximum voluntary tension at the beginning of loading (H), tension level at the moment of transition of a rapid phase into a slow one (h), the difference between initial effort and its significance at the moment of transition from a rapid phase into a slow one (h1), tension level in the stable position (h2), tension value which develops in additional conation (H2), difference between initial and additional conations at the end of loading (H1), duration of the period of rapid reduction of tension (t), rate of tension

reduction in the rapid phase (h1), multanguar ABCD – the marker of tension of anaerobic processes in the muscle.

Modern data (Kots, 1981; Person, 1985) concerning participation of muscles of different functional profiles in contraction process suggest that maximum voluntary tension at the beginning of the loading conventionally reflects participation of about 100 per cent of muscle fibres in contraction act. The level of tension in the period of stable working capacity should demonstrate specific weight of slow fibres in the total muscle block (Kots, 1980) and is maintained due to the processes of oxidative phosphorylation. The difference between maximum voluntary tension and the level of stable working capacity can evidently reflect number of those structures participating mostly in anaerobic transformations of a skeleton muscle and are represented mostly by intermediate and rapid glycolytic muscle fibres. In our study these average markers were 35.4+1.3% - slow and 64.6+1.3% - rapid and intermediate muscle fibres.

To make the analysis of peculiarities of prolonged retention of MPP, a series of researches on eleven tested persons to study the dynamics of bioelectrical activity of working muscles have been made. Comparison of the range of total bioelectrical activities taken by superficial electrodes and tensogram of a prolonged retention showed that during the first two minutes of supporting effort the reduction of these parameters occurred practically with the same speed. During the first period of loading the value of efforts decreased by 64.8±5.0%, the marker of bioelectrical activity - by 34.3±3.6%, but during the period between 1.40 second to the fifth minute the muscle effort additionally decreased by 28.1±4.1%($P<0.01$) and bioelectrical activity - by 11.4±3.9% ($P<0.05$).

Conclusions. Therefore intensity of shifts on this stage is various ($P<0.01$). Differences between the markers can be clearly revealed not only by comparison of extreme values (by shifts), but also during the whole duration of this periods of loading (statistically significant between 2 minutes 30 seconds and 6 minutes). Along with the other reasons the mechanism of the revealed dissociation can be also associated with the change of the state of electromechanic connection in part of muscular fibres. Parallelism in dynamics of total electromyogram and tensogram at the beginning of the work can be one more proof of association between the accelerating strength and the number of active muscle fibres. Thus, dynamics of total electromyogram can represent the dynamics of active muscle block.

Key words: maximum voluntary force, static burden, capacity for work.

© **Shinkaruk-Dykovytska M.M.**
Vinnitsa National Pirogov Memorial Medical University (Pirogov str., 56, Vinnitsa, 21018, Ukraine)

REGIONAL FEATURES OF FREQUENCY CHRONIC PERIODONTITIS, CYSTOGRANULOMA OR CYST OF PREMOLARS IN SOMATIC

HEALTHY MEN BY THE DATA OF DENTAL EXAMINATION AND CT SCAN

Introduction. Periodontitis - is one of the options caries complicated when splits affected nerve and ligament that holds the tooth in the jaw. If smooth progress of periodontitis, the bone around the root dissolves formed granuloma (a bag on top of the tooth root) cyst (large pores) that require more serious treatment in order to prevent the poisoning of the body's own tissue decay products. The frequency of periodontal diseases in children and adults currently no downward trend. A recent study confirmed conditionality periodontitis genetic modification. Found a genetic link between periodontitis and heart disease, vascular, endocrine disorders.

Purpose - to set the frequency of chronic periodontitis, cysts or kistohranulem bicuspid upper and lower jaw in somatically healthy men from different regions of Ukraine according to the examination and dental cone-beam computed tomography (KPKT).

Materials and methods. The Department of Pediatric Dentistry and SIC VNMU im.NIPirogova carried out a survey of more than 3,500 men aged 19 to 35 years from different regions of Ukraine to establish somatically healthy persons. As a result of somatic selected 410 healthy men in the third generation residents of the regions of Ukraine. They were divided into the following groups ethno-territorial regions of Ukraine: the north (72 inhabitants of Zhytomyr, Kyiv, Chernihiv and Sumy regions); Southern (47 residents of Odesa, Mykolaiv, Kherson, Zaporozhye regions and Crimea); center (165 residents of Vinnytsia, Cherkasy, Kirovohrad, Poltava and Dnipropetrovsk regions); Western (71 resident of Volyn, Rivne, Lviv, Chernivtsi, Ternopil, Khmelnytsky, Transcarpathian and Ivano-Frankivsk regions); eastern (45 residents of Kharkiv, Donetsk and Lugansk regions). By age men in the allocation to the various regions, groups were nearly homogeneous.

All of them using a special questionnaire analyzed medical and social factors, living conditions, indicators of oral care products and subjective assessment of periodontal tissues.

To accomplish this goal were used the following methods: study of dental status (full dental examination); cone-beam computed tomography (CT using Veraviewepocs 3D Morita) included the determination of the state periapical tissues, tooth crowns and neck; statistical analysis of the results conducted in the package "STATISTICA 6.1" (SIC VNMU belongs to them. Pirogov, license № BXXR901E246022FA).

Results. Found that in somatically healthy men from different ethno-territorial regions of Ukraine according to cone-beam computed tomography frequency of lesions premolars by chronic fibrous and chronic granulomatous periodontitis in the upper jaw has higher values than the lower jaw; cystogranuloma and premolars cyst both on upper and lower jaw in most regions is not defined. According to the data of dental examination in somatic healthy men periodontitis lesions of premolars almost not found. Pronounced differences between dental and computer tomography examination established mainly on the upper jaw in lesions frequency of premolar chronic granulomatous and fibrous periodontitis (higher values according to computed tomography) and absence of frequency of periodontitis (higher values

according to dental examination). Between representatives of different regions of Ukraine set individual differences when comparing the frequency of lesions periodontitis premolars only by the cone-beam computed tomography, mainly on the upper jaw (most often between the representatives of central and eastern regions).

Conclusion. 1. On the maxillary premolar with chronic lesions frequency fibrous and chronic granulomatous periodontitis have higher values than the lower jaw. Kystohranulemy premolars and hand both the upper and lower jaw in most regions are not defined. According dental examination fibrotic chronic periodontitis found only in the upper jaw (less than 0.5% of cases) in the central and western regions.

2. When comparing the frequency of periodontitis premolars statistically significant differences established only according to computer tomography: the upper jaw - the larger the frequency of chronic granulomatous periodontitis 14th tooth in the central than in the southern and eastern regions and the 24th tooth west than in the eastern region and the larger the frequency the absence of periodontitis 14th tooth in the east than in the central region; on the lower jaw - only bigger the frequency of cysts 35th tooth in the west than in the central region.

3. According dental examination set larger than according to the frequency of computed tomography absence of periodontitis maxillary teeth for all in most regions (most pronounced for the 24 th and 25 th of teeth) and mandibular only 35 th tooth in the western region. According to the CT installed higher than the results of dental examination of the frequency value greater chronic granulomatous periodontitis 14th, 15th and 25th in the central and 24th tooth in the southern, central and western regions and frequency chronic periodontitis fibrous 14th in the central 24th in the northern, central and western and 25th tooth in the western region; and the lower jaw - only bigger the frequency of cysts 35th tooth in the western region.

Key words: chronic periodontitis, cystogranuloma, cyst, premolars, somatically healthy men, different regions of Ukraine, dental examination, computed tomography.

© **Sarafinyuk O.P., Denesyuk V.I., Shushkovska J.J.**
Vinnitsa National Medical University named by N.I. Pirogov (str. Pirogova, 56, Vinnitsa, Ukraine, 21018)

DEFINITION OF DEGREES OF LEFT VENTRICULAR HYPERTROPHY IN PATIENTS WITH STABLE ANGINA WITH ADVANCED DIAGNOSTIC CRITERIA

Introduction. The article presents the results of studies on diagnostic criteria improvements left ventricular in patients with stable angina. Left ventricular hypertrophy - is heart disease, which is clearly defined using auxiliary research methods and significant impact on the course and prognosis of coronary heart disease. Convincingly proved that ipertrofiya left ventricle is an independent risk factor for cardiovascular complications.

Proved that increasing the thickness of the wall of the left ventricle in patients with hypertension at 1 millimeter may be associated with an increase risk of death almost 7 times.

Significant differences in the criteria determining the degree of left ventricular hypertrophy zatrudnyayut conducting their evaluation. There is a need to improve the criteria for diagnosis of various degrees of left ventricular hypertrophy, which has not only theoretical but also practical.

The aim of our study was to develop improved criteria for determining the degree of left ventricular hypertrophy in stable angina according to echocardiographic parameters.

Materials and methods. Materials and methods. For the diagnosis of left ventricular hypertrophy steps we examined 52 patients with stable angina (SS) aged 54,3 ± 0,73 years. Duration of chronic ischemic heart disease was 2,9 ± 0,31 years, systolic blood pressure - 156,2 ± 2,50 mm Hg. Art., diastolic - 103,7 ± 1,94 mm Hg. Art. Heart failure-III functional classes defined in all patients. All patients performed echocardiography.

Results. In patients examined the contractile ability of the heart according to the ejection fraction was significantly reduced ($p < 0.001$).

The development of concentric left ventricular hypertrophy characteristic of patients with hypertension and without it, a negative predictive value. In stable angina occurs eccentric left ventricular hypertrophy, due to a significant expansion of its cavities through the development of left ventricular remodeling. Thus, in patients with stable angina occurs concentric and eccentric left ventricular hypertrophy and hypertension at the beginning of the disease it has compensatory significance.

We have developed new criteria for left ventricular hypertrophy degrees that are different from previously proposed. We distinguish three degrees of left ventricular hypertrophy by determining echocardiographic parameters.

Conclusion. 1. The proposed new diagnostic criteria degree of left ventricular hypertrophy using echocardiographic study in patients with stable angina can more quickly and objectively determine the degree of its severity.

2. In stable angina I (initial) the degree of left ventricular hypertrophy determined at 23.08%, II (moderate) - in 46,15%, III (significant) degree - in 30,77% of cases.

Key words: stable angina, diagnostic criteria degrees of left ventricular hypertrophy.

© Moroz V.M., Yoltukhivskyy M.V., Tyschenko Y.V., Bogomaz O.V., Moskovko G.S.

Vinnitsa National Medical University named by N.I. Pirogov, Department of Human Physiology (str. Pirogova, 56, Vinnitsa, Ukraine, 21018)

SPATIO-TEMPORAL PARAMETERS OF GAIT IN ADOLESCENT, YOUTH AND MIDDLE AGE WOMEN

Introduction. Insufficiency normative data spatio-temporal parameters of gait, determined by automated registration systems, limited capabilities of physicians and researchers to compare data from clinical examinations normative sample. So the purpose of the research was to determination of the basic spatio-temporal parameters usual gait in freely chosen rate in adolescent, youth and middle age women.

The following parameters of gait were determined: Step Length, Stride Length, Step/Extremity Ratio, Toe In/Toe Out, H-H Base of Support, Velocity, Step Time, Gait Cycle, Cadence, Single Support, Double Support, Swing Time, Distance. "Normality" walk confirmed by integral index of gait «normality» (Functional Ambulation Profile - FAP).

Materials and methods. The study was carried out using an automated system GAITRite.

In a study on a voluntary basis was attended by students of the Vinnitsa Medical College. We investigated 127 healthy women 15-43 years (mean age was 19,7 ± 6,55 years).

Surveyed were divided into three age groups:

1. The group of adolescence - 36 women 15 years.
2. The group of young - 54 women 16-20 years (mean age was 17,37±0,99 years).
3. The group of middle age - 37 women 21-43 years (mean age was 27,7±7,27 years).

Surveyed at the time of the investigation had no injuries and denied the existence of diseases that could affect the formation of the normal gait act. They carried out two runs on the track GAITRite in freely chosen rate. The following parameters were determined gait: Step Length, Stride Length, Step/Extremity Ratio, Toe In/Toe Out, H-H Base of Support, Velocity, Step Time, Gait Cycle, Cadence, Single Support, Double Support, Swing Time, Distance. "Normality" walk confirmed by integral index of gait «normality» (Functional Ambulation Profile - FAP).

Comparison of the data was performed using nonparametric statistical methods: ANOVA and Newman-Keuls criterion for independent samples.

Results. Carried out statistical analysis revealed the following authentic data:

1. Between adolescents and young women statistically significant differences is not found either in space or in time characteristics.
2. Value Step/Extremity Ratio authentically different (equity value null hypothesis $P<0,05$) among adolescents (0,75±0,06) and middle-aged women (0,7±0,12).
3. The Distance is authentic difference ($p<0,05$) among adolescents (707,93±71,84 cm) and middle-aged women (711,07±51,24 cm).
4. The Double Support the left and right foot authentically different ($p<0,05$) among adolescents (left was 0,21±0,04 sec., Right - 0,20 ± 0,04 sec.) and middle-aged women (0, 23 ± 0,05 sec. on both sides).
5. The Double Support the left and right foot is authentic difference ($p<0,05$) between young (0,2 ± 0,04 sec.) and middle-aged women (0,23 ± 0,05 sec.).
6. The Single Support on the right side authentically different ($p<0,05$) between boys (0,64 ± 0,07 sec.) and middle-aged women (0,67±0,08 sec.).

7. In all study groups integral indicator “normality” (FAP) was in the normal range (96,67-97,06%).

Conclusion. In this study found mean values and standard deviations of basic spatial and temporal parameters of gait in healthy women in three age groups: adolescent, youth and middle age.

The resulting age differences spatio-temporal parameters of gait may be considered when evaluating gait in clinical practice. The assessment data distance is the key to a comprehensive assessment and study of the dynamic control of posture and gait, will significantly increase the possibility of doctors and scientists in understanding the mechanisms and consequences of gait control breaches.

Prospects for further research are more detailed study of the influence of anthropometric and age differences in neurophysiological forming apparatus of gait control.

Key words: gait spatial parameters, gait temporal parameters, age groups, gait, women.

© **Shpakova N.A.**
Vinnitsa National Medical University named by N.I. Pirogov (str. Pirogova, 56, Vinnitsa, Ukraine, 21018)

COMPARATIVE CHARACTERISTICS OF THE FUNCTIONAL STATE OF THE RESPIRATORY SYSTEM OF MILITARY MEN CALLED UP FOR BASIC MILITARY SERVICE AND STUDENTS

Introduction. Differences in the external respiration indices of juvenile military men of the first year of the basic military service and the corresponding indices of their age mates studying in the first course of the Medical University were studied.

In the process of ontogenesis, morphological changes of the external respiration device can be observed that greatly influence its function. In particular, it concerns people of the ontogenesis postpuberal phase characterized by final formation of the regulating mechanisms of physiological functions.

The work *objective* is to study the influence of tense functioning of the body systems on the young men's external respiration indices.

Material and methods. 100 military men of the basic military service and 100 students of the 1st course of Vinnitsa National Pirogov Memorial Medical University were examined. The following external respiration indices were studied: vital capacity, forced vital capacity, forced expiration during the first second and Tiffeneau index. Differences in the indices of military men and students were determined.

Results. According to the results of our research prevailing of annual growth of all the external respiration indices in military men prove positive influence of physical loads, rational daily regimen and balanced nutrition on the level of the respiratory system adaptation to environmental effects. Among all the external respiration

indices in the military men the forced vital capacity per 1 second increases most intensively and in students-the forced vital capacity.
Conclusion. 1. Advantage annual increases in all indicators of respiratory servicemen shows the positive impact of physical activity, a balanced daily regime and balanced digestion at the level of the respiratory system adaptability to environmental effects.
2. Influence of environmental factors, including physical activity, the individual performance indicators of respiratory systems in different populations varies, hence the need for regulatory standards defining these indicators. In all military indicators of respiratory growing most rapidly forced vital capacity for 1 second, and the students - forced vital capacity.
Key words: external respiration indicators, adolescence, conscription.

© **Marakyushin D.I., Isayeva I.N.**
Kharkiv National Medical University, Department of Physiology (Lenina ave., 4, Kharkov, 61022, Ukraine)

ASSESSMENT OF SEROTONIN AND KYNURENINE METABOLISM OF TRYPTOPHAN STATE IN YOUNG PERSONS WITH ARTERIAL HYPOTENSION

Introduction. Studied the activity of serotonin and tryptophan metabolism kinureninovoho ways.
Tryptophan, which is not used for protein synthesis, be exchanged in three main ways: kinureninovym, serotonin and tryptaminovym. For kinureninovym exchanged by more than 90% of tryptophan. This amino acid is a source of formation of nicotinamide nucleotides, nicotinic acid, biogenic monoamine serotonin, the hormone melatonin.
Objective: to study the possible features kinureninovoho activity of serotonin and tryptophan metabolism pathways in young adults with arterial hypotension.
Material and methods. 128 young people, including 78 people with primary arterial hypotension have been studied. The possible features of the activity of Serotonin and Kynurenine metabolism of Tryptophan have been determined. Assessment of activity of Tryptophan metabolism in patients with primary arterial hypotension performed on the content in the urine metabolite of Serotonin pathway - 5-Hydroxyindoleacetic acid (5-HIAA) and the final product of Kynurenine pathway - N-Methylnicotinamide (N-MNA).
Results. It has been established that in people with arterial hypotension there is an increase of urinary excretion of 5-Hydroxyindoleacetic acid and N-Methylnicotinamide with an increase in the ratio of N-MNA / 5-HIAA, and this point shows some prevailing exchange of Kynurenine pathway of Tryptophan metabolism and decrease in serotoninergic activity.
The results indicate a statistically significant ($p < 0.001$) compared to control, increasing the urinary excretion of 5-oksyindolotstovoyi acid (5-OIOK): I group to

2.4 times, and for group II - almost 3 times. Reliably significant difference change in this indicator also found when comparing the two experimental groups among themselves ($p = 0.01$).

Conclusion. In the surveyed persons there is increased urinary excretion of the metabolite of serotonin by sharing tryptophan - 5 oksyindolotstovoyi acid and final product kinureninovoho way - N-methyl nicotine amide by increasing the ratio of N-MNA / 5 OIOK that indirectly suggests some prevalence kinureninovoho way exchange of tryptophan on serotonin and therefore possible reduction serotoninergic activity.

Key words: arterial hypotension, humoral regulation of blood pressure, Serotonin, Kynurenine, Tryptophan.

© **Lysunets O.V.**
Vinnitsa National Pirogov Medical University, Department of propaedeutics of children's diseases and the care of sick children (Pirogova str., 56, Vinnitsa, 21018, Ukraine)

METRIC CLASSIFICATION OF THREATS OF PREMATURE NEWBORNS DURING PRIMARY HEALTH CARE PERIOD

Introduction. Modern perinatal technologies directed to delivery, stabilization of communicable functions of newborns and mainly to the first stage of nursing of newborns. There is an open question as for uniform standard of medical supervision and choice of medical tactics during the first stage of primary health care.

Objectives. To develop the method of metric classification of threats of premature newborns for early delimitation and preventing of negative consequences as premature birth on the ground of data analysis of obstetric history, objective examination and laboratory and instrumental examination results.

Materials and methods. The main clinical mass of research were 58 premature newborns, selection criteria of it are the follows: gestational age ≥32 weeks, minimum weight at birth (1600 г), absence of significant congenital abnormalities, birth injuries, hereditary disease. The group for comparison consisted of 26 conditionally healthy premature newborns.

The first group (n=29) of main clinical mass was formed by premature newborns with hypoxic and ischemic central nervous system damage (HID CNS) The second group (n=29) was formed by premature newborns without any discovered deviations of neurologic status during laboratory and instrumental examinations, but they needed treatment as for bacteritic and inflammatory diseases that manifest on 9^{th} -11^{th} day of life (at age of 10±0,5 days). On the ground of sequential decision procedure by Bayes' method, on the ground of determining of clinical manifestation of hypoxic and ischemic central nervous system damage or on the ground of absence of confirmed instrumental changes on the part of central nervous system the method of metric

classification of threats of premature newborns with a little body weight at birth as for potential symptoms that were found out at patients have been developed.

Results. In accordance with findings of calculation done there was settled a list of prognostics and range of these signs that have the biggest probability as for clinical manifestation or absence of manifestation of hypoxic and ischemic central nervous system damage as well as a list of signs specific for conditionally healthy premature newborns.

Therefore, during the registration of signs («period of gestation - 30-33 weeks.», «physical development - lower than average», «necessity for oxygen-therapy», «body weight gain in amount of 6-10 g for the first 14 days», «gastrogavage for 3-5 days», «duration of biliousness for 15-18 days», «cuticularization of funicle wound for 8-14 days», «temperature gradient at the level of 3,1-3,5º C», «volume of thymus gland per piece of body weight 2,48-2,86 ml/kg»), the probability of manifestation HID CNS is 40 times more than saving of intact central nervous system, and existence of healthy children having the list of these signs can not be predicted.

At the same time, when there is a total range of signs «period of gestation 30-33 weeks.», «high physical development P50-90», «performance of intubation and apparatus ДВЛ», «body weight gain in amount of 3-5 g / per day», «gastrogavage for 1-2 days», «duration of biliousness and toxic erythema > 21 days», «cuticularization of funicle wound for 15-18 days», «temperature gradient Δtº2,4-2,0ºC», «volume of thymus gland per piece of body weight 2,48-2,86 ml/kg» the probability of absence of changes in central nervous system against coexisting perinatal pathology is 27,6 times more than development of HID CNS and existence of healthy children having the list of these signs can not be also predicted.

When there is a total range of signs «period of gestation 36-37 weeks», «mid-level physical development P50», «involvement of oxygen-therapy», «body weight gain in amount of 11-18 g per day», «breast-feeding», «duration of biliousness for 10-14 days» and «toxic erythema for 3-7 days», «cuticularization of funicle wound for 5-7 days», «temperature gradient Δtº1,9-1,5ºC», «volume of thymus gland per piece of body weight 2,0-2,4 ml/kg» then it can be predicted successful postnatal ontogenesis of premature newborns.

Conclusions and Prospects for the Further Development

1. Taking into consideration the determined main differentiated and diagnostic criteria of manifestation of central nervous system damage during the neonatal period of premature newborns, in a case of calling a family physician due to primary disease it can be predicted the possibility of clinical manifestation of central nervous system damage that make it possible to identify the degree of gravity of general state of the young patients and prognosis for possible clinical run of the disease, complications of main disease and performing of classification as for a level and volume of providing assistance.

2. Proposed method of metric classification of threats is directed to in-depth study of obstetric history and perinatal anamnesis, as well as in a greater degree to results of objective examination of a newborn that makes it available for wide use in y differentiated and diagnostic search of neonatal period.

Prospects for the further development are in further study of clinical, laboratory and instrumental evaluation markers of general state of premature newborns during the periods of nursing and development of uniform standards of supervision after such infants.

Key words: premature newborns, metric classification of threats, clinical, laboratory and instrumental data, primary health care.

© **Tomashevskyi Ya.V.**
Vinnitsa National N.I. Pirogov Memorial Medical University, department of surgery № 2 (head of the department prof. Godlevsky A.I.) (Pirogova str., 56, Vinnitsa, Ukraine, 21018, tomashevska@bk.ru)

THE IMPORTANCE OF MARKERS DYNAMICS OF CYTOPATHIC HYPOXIA FOR PATIENTS WITH ACUTE PANCREATITIS OF THE BILIARY ETIOLOGY AGAINST THE BACKGROUND OF CONCOMITANT DIABETES MELLITUS

Introduction. Despite the success of modern scientific and clinical studies on the deep study of the pathogenesis and pathophysiology of acute pancreatitis and its complications, aggressive implementation of therapeutic and diagnostic technologies, development of new medicine to the surgical practice, there still remains high mortality for both aseptic and infected form of necrotizing pancreatitis and there is a tendency of proportion increase in necrotic forms, that are diagnosed for 25-40% of patients. Concomitant diabetes mellitus is an independent factor of premorbid encumbrance and increase of the operational and anesthetic risk degree.

Aim of the study: evaluation of diagnostic and prognostic possibilities of markers use of cytopathic hypoxia for patients with acute pancreatitis of biliary etiology in case of presence and absence of concomitant diabetes mellitus.

Materials and methods. This study contains analysis of the results of the complex treatment for 122 patients with diabetes mellitus, against the background of the acute pancreatitis of the biliary etiology, which were hospitalized under conditions of clinical bases of surgery cathedra No. 2 of Vinnitsa National Medical University named after M.I.Pirogov for the period of 2012-2015 years. The research covered implementation of the main objectives of the study on the basis of the main and the retrospective group, usage of indicators for all 4 groups (main and retrospective, group of control and group of comparison) as main comparison parameters depending on the segment and objectives of the study.

Results. It is noted that markers medication of the cytopathic hypoxia have potential for using them as methods for early diagnosis of acute liver failure and methods of control under the effectiveness of its correction. It is revealed that the indicators of cytopathic hypoxia are able to distinguish on the stage of the laboratory diagnosis the destructive and non-destructive forms of acute pancreatitis of biliary etiology, and

markers of endothelial dysfunction divide destructive forms by square and depth of destruction of the pancreas.

Conclusions. 1) Patients which have acute pancreatitis of biliary etiology with existing diabetes mellitus has a number of clinical and epidemiological features, which determine its next specific medical and diagnostic, tactical program in order to predict and prevent dysfunction of organs and inflammatory complications, which requires separation into a separate group of premorbid encumbrance of operational and anesthetic risk and the risk of complicated course of acute pancreatitis of biliary etiology against the background of diabetes mellitus, given the initial compromise of metabolism and organ systems. 2) Monitoring of critical metabolic processes for the patients with diabetes mellitus within development of acute pancreatitis of biliary etiology has prognostic and diagnostic importance, since markers observations allow early diagnosis of hepatic dysfunction and monitoring of its preventive correction, laboratory and paraclinical destructive and non-destructive distinction forms of acute pancreatitis of biliary etiology and are additional predictors of destructive forms distinction of acute pancreatitis of biliary etiology bythe square and severity of lesions of the pancreas.

Key words: acute biliary pancreatitis, diabetes mellitus, cytopathic hypoxia, diagnosis, predicting complications.

Saliy Z.V.
Department of Neurology, Psychiatry, Addiction and Medical Psychology, "Ternopil State Medical University Horbachevsky Ministry of Health of Ukraine" (st. Trolley, 14 m. Ternopil, 46001, Ukraine)

DESCRIPTION OF MAJOR MORPHOMETRIC BRAIN INDICES OF PATIENTS WITH TRAUMATIC BRAIN INJURY CONSEQUENCES

Introduction. According to WHO, each year in the world are traumatic brain injury (TBI) is more than 10 mln. people, including 250-300 thousand die. In different regions of Ukraine CCT frequency range from 2.3 to 6 cases per 1000 population, death rate of 2.4 per 10 thousand population.

The focus of research has shifted in the last decade towards studying the processes that affect the development and progression of long-term effects of TBI. Now are actively seeking both clinical and anatomical and biological markers that predict changes in the neurological, cognitive or emotional after TBI. With the development of neuroimaging techniques, of particular interest are the study of brain morphometric characteristics and their effects on major clinical manifestations of TBI.

Objective: To investigate basic brain morphometric indices in patients with TBI consequences.

Materials and methods. In 130 patients with consequences of TBI and 35 persons included in the control group (mean age 38,40 ± 1,11 years) analyzed brain

morphometric parameters based on the analysis of computer tomography brain. Mild traumatic brain injury suffered 35 patients (mean age - 42,40 ± 1,40 years), severe head injury - 95 patients (mean age - 41,09 ± 0,99 years). Among surveyed dominated by men: 80.55% - with mild traumatic brain injury and 87.36% - with severe traumatic brain injury.

Results. The paper found a significant difference between the main morphometric indices in groups of patients with TBI consequences and norm. The largest divergences in the late period of severe brain trauma sustained in external option cerebral atrophy markers - bifrontal index, Evan correlation. Defined dependence between different morphometric indices, the age of patients and duration of post-traumatic period. Allocated risk group of cortical atrophic and process progression.

Conclusion.

1. In patients with consequences of mild traumatic brain injury and severe brain injury found significant deviations from basic norm values morphometric indices brain.
2. The highest percentage of patients with signs of cerebral atrophy (external and mixed) were in the age group 51-60 years.
3. Patients with the effects of severe traumatic brain injury found significant correlation between the strength, duration of post-traumatic period and bodies Index lateral ventricles and bifrontalnyy, moderate - with bikaudatnym.
4. Patients who have suffered severe traumatic brain injury at the age of 40 years should be attributed to the risk of development and progression of cerebral atrophy.

Key words: morphometric indices, TBI, consequences.

© **Yakusheva Yu. I.**
Department of Physical Education and Therapeutic Physical Training, Vinnytsia National Medical University names after N.I. Pirogov (Pirogova str., 56, Vinnytsya, Ukraine, 21018)

THE THICKNESS OF SKIN FOLDS OF FAT, COMPOSITION OF BODY WEIGHT AND SOMATOTYPE IN VOLLEBALL PLAYERS WITH DIFFERENT POSITION

Introduction. *The aim* of the work is to establish differences in the thickness of skin and fat folds component of body weight and somatotype volleyball youth in high-level sports skills of different roles.

Material and methods. Female adolescents (16 to 20 years) took part in this research. Among them, 140 girls who have not played sports at the time of the survey were almost healthy, and 116 volleyball players of high level sports training (from the first level to the adult masters of sport).For sports rolesthey were divided into 3 groups: forwards - 78 (6724%); binding - 29 (25%); liberia - 9 (7.76%). We conducted the anthropometric research with methodology by Bunak [1941] somatotypological - calculated by a modification of the method of Heath-Carter

[1990], the definition of a component of body weight by the method Matejko [Koveshnykov, Nykytyuk, 1992]. Reliability of difference values between independent quantitative variables were determined using the U-Mann-Whitney criterion.

Results. We found that the thickness of the fat folds of skin on the back of the shoulder is the biggest girls in the control group. For thick folds of skin and fat on the back of the shoulder are significantly dominated the overall group and volleyball attackers, binders (in all cases p <0,001) and Liberia (p <0,01). Between volleyball separate groups this rate was not significantly different (Fig. 1). The lowest value of the thickness of skin folds of fat on the front of the shoulder we found in binders, in them as volleyball and all other groups of this size is less than nesportsmenok (in all cases p <0,001)

Conclusion. 1. The total group of volleyball players group of girls who do not play sports have significantly greater (preferably p <0,001) ektomorf value component of somatotype, muscle and bone weight. While we have found the girls who do not play sports have a statistically significant greater thickness of skin and fat folds, endomorf component of somatotype and body fat mass.

2. Anthropometric indices and somatotypological are also different between volleyball players with different sport line. We have found that the attackers versus Liberia (p <0,05-0,01) and binding (p <0,001) have significantly more muscle and bone weight.In comperison with forwards the binding's fat weight is significantly lower. We have not found significant differences in the thickness of skin and fat folds and size somatotype of all components between binding and liberia.

3. We have found that all three groups, separated by sport role, compared with the group women who don't play sports the significantly more is muscle weight and thickness, the significantly less is skin and fat folds on the upper and lower limbs, under the shoulder blade, component of endomorf somatotype and fat mass bodies.

4. The magnitude of these anthropometric sizesand somatotype component of liberia have significant differences in comparison with women who don't play sports, while the forwards have the greater bone mass of the body.

Key words: anthropometry, somatotype components of body weight, volleyball.

© **Petrushenko V.V., Vernigorodskyy S.V., Tatarin O.Ye.**
Vinnytsia National Medical University names after N.I. Pirogov (Pirogova str., 56, Vinnytsya, Ukraine, 21018)

PATHOLOGICAL CHANGES OF THE VASCULAR WALLS IN PATIENTS WITH VARICOSE DISEASE OF THE LOWER EXTREMITIES AFTER ENDOVASAL LASER OBLITERATION AND RADIOFREQUENCY ABLATION

Introduction. In modern surgery the most effective ways of treating varicose veins of the lower extremities is endovascular method of surgical treatment. We conducted a

comparison of the pathological changes of the venous walls in patients with varicose disease of lower limb after endovenous laser treatment and radiofrequency ablation.

The prevalence of chronic venous disease, including varicose veins of the lower extremities is a significant medical and socio - economic problem in developed countries. Socio-economic costs of venous thromboembolic complications account for 1-3% of the total budget of health care in the year. There is a need to develop outpatient methods to effectively carry out surgical treatment of lower economic costs and good aesthetic result.

One of the most effective ways to treat varicose veins of the lower extremities is endovazalna laser coagulation and radiofrequency ablation.

The purpose of our study was to compare the pathological changes of venous walls in patients with varicose veins of the lower extremities after exposure endovazalnoyi laser coagulation and radiofrequency ablation to further optimize the treatment strategy.

Material and methods. The study was conducted at the Department of Surgery № 1 VNMU them. Pirogov and vascular department vauclaix them. Pirogov. During the period from October 2013 to April 2015 were treated 168 patients with varicose veins of the lower extremities with symptoms of chronic venous insufficiency classes C2, C3. C4 (classification CEAP). Microscope slides was prepared by a standard method. Performed microscopy and photographed histological specimens. Morphometry was performed.

Results. Determined that after endovenous laser coagulation dominated coagulative necrosis which extended up to 1/3 of the average of the middle layer of the vein, and in patients after radiofrequency ablation depth of necrosis was within endothelial and subendothelial layer, characteristic was the detachment of the endothelium from the lungs of the vessel lumen.

Conclusion. Pathomorphological changes of venous walls have the following features:

After endovenous laser treatment prevailed koahulyatsiy tion necrosis that spread to most of the 3.1 average shell vein.

In the group of patients after radiofrequency ablation depth of necrosis was within subendotelialnoho and endothelial layer and almost no spread in the middle membrane, but it was characteristic of endothelial detachment and pidendotelialnyh parts from falling of the lumen.

In our opinion, it is narrowing due to delamination of the inner shell and the falling of the lumen leads to a reliable closure of venous lumen that observed with radiofrequency ablation and promote a more intensive obliteration of the lumen and improved treatment.

Key words: varicose disease of the lower extremities, radiofrequency ablation.

© **Godlevskyi A.I., Savoljuk S.I., Losjev V.O.**

Vinnytsia National Medical University names after N.I. Pirogov (Pirogova str., 56, Vinnytsya, Ukraine, 21018)

CHANGES IN OPTIC PARAMETERS OF COLLAGEN FIBER STATUS OF GENERAL BILE DUCT IN THE DEVELOPMENT OF ACUTE CHOLANGITIS AS A COMPLICATION OF COLEDOCHOLETHIASIS

Introduction. Complication forms of choledocholithiasis are complex and far unresolved tactical and diagnostic and therapeutic challenge hepatobiliary surgery. A frequent complication of choledocholithiasis is acute cholangitis. The incidence of acute cholangitis in patients with choledocholithiasis is from 7% to 40%. Acute cholangitis is a cause of surgical sepsis with clinical course in the form of biliary sepsis with multiple liver abscesses peryholanhitychnymy. In the later stages of acute cholangitis occurrence of SIRS-syndrome, septic shock and multiple organ failure causes high mortality (60.8%).

The aim of the work was to improve the results of surgical treatment of patients with benign biliary pathology complicated by acute cholangitis on the basis of analysis of optical changes in general bile duct walls, investigating structural changes in collagen fibers of common bile duct walls by the parameters of birefringence step and phenol index.

Materials and Methods. The basis of the research on the analysis of results of surgical treatment of 22 patients with gallstone disease, complicated and acute cholangitis CHOLEDOCHOLITHIASIS which were formed dyhestivni-biliary anastomoses: 2 patients with holeduhoduodenoanastomozom for Yurash, 1 holeduhoduodenoanastomoz by Kirchner, 6 patients - with HDA Flerkinu on 13 - HDA in Finstereru. The material for the study was a piece of the common bile duct, which took the stage choledochotomy. Was the method of intraoperative revision extrahepatic bile duct, bile duct sensing method and polarization microscopy.

Results. The results of diagnostics and surgical treatment of 22 patients with acute cholangitis were analyzed. The diagnosis was verified on the basis of clinical, instrumental methods, by biochemical blood tests as well as bacteriologic analysis of bile. The diagnostic and prognostic value of optical and polarization microscopy as an intraoperative method to evaluate the loss of contractile function of bile ducts was assessed in comparison with other diagnostic methods.

Conclusion. The results of the data suggest the possibility of using options histo-optical properties of the collagen fibers wall of the common bile duct on the basis of polarization-optical microscopy as intraoperative method for assessing the degree of change submucosal layer, followed by assessment of the risk of insolvency seams formed BDA, stratification degree of risk of failure BDA , develop a comprehensive protection program line anastomosis seams formed according to degree of prevalence and structural changes of collagen fibers.

Key words: acute cholangitis, choledocholithiasis, biliodigestive anastomosis, polarization microscopy, collagen fibers.

SE “Ukrainian SRI (Scientific Research Institute) of traffic medicine” Odessa, Ukraine

STRUCTURALLY FUNCTIONAL CHANGES AND THE SHIFTS OF THE IMMUNE SYSTEM INDICES IN PATIENTS WITH LINGUAL TONSIL HYPERTROPHY

Introduction. The authors investigated the peculiarities of changes of the human hypertrophied lingual tonsil tissue according to the general immunological status.
The aim of our work was to determine the structural and functional changes in language in its amygdala hypertrophy and correlation of these changes with the state of the overall immunological status.
Materials and Methods. Data obtained after the examination of 16 patients who had been subjected to the surgical intervention due to the lingual tonsil hypertrophy served as the main material of the work. As the mean of control there were used data obtained during the examination of 7 patients who had died of various causes but didn’t have the diagnosis of the lingual tonsil hypertrophy. Prior to the surgical intervention we had been obtaining the patients’ venous blood and determining the level of CIC (circulating immune complex); antibody titre to the nasal mucous membrane and tonsil tissue. During the surgical intervention we had been obtaining the pieces of the removed tonsil which we had poured into the photoxylin solution. From the obtained material we made histological sections, dyed them with hematoxylin eosin and studied under the light microscope.
Before the removal the microscopic examination of the lingual tonsil revealed that it was a dense protruding above the surface formation with a rough structure. Roughness is caused by the presence of deep cristae.
Results. The thinning of the tonsil mucous membrane was visually detected under the microscopic examination. The membrane separating mucosa from the tonsil proper substance was edematously fibered and widened. The layers dividing the mucosa into segments were shortened and thinned thereby the segmental organization of mucosa became unclear. Lymphoid follicles were changed.
Some of them had large germinal centers with rare distribution of lymphoid elements and small eosinophilic inclusions. The peripheral area of these follicles was confined and the distribution of lymphoid elements was low. In some cases the peripheral regions of adjacent follicles fused. In some follicles the germinal center was fragmented, furthermore, there were follicles of deformed shape with small rounded center and peripheral region of various thickness and density. Some lacunes were rumpled and fissured. In the tonsil proper substance there were determined enlarged areas of lipidocytes, salivary glands acini and bundles of the fibrous fibers containing coiled elastic fibers.
Immunological studies in these patients determined accurate (up to 6.9 =4.1 of mg/l0) increase of CIC content and also increase of antibody titre to the nasal mucous membrane to 1: 20- 1:40 and tonsil tissue to 1:40 - 1: 60. In some patients the CIC content did not exceed an upper boundary of physiological outline which indicates the weak or absent inflammatory reaction. The authors believe that autoimmune

processes in the observed patients disrupt the regulatory function of the immune system that’s why the atrophy of the tonsil follicular part and hypertrophy of its proper substance begin to take place.
Conclusion. Obtained data can serve as the basis for further development of pathognomonic methods in treatment of lingual tonsil pathology.
Key words: tongue tonsil, hypertrophy, autoimmune reactions.

METHODICAL ARTICLES

© Chereshnyuk I.L.
Vinnitsa National Medical University M.I.Pirogov (Pirogova str., 56, Vinnitsa, 21018, Ukraine)

USE FLOW CYTOMETRY FOR SCREENING CONTENT RATINGS DNA IN THE NUCLEI OF CELLS IN THE NEURONAL RETINA IN RATS

Introduction. As is known by flow DNA cytometry is common in various scientific studies for the determination of DNA quantification its distribution in different populations of cells tissues of animals and humans due to its distinctive advantages: high speed analysis, high accuracy, reliability and accuracy of the results and analysis of measurement accuracy , high resolution and sensitivity of the method, the ability to identify and analyze even a tiny concentration of particles.
To study the proliferation of retinal cells by flow cytometry DNA was first used A.Velasco et al. [2001], who investigated the cell cycle in retinal cells carp family fish (known to fish retina capable of proliferation and regeneration). Shaw relates to the use of this method to study the DNA content in cells of the retina laboratory animals, including rats, any information in this unambiguous available literature failed to find. That is why there was interest in studying the possibility of flow cytometric DNA to study the DNA content in cells in the rat retina, which would provide further information on the structure of the eye in both normal and pathological conditions, and also to quickly and objectively conduct impact assessment screening pharmaceutical zasosbiv, various factors or factors in the body of experimental animals.
Objective: to study DNA content in cells of neuronal stikivky by flow cytometry DNA in intact rats and evaluate the quality of the DNA histograms.
Materials and Methods. Experimental study of DNA content in the nuclei of cells in the retina performed on male rats Wistar weighing 160-180 g at the research laboratory of functional morphology and genetics Development Research Centre VNMU im.NIPirogova (certificate of re-certification MoH Ukraine №003 / 10 of 11 January 2010). Animals are kept in vivarium VNMU im.NIPirogova on a standard water-diet with natural light and free access to feed and water.
Maintenance and manipulation of the animals were carried out according to the guidelines of State Pharmacological Center MoH and requirements bioethics according to the National 'general ethical principles of animal experimentation "(2001), corresponding to the provisions of the" European Convention for the Protection of vertebrate animals used for experimental and other scientific purposes "
Results. The paper presents the results of flow-cytometric study of DNA content in cells of neuronal retina intact Wistar rats. DNA content of the majority of retinal neuronal nuclei of rat retina was 2c (94,92 ± 0,94%). Also in the cells of the retina animals revealed the presence of particles tetraploid nuclei (DNA = 4c) - 4,98 ±

0,94% and the small percentage of nuclei containing DNA characteristic of S-phase - 0,10 ± 0,02%, that does not exclude the presence of some synthetic activity of the DNA in the nuclei of the structure of the eye is normal. Background DNA fragmentation index (the percentage of fragmented DNA sites) was - 0,43 ± 0,11%.
The absence of significant differences between the analytical performance of DNA histograms of cells in the retina of right and left eyes of animals, acceptable coefficients of variation peaks G0G1 and high accuracy allowed a possibility in the application of this method to objectively assess the impact of screening drugs, various factors or factors on DNA content in cells of the retina: DNA fragmentation, DNA synthetic activity and ploidy.
Conclusions. 1. Obtained using this technique of flow cytometry data DNA analysis DNA histograms retinal neuronal cells of normal rats suggest that there is a low DNA synthetic activity in this structure - 0,10 ± 0,02% (S-phase), the presence of a certain percentage objects with fragmented DNA - 0,43 ± 0,11% and nuclei containing DNA 4c - 4,98 ± 0,94%. 2. The metered manner fence material and it needs a little number allows the rest of the retina for others, such as biochemical research significantly, almost several times to reduce the number of experimental animals, although, obviously, it is possible to estimate DNA content in cells as different zones stikivky and in almost all cells of this structure.

The technique of flow cytometry cell DNA retinal tissue in rats acceptable coefficients of variation peaks G0G1 and lack of significant differences between analytical indicators DNA histograms retinal cells right and left eyes of animals is an objective and very accurate and can be used to assess the impact of screening pharmacological zasosbiv, various factors or factors in the body of the experiment.
Key words: neuronal retina, flow cytometry, DNA content.

© **Savolyuk S.I.**
Vinnitsa National Medical University M.I.Pirogov (Pirogova str., 56, Vinnitsa, 21018, Ukraine)

OPTIMIZATION OF METHOD EVALUATION REFERENCE AND POSTDECOMPRESSIVE CHANGE OF FUNCTIONAL ACTIVITY OF THE LIVER IN THE PATIENTS WITH NON-NEOPLASTIC OBSTRUCTIVE JAUNDICE

Introduction. The current stage of development and progress in surgical technology hepatobiliary surgery require clarity approaches to diagnosis, recording and dynamic monitoring of the functional activity of the liver during the perioperative period of observation of the patient. These approaches are not only for the conditions resection and transplantation programs surgical treatment of focal and organic liver disease, but also to the specific issues of planned and emergent abdominal surgery - non-cancer obstructive jaundice, acute pancreatitis, acute cholecystitis, common forms of acute

peritonitis, since cases of liver failure played a crucial role in achieving satisfactory results early postoperative period.
Objective: to develop new diagnostic methods and ways that directly and indirectly assess functional capacity of the liver in patients with non-cancer obstructive jaundice during the perioperative period.
Material and methods. The article analyzes the results of laboratory monitoring perioperative supervision 510 patients with non-neoplastic obstructive jaundice. Primary data was collected base 62 metabolic rate and 10 settlement traditional indexes. Statistical analysis allocated predictors of metabolic complications, which became the basis for the development of new 22 methods and techniques of direct and indirect evaluation of the postdecompressive changes and functional activity of the liver, which can be used for diagnosis and monitoring of hepatic dysfunction not only in hepatobiliary surgery, but in a planned and urgent abdominal surgery.
Results. The analysis of cytokine profile and the resulting changes in the immunoreactivity in patients with non-cancer obstructive jaundice with varying degrees of initial and postdekompresiynoyi Mon allowed to distinguish prognostically significant metabolic predictors (interleukins - 1, 6, 10 (IL-1, IL-6, IL-10) indicator mediated apoptosis of T cells (CD95), inorganic phosphorus (nF), blood cells (Li)), mathematical integration which has created the following methods for the diagnosis of septic complications and threats they occur.
Based on the diagnostic indices evaluated the functional state of the liver, liver failure and the degree of dysfunction and complex system of metabolic disorders.
Conclusions. 1. Unsatisfactory consequences of surgical treatment of non-neoplastic obstructive jaundice in the early postoperative period due to tactical errors in unjustified expansion of indications for one-step radical surgery (63.84%), the volume does not meet the initial severity of patients and postoperative complications accompanied by an increase to 16.87% postdekompresiynoyi and acute liver failure to 10.84%. 2. Creating a diagnostic algorithms perioperative monitoring changes neobturatsiynoyi substantiated approaches to differentiated choice of surgical treatment, perioperative protocols conservative support and assessment of their clinical efficiency, helping to reduce postoperative complications to 10.26% from 16.87% to 6.61%, acute liver postdekompresiynoyi Failure to 9.19% from 10.84% to 1.65% and mortality by 6.4% from 7,23% to 0,83%.
Key words: functional activity of the liver, reference and postdecompressive change, non-neoplastic obstructive jaundice, methods of diagnosis and monitoring.

© Derkach N.M., Shtrygol' S.Yu., Filimonova N.I., Laryanovska Yu.B., Tovchiga O.V.
National University of Pharmacy, Kharkiv

CHARACTERISTIC OF INFECTIOUS COLOPROCTITIS MODEL IN RATS

Introduction. Infectious diseases of the intestine of the microbial etiology are widespread in the modern world. Their treatment is often a matter of some difficulties due to the development of pathogens resistance. The investigation of the pathogenesis specificity and the development of new drugs require appropriate experimental models, and the problem of the model choice naturally emerges. In particular, coloproctitis models of different origin are suggested, with the initiation of the pathological process by sepsis, colorectal distention, irradiation, etc.

The objective of this study is to develop the model of coloproctitis of the microbial etiology in rats, that is accessible, convenient, and reproducible, as well as to describe the clinical and morphological characteristics of this model.

Material and methods. 24 mature non-inbred albino male rats (body weight about 130 g) were randomly divided into 3 groups, each containing 8 animals. The first group consisted of control rats. In the second group of animals coloproctitis was induced by Staphylococcus aureus, in the third group – by Pseudomonas aeruginosa, using the specially developed method. All animals were deprived of food, but not of drinking water 24 hours before the experiments. Under general anesthesia (thiopental sodium, 70 mg/kg intraperitoneally), midline laparotomy was performed aseptically after fixing of the rats on the operating table with the back down. A subclavian catheter connected with a syringe was inserted through the rectum. Under palpation and visual control (to avoid perforation) the free end of catheter was moved to the transverse colon, immediately after 1.5 ml of sterile 0.9% NaCl solution (control animals) or pathogens suspension in the same volume (S. aureus ATCC29213 at a dose of 1×10^8 or P. aeruginosa ATCC 27853 at a dose of 1×10^8) was administered into the intestine. The catheter was taken out, avoiding leakage. Surgical wound was closed according to the tissue levels.

The state of trophic processes in animals was estimated by the dynamics of body weight. The degree of infection was determined by the number of colony forming units (CFU) of pathogens, which were obtained from rats feces collected directly from the rectum at days 3 and 6 of the experiment. For the estimation of the severity of the disease the temperature in the rectum was controlled, on day 6 complete blood count was performed, the samples were obtained from the tail vessels.

At day 7 the animals were decapitated under thiopental sodium anesthesia, and the blood was collected for biochemical tests. The urea concentration in blood serum was measured by the reaction with diacetyl monooxime, creatinine concentration – by Jaffe reaction, ALT and AST activity – by Reitman and Frankel method. Commercially-available kits from Filisit-Diagnostika (Ukraine) were used for these assays. The total protein level in blood serum was determined using Lowry method. The colon and rectum were harvested for morphological studies. The sections of transverse colon, descending colon, and ampulla recti were fixed in 10% solution of neutral formalin, dehydrated in ethanol solutions of the augmenting concentration, embedded in celloidin-paraffin. Microtome sections were stained with hematoxylin and eosin [1]. For the analysis the microscope "Granum" and the digital video camera "Granum DCM 310" were applied. The photographs were processed using computer Pentium 2,4GHz through a ToupView program.

The results of the study were statistically processed using the standard software "Statistica 6.0." Parametric and non-parametric methods were applied, as follows: dispersion analysis, Newman–Keuls criterion, Kruskal-Wallis method, Mann-Whitney criterion with the Bonferroni correction. The level of significance was defined as $p \leq 0.05$.

Results and discussion. The general state of health worsened in animals with the reproduced coloproctitis (caused by both pathogens). This was evidenced by the absence of increase in body weight (Table 1), hyperthermia (at day 3 rectal temperature amounted to 38.7±0.10 ^{o}C in rats infected with S. aureus, 38.9±0.09 ^{o}C – in animals infected with P. aeruginosa versus 37.6±0.18 ^{o}C in control rats, $p < 0.001$).

Table 1. Body weight dynamics in rats with the reproduced coloproctitis, caused by S. aureus or P. aeruginosa (n=8).

Term	Control animals	Coloproctitis	
		S. aureus	P. aeruginosa
Initial state	131±4	133±4	132±4
Day 1	118±4	119±4	117±3
Day 4	137±5	132±3	131±4
Day 7	147±4	133±3*	130±3*

Note:* – statistically significant differences when compared to intact control group value, $p<0.05$.

In feces, that acquired semi-liquid consistency, a significant augmentation in the quantity of each pathogen, especially P. aeruginosa, with a gradual decrease from day 3 to day 6 was determined (Table 2).

Table 2. Dynamics of the degree of feces infection in rats with the reproduced coloproctitis, caused by S. aureus or P. aeruginosa (n=8).

Indices	Colony forming units, CFU /ml			
	S. aureus		P. aeruginosa	
	Control animals	Coloproctitis	Control animals	Coloproctitis
Day 3	$3 \cdot 10^4$	$3 \cdot 10^7$	$4 \cdot 10^3$	$9 \cdot 10^7$
Day 6	$2 \cdot 10^4$	$4 \cdot 10^6$	$3 \cdot 10^3$	$6 \cdot 10^6$

The hemograms (Table 3) showed no significant disturbances in haemoglobin content, erythrocytes and leucocytes quantity, still leukocyte formula of the infected animals in both groups underwent considerable changes in the form of a statistically significant increase in the number of segmented and banded neutrophils, eosinophils and monocytes, while lymphocytes content was reduced.

Table 3. Haematological values in rats with the reproduced coloproctitis, caused by S. aureus or P. aeruginosa (n=8).

Indices	Control animals	Coloproctitis	
		S. aureus	P. aeruginosa

Haemoglobin, g/l	155.58±4.39	150.35±2.98	144.94±4.65
Erythrocytes,10^{12}/l	5.02±0.08	5.06±0.10	4.88±0.07
Leucocytes, 10^9/l	23.39±2.32	18.61±1.09	21.42±0.94
Leukocyte formula, %:			
Banded neutrophils	1.0 (0.0÷2.0)	5.3 (4.0÷6.0)*	5.3 (4.0÷7.0)*
Segmented neutrophils	12.0 (8.0÷19.0)	26.1 (22.0÷31.0)*	29.0 (22.0÷36.0)*
Eosinophils	0.83 (0.0÷2.0)	4.0 (3.0÷6.0)*	3.5 (2.0÷5.0)*
Lymphocytes	84.5 (77.0÷90.0)	59.5 (54.0÷64.0)*	58.5 (50.0÷78.0)*
Monocytes	1.7 (1.0÷3.0)	5.0 (3.0÷6.0)*	3.8 (3.0÷4.5)*

Note: * – statistically significant differences when compared to intact control group value, $p<0.05$.

There was a statistically significant increase in blood urea content in animals infected with P. aeruginosa (Table 4), reflecting hyperazotemia of a productive character, associated with the intensification of catabolic processes. Retention origin of these changes is not beleivable since creatinine blood concerntration did not augment. Statistically significant hypoproteinemia and increased ALT activity were registered in animals infected with S. aureus, indicating the severe liver injury. The latter may explain the absence of blood urea augmentation due to ornithine cycle disorder.

Table 4. Biochemical parameters in rats with the reproduced coloproctitis, caused by S. aureus or P. aeruginosa (n=8).

Indices	Control animals	Coloproctitis	
		S. aureus	P. aeruginosa
Serum urea, mmol/l	4.61±0.11	4.14±0.22	6.60±0.36*
ALT activity, mmol/l·hour	0.38±0.02	0.47±0.02*	0.39±0.03
AST activity, mmol/l·hour	0.76±0.04	0.85±0.05	0.88±0.06
Serum creatinine, mmol/l	0.091±0.008	0.082±0.004	0.078±0.005
Serum total protein, g/l	64.63±1.43	57.71±1.52*	60.70±1.62

Note. * – statistically significant differences when compared to intact control group value, $p<0.05$.

The dissection of the animals with coloproctitis showed macroscopic changes in the colon and rectum, as follows: pus and/or necrotic changes, hyperemia, oedema, erosion formation.

According to the results of histological examination, mucosa of all sections of the control rats colon is lined with a single layer of high prismatic epithelium with the inclusion of the goblet cells in great numbers. The nuclei of epithelial cells are oval, they are located at the same level of the basal part. The brush border at the apical pole of the cells is clearly seen. The goblet cells contain large secretory vacuoles, the nucleus, small and hyperchromic, is moved to the basal position. Intestinal crypts are deep, located vertically, close to each other. Number of goblet cells among crypt epitheliocytes is higher than their number among covering epithelium, they are evenly situated along the length of the crypts, secretory vacuoles are large. Germinal centers of the crypts occupy only the bottom region. Stroma of the lamina propria of mucosa is formed by moderate cell number, it contains mainly lymphoid cells and histiocytes with single tissue eosinophils (Fig. 1).

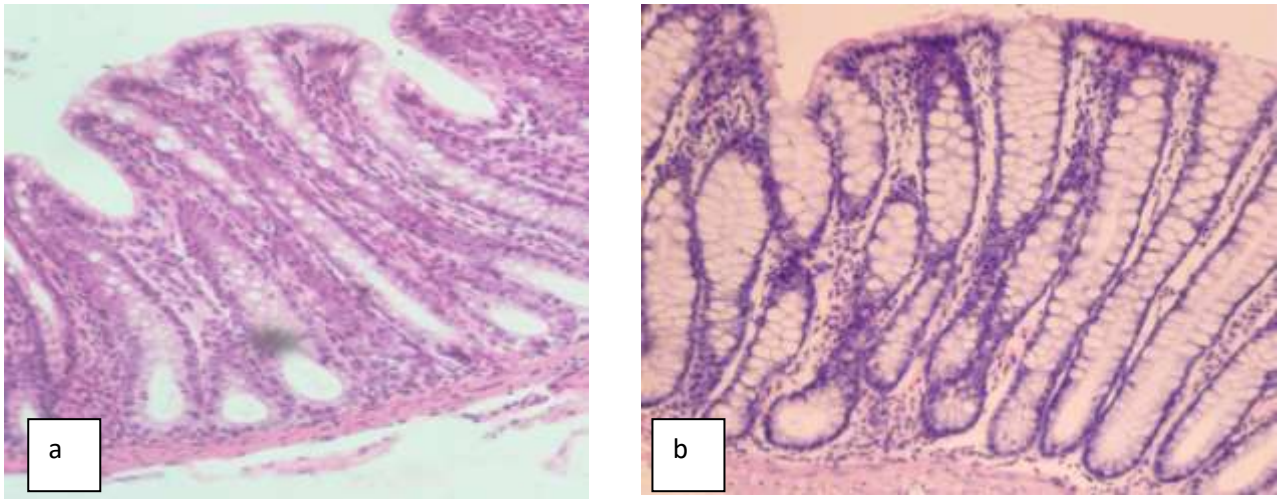

Fig. 1. The mucosa of the transverse colon (a) and rectum (b) of the control rats. Normal covering epithelium, intestinal crypts, and lamina propria. Hematoxylin and eosin staining. ×200.

In animals infected with S. aureus, separate foci of colonization by microorganisms, as well as conglomerates of mucus, desquamated cells, and microorganisms were present on the mucosal surface of all sections of the colon (Fig. 2).

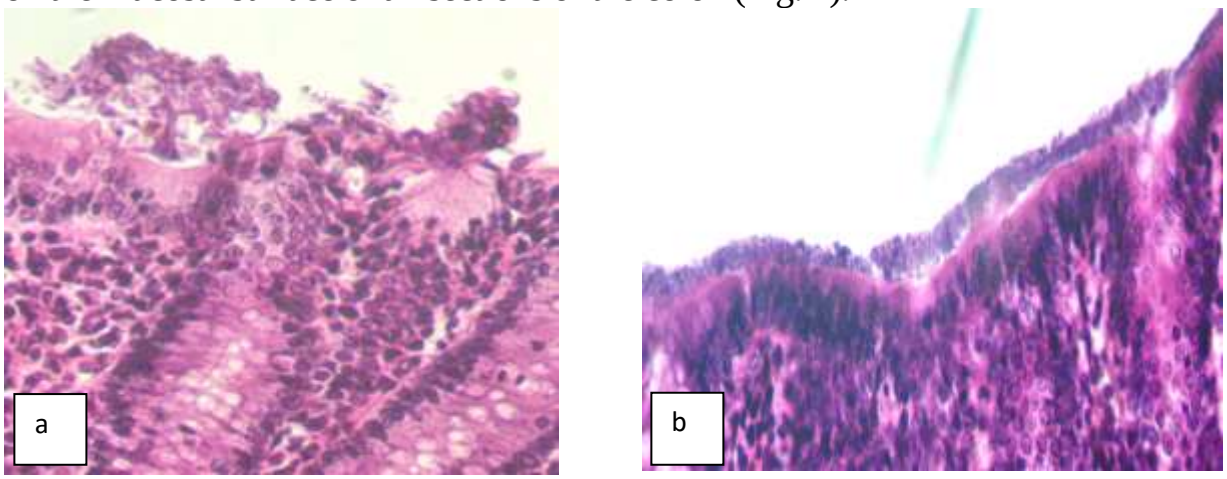

Fig. 2. The mucosa of the large intestine of rats infected with S. aureus. Conglomerate of mucus, desquamated cells, and microorganisms (arrow) on the

mucosal surface of the colon (a); foci of colonization by microorganisms on the surface of the rectum (b). Hematoxylin and eosin staining. ×250.

Signs of irritation were registered in the covering epithelium. Single layer structure was lost, as well as the clarity of the brush border. There was loosening of the apical area of the certain cells. The nuclei were often moved in the direction of the intestinal lumen. Exocytosis, namely infiltration of mononuclear cells in the epithelium, was present (Fig. 3). Quite often superficial microerosions were observed (Fig. 4).

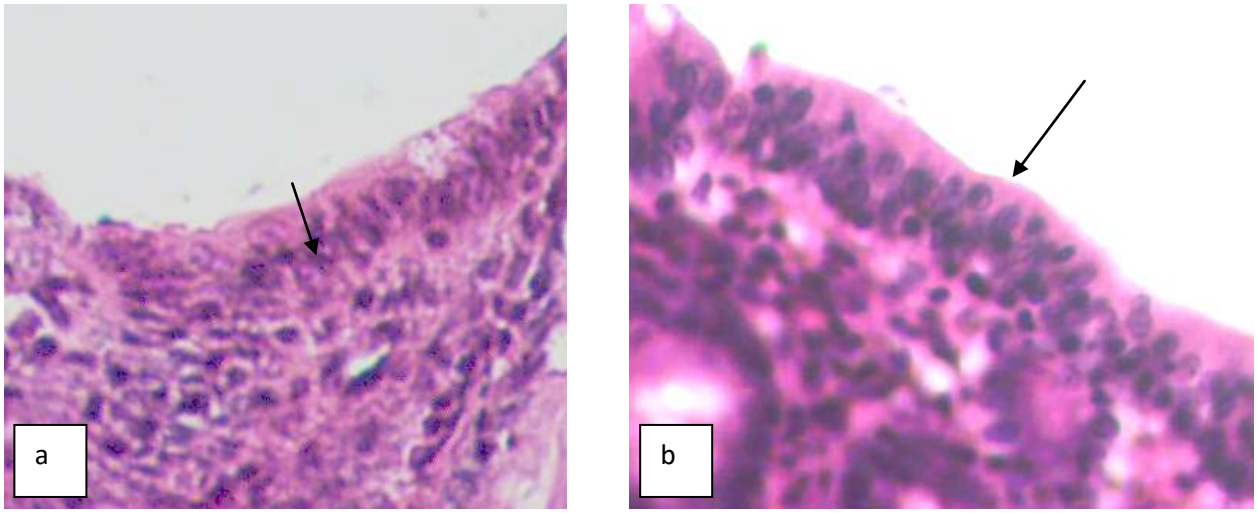

Fig. 3. The mucosa of the large intestine of rats infected with S. aureus. Irritation of the epithelium, exocytosis (arrow) in the colon (a) and rectum (b). Hematoxylin and eosin staining. ×400.

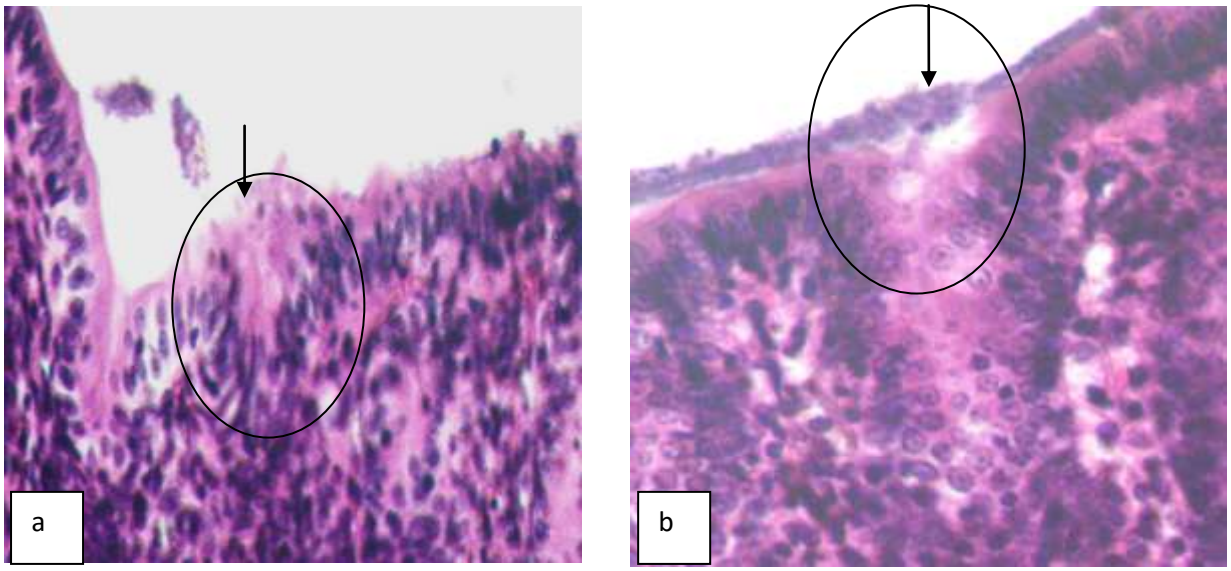

Fig. 4. The mucosa of the large intestine of rats infected with S. aureus. Formation of small superficial erosions (outlined) in colon (a) and rectum (b). Hematoxylin and eosin staining. ×250.

A significant reduction of the goblet cells number and abrupt decrease in their secretory vacuole size are the evidence of the secretory activity inhibition. In the

intestinal crypts, number and secretory activity of the goblet cells were also drastically reduced, the germinal centers were extended to the central and upper third of their length. Both in the superficial and deep areas of the crypts, “crypt-abscesses” with the different degree of development and number were observed, representing conglomerates of desquamated cells, mononuclear cells, neutrophil granulocytes in the lumen (Fig. 5).

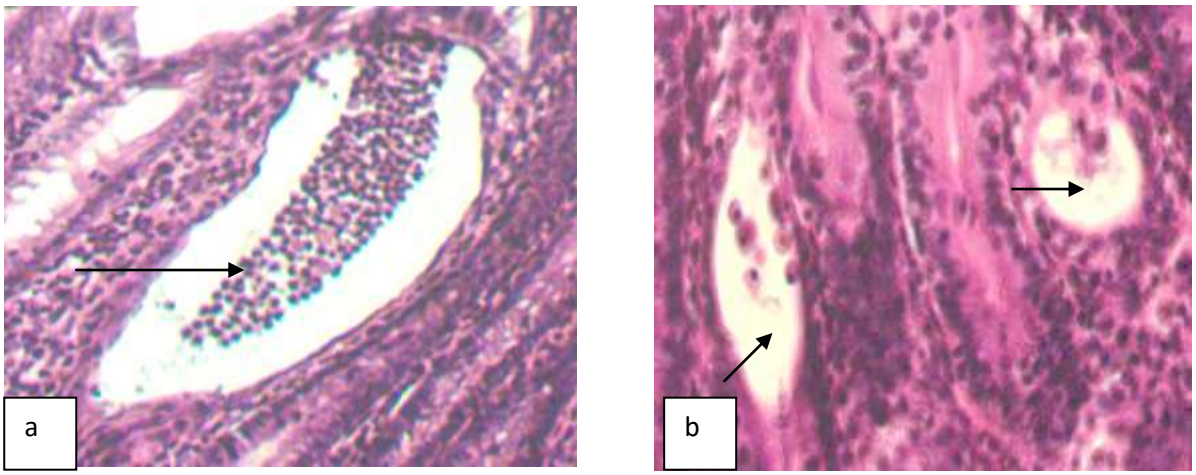

Fig. 5. The mucosa of the large intestine of rats infected with S. aureus. The formed “crypt-abscess” in the colon (a, ×200) and “crypt-abscesses” during the stage of formation in the rectum (b, ×250) are marked with arrows. Hematoxylin and eosin staining.

Epithelial layer of some crypts contained relatively few cells that were dying or dead. They had a well-defined rounded shape, were intensely basophilic, the most of the nuclei were lysed.

Cells quantity in the stroma of the lamina propria of the mucosa was increased. Among numerous mononuclear cells there were neutrophilic granulocytes. Diffuse infiltration extended to different depths of the mucosa, and mononuclear cells sometimes “displaced” intestinal crypts (Fig. 6). In the submucosa, dilation and thrombosis of blood vessels, hypertrophy of lymphoid follicles were registered.

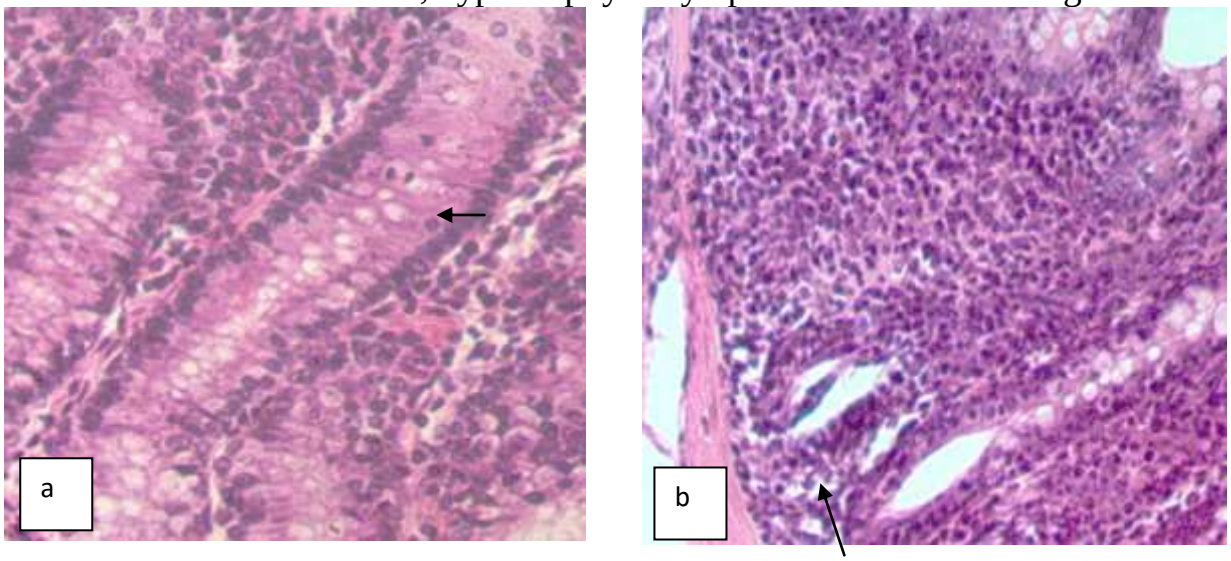

Fig. 6. The mucosa of the colon of rats infected with S. aureus. A significant expansion of germinal centers of the crypts, the arrow indicates mitosis in the upper third of the crypts (a, × 250); mononuclear cells sometimes "displace" intestinal crypts, the arrow indicates "crypt-abscess" (b, ×250). Hematoxylin and eosin staining.

The same type of change with some differences in severity was found in animals infected with P. aeruginosa. On the surface of the mucosa, there were mucus and foci of colonization by microorganisms that were adhered to the epithelial cells. Signs of irritation were registered in the epithelium as follows: the nuclei of cells moved toward the intestinal lumen, the brush border lost clarity. Infiltration of mononuclear cells in the epithelium could be noted. The increased desquamation of epithelial cells was evident, and there were microerosions under the mixture of mucus and colonies of microorganisms. Goblet cells content was significantly reduced (up to complete dissapearance). Some epithelial cells proliferated, their nuclei acquired rod shape and palisade location. Apical areas in certain cells were loosened, with the loosening and destruction sometimes spread to the basal areas (Fig. 7).

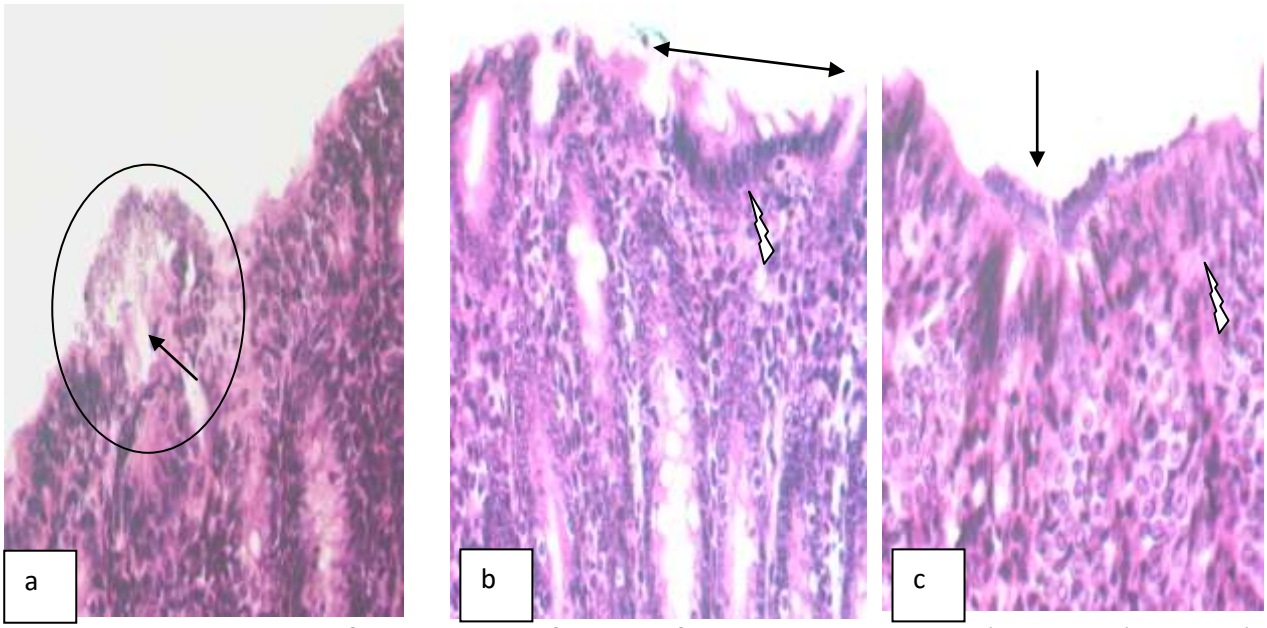

Fig. 7. The mucosa of the colon of rats infected with P. aeruginosa. Microerosion under the mixture of mucus and colonies of microorganisms in the colon (a, ×200); proliferation of the nuclei (indicated by curved arrow) and destruction of the apical-central areas of cells (arrow) in the colon (b, ×200); the nuclei moved in the direction of the intestinal lumen (indicated by curved arrow) and focus of colonization by microorganisms on the surface of the rectum (arrow) (c, ×250). Hematoxylin and eosin staining.

Also, the goblet cells number was often decreased in the intestinal crypts. Their secretory vacuole size was reduced, and sometimes several small vacuoles were observed. Cells that had died or were dying could be seen at different levels of crypts

depth. They underwent desquamation to the lumen and, together with neutrophils and mononuclear cells, formed “crypt-abscesses” (Fig. 8).

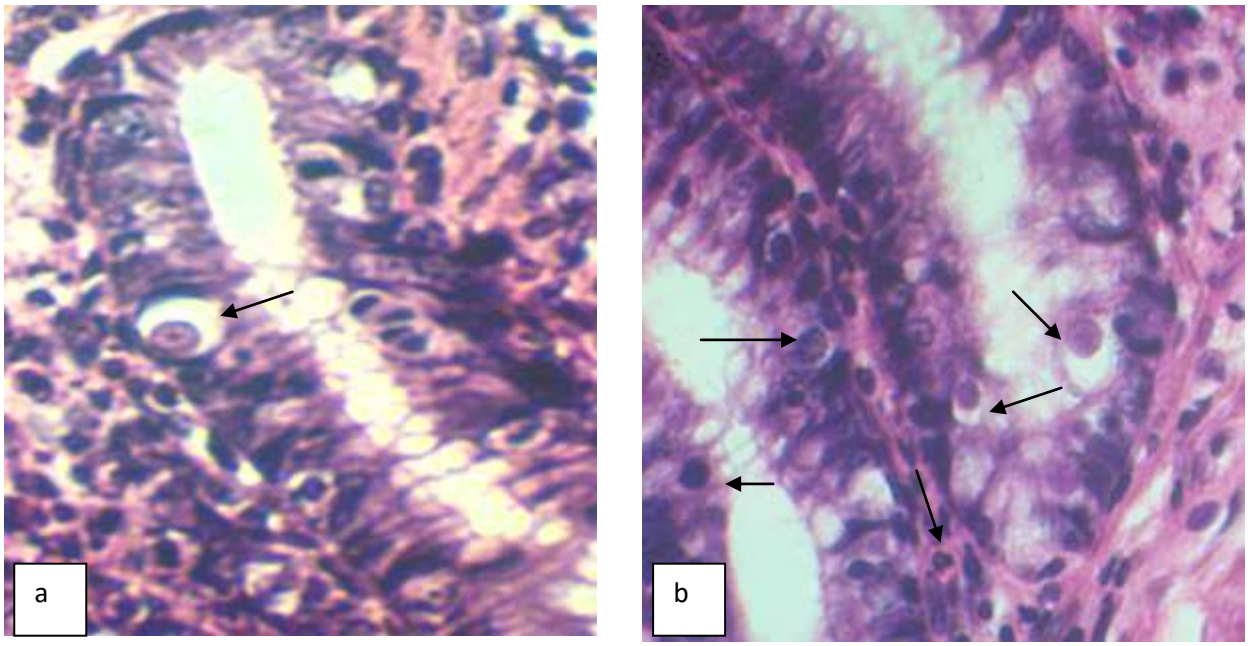

Fig. 8. The mucosa of the large intestine of rats infected with P. aeruginosa. Colon (a) and rectum (b). Epithelial cells of the crypts at different stages of death (arrows). Hematoxylin and eosin staining. ×400.

Epithelium destruction was registered in certain crypts. Germinal centers of the crypts often extended to the central upper third of their length. Cells quantity in the stroma of the lamina propria of the mucosa was increased. Neutrophil granulocytes were noticed among the numerous mononuclears. Infiltration, predominantly of the diffuse type, extended to different depths of mucosa (Fig. 9).

A significant dilation and thrombosis of blood vessels (Fig. 10), moderate hypertrophy of lymphoid follicles were registered in the submucosa.

Thus the suggested model of infectious coloproctitis in rats is characterized by significant worsening of the general state of health of the animals as well as clear inflammatory and destructive changes in the large intestine. If necessary, pathogens species presumably may be modified. Good reproducibility is inherent in the model, as well as accessibility to the wide circle of researchers and convenience to in vivo antimicrobial drugs investigation.

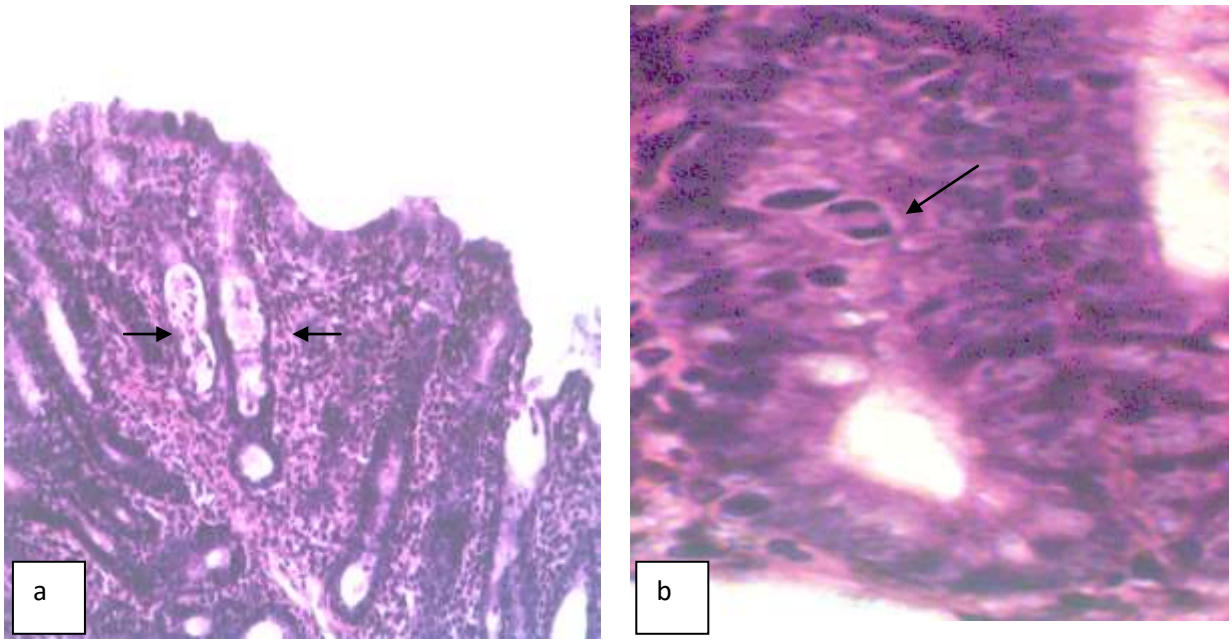

Fig. 9. The mucosa of the large intestine of rats infected with P. aeruginosa. Colon changes (a, ×200): forming of "crypt-abscesses", diffusive cellular infiltration of the stroma of lamina propria (arrows). Rectum changes (b, ×400): enlargement of the germinal centers of the crypts (mitosis in the upper half of the crypt). Hematoxylin and eosin staining.

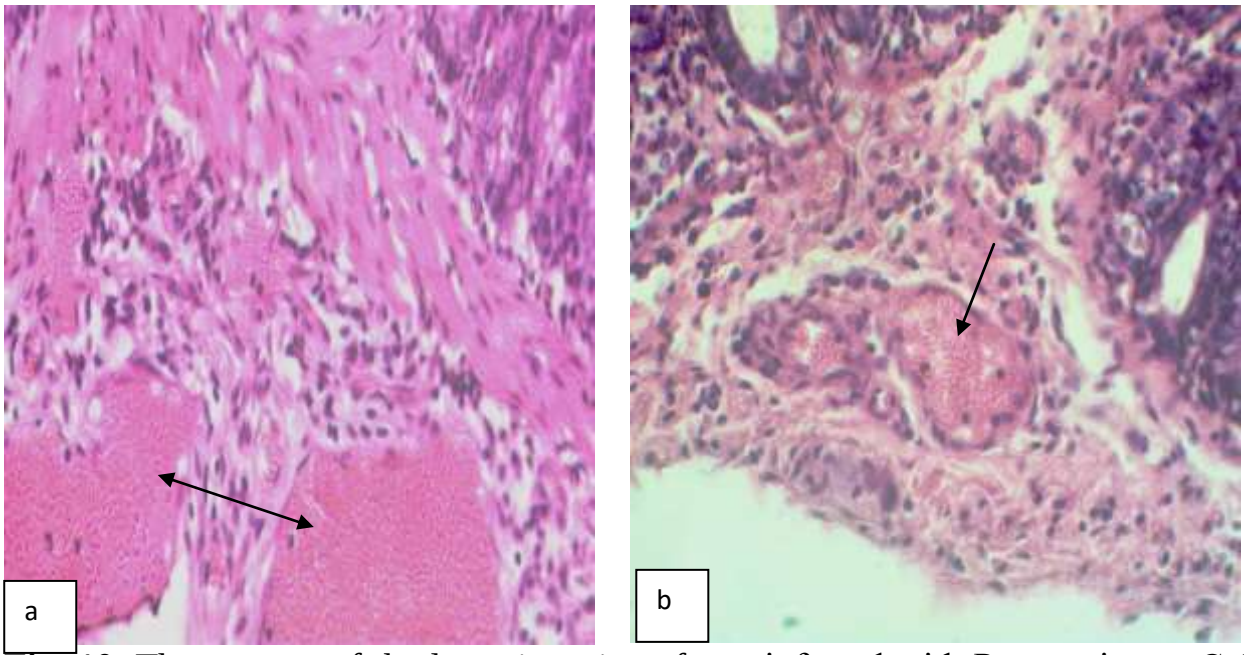

Fig. 10. The mucosa of the large intestine of rats infected with P. aeruginosa. Colon (a) and rectum (b). Blood vessels thrombosis in submucosa (arrows). Hematoxylin and eosin staining. ×250.

Conclusions. The model of infectious coloproctitis, reproduced by rectal administration of S. aureus or P. aeruginosa culture (at a dose of 1×10^8 in the volume of 1.5 ml) to the large intestine through a flexible catheter under laparotomy, using palpation and visual control, has been suggested. The model is well

reproducible. It can be recommended for the investigation of the experimantal infectious process pathogenesis and antimicrobial drugs efficacy.
Key words: rats, coloproctitis, Staphylococcus aureus, Pseudomonas aeruginosa.

REVIEW ARTICLES

© **Dovganiuk I.E.**
Vinnytsia National Pirogov Memorial Medical University (Pirogov str., 56, Vinnytsia, Ukraine, 21018) Tel.: 0974416055, E- mail: dovganyuki@ mail.ru

METABOLIC AND MORPHOLOGIC STATE OF GASTRIC MUCOSA IN PROGRESSION OF CHRONIC ATROPHIC GASTRITIS

The urgency of the problem lies in the necessity to validate the theoretical bases of lipid peroxidation (LP) and antioxidant system providing the reasons to consider chronic diseases of gastroduodenal area as free-radical pathology. Metabolic derangements in the stomach are associated not with the separate symptoms but with pathogenetic nature of chronic diseases in gastroduodenal area, accordingly LP activation persistently supports inflammatory and changing processes in gastric mucosa.

Derangements on the cellular level are the bases for a number of consequent events in chronic gastritis progression, atrophy development as well as precancerous changes in gastric mucosa. The physiologic regeneration disturbances are expressed in predominance of epithelium proliferation processes compared with differentiation processes. In this case the epithelium does not get old but rejuvenates acquiring gradually “malignant features”. The problems of prevention of physiologic regeneration disturbances, increase of the morphologic rehabilitation effectiveness of gastric mucosa require specification of probability of atrophic changes regression by improved diagnostics and optimization of complex therapeutic approach.

Careful review of information concerning the regression of atrophic and precancerous changes in gastric mucosa demonstrates that after eradication of H. pylori the involution in morphologic picture of gastric mucosa without atrophy takes place. Theoretically atrophy can be regressive, but this process is very slow and occurs in differentiated way.

Conclusion. So, to prevent the progression of atrophic and precancerous changes in gastric mucosa in H. pylori-associated states it is reasonable to use antihelicobacter therapy combined with topic antioxidant therapy which blocks the development of carcinogenic agents and their metabolic action, exerts stabilizing action on the membranes, regulating the influence on the disturbance processes of the cellular cycle and accordingly, has positive effect on the regression of metabolic and morphologic processes in gastric mucosa.

Key words: morphology, atrophy, gastric mucosa, antioxidants.

© **Jelski V.N., Zyablitsev S.V., Kruck Yu.Y., Krivobok G.K., Zolotuhin S.E., Kolesnikova S.V., Pishulina S.V., Antonov Y.V., Sidun M.S., Zavedeya T.L.,**

Strelchenko I.I.
Donetsk National Medical University named after M. Gorky of Health of Ukraine, Department of Pathophysiology (Lenin Ave., 16, Donetsk, 83003, Ukraine)

TRAUMA PATHOPHYSIOLOGY (40 YEARS COLLECTIVE EXPERIMENTAL REVIEW)

Summary. In a review article summarized experimental materials for 40 years of the extreme states (shock, crush syndrome, coal mine trauma, electric, burn, craniocerebral trauma) and their pathogenetic therapy: disturbances of endocrine homoeostasis and methods of its pathogenetic correction with the use of neurothropic medicines of different pharmacogenesis; disturbances of metabolism of shock cell at subcellular level, its bioenergy and hypoxia, ways of their renewal by substrates and enzymes, antihypoxants and antioxidants, to hyperbaric oxygenation; shock toxemia and detoxication with the use of liposomes and original dialyzer on liquid dynamic membranes. Generalization of vast material about neurohumoral and metabolic disturbances in an organism on system, organ, cellular and subcellular levels, their pharmacological correction, allowed to create analysis, diagnostics and choice of criteria of prognostication of shock ends. On principle and substantially new information served for an argumentation and creation of conception and theory of traumatic illness. A planimeter is developed for diagnostics, prognostication and sorting of victims from natural calamities and large catastrophes, pathogenetic substantiation preventive measures of complications and medical care in pre-hospital phase.
Key words: extreme states, shock, crush syndrome, coal mine trauma, electric, burn, craniocerebral trauma, pathogenetic therapy.

© **Kasianenko D.M.**
M.I.Pirogov's Vinnytsia national medical university, department of child age dentistry (56, Pirogova str., Vinnytsia, 21018, Ukraine) admission@vsmu.vinnica.ua

MODERN CONCEPT OF DISTAL OCCLUSION

Despite the fact that distal occlusion is one of the most widespread abnornal occlusion, the correlation between distoocclusion and general human disorders is not represented enough in the special literature. Nowadays there is an information gap as for correlation between functional, morpho-topico metric, aesthetic disorders in case of distal occlusion and the degree of their manifestation patients of different age have as well as combined influence of causative factors on appearance of these disorders. The term of abnornal occlusion of the II class belongs to American scientist E. H. Angle (1889) who, analyzing abnornality of joining of lateral teeth, referred abnornality of joining that can appear because of more distal position of the first permanent molar teeth of the lower jaw towards the first permanent molar teeth of the

upper jaw to the II class of abnornal occlusion. In the special literature the correlation between distoocclusion and general human disorders is not represented enough. At present there is also lack of information about correlation between functional, morpho-topico metric, aesthetic disorders in case of distal occlusion and the degree of their manifestation patients of different age have as well as combined influence of causative factors on appearance of these disorders. In case of distal occlusion functional disorders of masticatory and facial muscles play an important role. So recently, the Ukrainian orthodontia has made a significant step forward. New investigations and concepts lead to enhancement of professional opportunities and more effective help for patients. At the same time some aspects of prophylaxis and treatment of distal occlusion is a matter of argument for Ukrainian and foreign orthodontists and they need to be investigated and analyzed more carefully ant that is the objective of our futher research.

Conclusion. Therefore, the Ukrainian orthodontia has recently made a significant step forward. New investigations and concepts lead to enhancement of professional opportunities and more effective help for patients. At the same time some aspects of prophylaxis and treatment of distal occlusion is a point at issue for Ukrainian and foreign orthodontists and they need to be investigated and analyzed more carefully ant that is the objective of our futher research.

Key words: distal occlusion, orthodontic care, prophylaxis of distal occlusion, treatment of distal occlusion.

© **Kozlovskyi Yu.K., Kozlovskaya I.Yu.**
Course of Anaesthesiology and Reanimation of Vinnitsa National Pirogov Memorial Medical University (56 Pirogov str., Vinnitsa, 21018, Ukraine)

HEMORHEOLOGICAL DISORDERS DURING THE ACUTE PERIOD OF THE BURN DISEASE

Severe hypovolemia and discharge of a large number of biologically active substances during the burn shock leads to microcirculation disorders and abnormalities of blood rheological properties. The *objective* of the work was to study literature data about changes of the blood rheological properties during the acute period of the burn disease.

It is commonly known that the blood viscosity is directly connected with hemoconcentration: growth of hematocrit, RBC and haemoglobin levels. That's why a lot of researchers point out a considerable increase in the blood viscosity during the first day and its rise during the second day of the burn injury. The plasma viscosity and blood thickening cause increase in the blood viscosity at high shear rates typical of macrocirculaton. But the most evident hyperviscosity can be observed at low shear rates.

The problem of microcirculaton covers a great number of interconnected processes. Among them behaviour patterns of the blood cells determining its rheological

properties hold a prominent place. The latter mainly depend on rheological properties of red blood cells, mostly on aggregation that increases the blood viscosity at low shear rates and possibility to deformation which impairment increases the dynamic viscosity at high rates. The studies showed that during the first day after the burn the RBC rigidity grew sharply, increased during 3 days and still remained impaired on the 6th day. Reduction of the zeta-potential greatly influences the ability of RBCs to aggregate. This was proved by experiments that revealed reduction of the RBC electrical capacity and considerable growth of the plasma electrical capacity during the first hour after the thermal injury. During the shock period reduction of the dielectric conductivity of the whole blood could be also observed that was explained by hemoconcetration development.

During the acute burn toxemia reduction of the blood viscosity was revealed but the indices did not reach the normal values. Higher viscosity could be observed in the patients with extremely severe burns at low shear rates.

Conclusions. 1. According to the analyzed literature sources during the burn shock the blood viscosity increases at the level of large- and small-diameter vessels due to disorders of the blood cell and plasma factors. 2. At the stage of acute toxemia the blood viscosity reduces at the level of large-diameter vessels but it continues to grow at the level of small-diameter vessels due to decrease in deformation and increase in RBC aggregation. 3. To evaluate the efficacy of treatment methods in burn patients it is necessary to consider the changes of blood rheological properties.

Key words: burns, hemorheology, RBC aggregation.

© Oniskova O.V., Chuhu T.V., Kurets O.O.
Pyrohov Vinnytsia National Medical University, Department of Child Diseases Propaedeutics, Children Care and Pediatric Dentistry (56 Pyrohov St., Vinnytsia, 21018, Ukraine)

VITAMIN D DEFICIT AND RISK OF DENTAL HARD TISSUE PATHOLOGY

The topicality of the problem lies in the fact that even slight deficiency of vitamin D_3 supply to the human body may cause many pathology conditions. Therefore, timely definition of a degree of vitamin D_3 supply to a human body and correction of its deficiency is very important issue for human health.

Definition and prevalence of vitamin D deficiency

A vitamin D-deficiency today is recognized as a pandemic. About 1 billion people worldwide are vitamin D-deficient. Children and adolescents also have high potential risk of vitamin D deficiency. For example, 52% Hispanic and Black adolescents examined in Boston, and 48% of Caucasian adolescent girls in Maine had a 25-OH-D grade, which was the main circulating form of vitamin D below 20 ng/mL. At risk, also, are pregnant and lactating women.

Source and metabolism of vitamin D

The term ‘vitamin D’ combines two naturally occurring forms of this vitamin. The first of these is a plant-derived one – ergocalciferol, or vitamin D_2 which enters the human body with food. The second form of Vitamin D is Vitamin D_3, or cholecalciferol. Around 90% of this form is produced from 7-dehydrocholesterol in the skin under ultraviolet radiation of sunlight with a 290-315 nm wavelength. The provision of vitamin D also depends on the proximity of a human to the equator and a season of the year.

The available data on vitamin D_3 metabolism in the human body reveals two stages of hydroxylation, resulting in formation of physiologically active products. The first stage occurs in the liver, where vitamin D_3 is converted to 25-OH-D (calcidiol) under the action of vitamin D_3 -25-hydroxylase systems, which is the main circulating form of vitamin D in the blood. The second phase of hydroxylation occurs in the kidney, during which the 25-OH-D converts into a functionally active metabolite $1,25(OH)_2D_3$ (D-hormone, calcitriol), which exerts its specific effect on absorption of calcium through the DNA-RNA system and $24,25(OH)_2D_3$ or $1,24,25(OH)_3D_3$. The molecular mechanism of action of $1,25(OH)_2D_3$ is similar to other steroid hormones and consists in interaction with specific tissue receptors, called vitamin D-receptors (VDR). According to current data, VDR relates to a steroid-retinoic-thyroid receptor superfamily which function is modulating gene transcription in target cells, namely – the first stage of realization of genetic information in a cell, during which occurs the process of biosynthesis of messenger RNA molecules in the DNA matrix.

The physiological effect of vitamin D

The scope of the physiological effect of vitamin D_3 receptors after the discovery of active metabolites of vitamin D_3 in organs and tissues corresponds not only to control of mineral metabolism, but also to other vital processes in the human body - the regulation of protein, lipid metabolism, synthesis of hormones and enzymes, regulation of cell proliferation and differentiation, maintaining the immune system and functional activity of internal organs, including the gastrointestinal tract, nervous and cardiovascular systems.

There is a dynamic equilibrium of calcium in bone tissues, teeth and blood plasma. Homeostatic regulation of this balance by maintaining level of calcium in the blood plasma is performed due to the parathyroid gland function and vitamin D_3. Therefore, an important point for assimilation of calcium is adequate ingress or synthesis of ergocalciferol in the body. A review, published in the Nutrition Reviews journal included 24 controlled clinical studies conducted within the period from 1920 to 1980 with involvement of more than 3,000 children patients from universities, schools, medical and dental institutions of the USA, UK, Canada, Austria, New Zealand and Sweden. Many studies have shown own anti-caries properties of D_3 vitamin.

Clinical studies show cross-links between low level of vitamin D_3 and the activity of caries process. In the same study, introduction of calcium combined with vitamin D_3 in the treatment program provided normalization of most parameters of phosphorus-calcium metabolism and contributed to reduction of opposite cytokine imbalance, and increased the effectiveness of caries treatment by 32.5%. Reduction of dental caries in 12-15 year-old adolescents on the background of endogenous administration of

vitamin-mineral medicine Calcium D3 Nycomed in combination with local caries preventive treatment gave a 63% result compared to control groups in several other studies. Some works of recent years have become suggesting the recommendations for a balance diet. T.A.Marshall analyzed the diets of 624 children aged 1 to 5 years and found that inadequate consumption of vitamins D was significantly associated with growing incidence of tooth decay.

In addition, it is believed that development of systemic enamel hypoplasia is closely related to violation of calcium homeostasis in the human body that occurs under deficiency of vitamin D_3. Moreover, vitamin D_3 should be used not only as a preventive measure, but also for treatment of periodontitis.

Conclusion. Undiagnosed vitamin D deficiency is quite common condition, and 25-OH-D is an indicator of the vitamin D status. There is much evidence that the previously recommended daily administration of vitamin D_3, 400 MU is actually inadequate. Therefore, the dose of vitamin D3 has to be increased to at least 800 MU per day.

This suggests that moderate and high vitamin D deficiency is a risk factor for the development of caries and other pathologies of dental hard tissues. This could be potentially important in pediatrics and dentistry, given the high prevalence of vitamin D deficiency in developed countries, the contribution of vitamin D status to a lifestyle and geography, significant relief, safety and low cost of vitamin D deficiency treatment.

Key words: Vitamin D, children, dental hard tissue pathology.

© **Tkachenko T.V.**
Vinnitsa National Pirogov Memorial Medical University, Chair of Propedeutics of Internal Medicine (Address: Khmelnitsky highway, 96, Vinnitsa, Ukraine, 21029, tatiana.tkachenko88@gmail.com

CIRRHOTIC CARDIOMYOPATHY: PATHOPHYSIOLOGY, CLINICAL COURSE AND TREATMENT

Diseases of the liver remain one of the most urgent problems in modern medicine. The number of liver transplantations in patients with hepatic cirrhosis of various etiology increases. Cardiac muscle dysfunction is often observed in patients with liver cirrhosis and previously it has been directly associated with the toxic action of alcohol. Cirrhotic cardiomyopathy develops independently of the etiology of liver damage and is characterized by insufficient systolic response to physical or pharmacologic stress, diastolic dysfunction as well as electric and physiological disturbances, prolongation of QT-interval in particular. Its pathophysiology and clinical relevance was the matter of investigation by many researchers during the last decades. Dysfunction of b-adrenoreceptors, cannabinoid activation, increase in concentration of cardiosuppressors (NO, CO) and tumor necrosis factor α lead to myocardial dysfunction. Myocardial hypertrophy and diastolic dysfunction develop

as a result of sodium retention, increase in the volume of blood circulation as well as activation of renin-angiotensin system. Prolonged QT-interval which is observed in 40-50% of patients occurs because of the changes in characteristics of cell membranes and generalized dysfunction of ion canals. Heart involvement in liver cirrhosis may follow an asymptomatic course, and cardiac insufficiency develops in 7-15% of patients after liver transplantation. No specific therapy exists now for treatment of cirrhotic cardiomyopathy. Transplantation of the liver in patients with terminal stage of liver cirrhosis associated with cardiac insufficiency is the only effective way of treatment in such patients. This review will focus on pathophysiologic and clinical features of cirrhotic cardiomyopathy, discussing the main therapeutic approaches, as well as the influence of orthotopic transplantation and transjugular portosystemic shunt on the course and prognosis of cardio-vascular disorders in liver cirrhosis.

Key words: cirrhosis, cardiomyopathy, pathogenesis, hyperdynamic circulation, diastolic dysfunction

© **Shkolnikov V.S., Stelmashchuk P.O.**
Vinnytsia National Pirogov Memorial Medical University (Pirogov str., 56, Vinnytsia, 21018, Ukraine)

CURRENT DATA ABOUT STRUCTURE FORMING AND CYTOARCHITECTURE OF HUMAN CEREBRUM IN THE PRENATAL PERIOD OF ONTOGENESIS

Recently, there are revealed many children with signs of nervous system development disturbance according to data from WHO (World Health Organisation) and MoH (the Ministry of Health) Ukraine. Early diagnostics of congenital anomalies of the central nervous system in children is an important issue in neuroscience, genetics and perinatology. The purpose of our study was to analyze the scientific and theoretical material about morphogenesis, histogenesis and embryotopography of the human brain structures and to determine perspectives for further research. The review of literature and researches of the development and structure of the human fetal brain were done. We found the research data about the separate human fetal brain structures in different periods of gestation in the available literature. The overwhelming majority of researches is touched upon the brain of laboratory animals. Therefore there is lack of coherent, integrated information about the structures of the human embryo and fetus telencephalon.

Conclusion. Thus, the lack of systemic, coherent data about whole process of hemispheres structures forming of the human brain in the prenatal period of the fetal development, including differentiation and migration of neurons and glial cells of the gray matter and white matter topography allows of further research.

Key words: brain, cerebrum , prenatal period**.**

CHRONICLE

TO CELEBRATE THE 60TH BIRTH ANNIVERSARY OF PROFESSOR NIKOLAI ANATOLYEVICH VOLOSHYN

PROFESSOR NIKOLAY ANATOLEVICH VOLOSHIN - 60!

MEMORY OF VLADIMIR G. KOVYESHNIKOV

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YUDIN S.S. - A WORTHY SUCCESSOR OF THE BRILLIANT SCIENTIST AND GREAT SURGEON M.I.PIROGOV