ORIGINAL ARTICLES

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

ORGANIZATION OF SPATIO-TEMPORAL PARAMETERS OF GAIT WHILE PERFORMING AN ADDITIONAL COGNITIVE TASK IN ADOLESCENT, YOUTH AND MIDDLE AGE WOMEN

Although gait is considered automated act on the complex mechanism of its implementation and impact numerous environmental factors and brain functioning at any given time. The increasing volume of literature on the subject shows that the maintenance or restoration of stability gait requires attention resources are used to support the provision, so - walking is not only an act of automated.

The ***purpose*** of our study was to determine the spatial and temporal parameters of walking while additional cognitive task performing in healthy women adolescence, youth and middle age; analyze the direction of change in gait pattern compared with normal gait with any individual comfortable speed.

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: the group of adolescence - 36 women 15 years; the group of young - 54 women 16-20 years (mean age was 17,37 ± 0,99 years); 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. Determined the value of spatial-temporal parameters according to selected age groups during gait in freely chosen rate and performing of cognitive tasks. Cognitive task was naming any known animal, trying not to repeat.

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

Results. Conclusion

The direction of the space-time adjustment of loop gait while performing additional cognitive task in adolescents, young and middle age women was the same. Decreases the Velocity and Cadence. The structure of a step cycle duration increased Swing Time, Single Support Time and Double Support Time in a stepping cycles appropriate legs, that indicating the restructuring gait towards improving its stability.

Proved to be stable spatial parameters of gait, due to the control mechanisms of balance.

Demonstrated that control of gait require considerable expenses attention, and therefore is not automatic in the classic sense.

Prospects for further research are more detailed study of the impact of additional cognitive task while walking on neurophysiological machine control of gait.

Keywords: gait spatio-temporal parameters, gait with simultaneous cognitive task, various age groups.

Lytvynyuk S.O.

MORPHOMETRIC CHANGES OF NEURONS OF HIPPOCAMPUS FIELD CA3 IN EXPERIMENTAL THERMAL TRAUMA

Aim of the work was to establish the dynamics of the histological features and morphometric changes of hippocampal neuron SA3 field in dynamics in animals after thermal injury.

Materials and methods

The experiment was conducted on 24 white male rats that were divided into 2 groups: intact animals and animals with burn injury. Thermal injury inflicted during ketamine anesthesia using two copper plates measuring 14.5 cm^2 heated in boiling water to a temperature of 97-100° on shaved skin surface at the back of the animal for

15 seconds. Area of destruction was 18-20% of the animal's body, and burns were the III grade. Experimental animals were decapitated at 1, 7, 14 and 21 days of the experiment, corresponding to the stages of shock, early and late toxemia and septic toxemia of burn disease. For histological studies took pieces of brain tissue with a plot of hippocampal, fixed in 96^{o} alcohol and 10% neutral formalin and embedded in paraffin blocks. Obtained on microtome sections were stained with hematoxylin-eosin and toluidine blue by the method of Nisslya.

Morphometric study was performed using a system of visual analysis of histological preparations. The image on the computer screen taken out of the microscope SEO SSAN using the camera Vision CCD Camera. Quantitative research was conducted using software VideoTesT-5.0 and Microsoft Exel on a PC. When morphometric study population studied of hippocampal neurons in the fields CA1 of the brain. We determined the numerical density of neurons, square bodies and nuclei of different cell types and their nuclear-cytoplasmic ratio.

Results. Conclusion

Conducted morphometric study of animals with severe thermal injury found that deep and large area of skin burns caused significant histologic and morphometric changes of hippocampal neurons in SA3 field, the degree of damage which is directly dependent on the stage of burn disease.

In the early stages of shock and toxemia (1-7 days experiment) morphometric reorganization of hippocampal neurons characterized by adaptive-compensatory changes and signs of depression of regeneration. Morphometric in early stages of shock and toxemia growing percentage of hypochromic and hyperchromic cells, which violated the nuclear-cytoplasmic ratio.

In the late stage of toxemia and septic toxemia (14-21 days of experiment) develops deep destruction of neurons in hippocampal. Significantly reduced density of neurons in 1.19 times and sharply increases the number of hypo- and hyperchromic cells, with the most altered nuclear-cytoplasmic ratio.

In further research is planned to establish the degree of morphometric changes in hippocampal neurons in SA3 fields in thermal injury using adjustment factors.

Key words: morphometric changes, hippocampus, thermal trauma.

Dudnyk V.M., Khromykh K.V.

VASOREGULATORY VIOLATIONS OF VASCULAR ENDOTHELIAL IN CHILDREN WITH ALLERGIC ASTHMA

Today we know that for many chronic diseases characterized by involvement in the pathological process of the vascular system, including places high emphasis on changing the structure and function of vascular endothelium and its role in the mechanisms of control of asthma and opportunities.

Aim of the work was to establish a breach of vascular regulatory function of vascular endothelium in children with allergic asthma.

Materials and methods

We examined 224 children with allergic asthma in acute disease age from 6 to 17 years with determination of homocysteine, VEGF and conduct ultrasonography of the carotid arteries and cardiointervalography.

Homocysteine was determined by liquid chromatographed on apparatus Hewlett Packard (USA) after the sequential processing tributylphosphine working solution and chlorinevapormercouribenzoate by the method of O. Pentiuk (2003).

All children as control, and the main group was held cardiointervalography (by Baevsky R.M.) to determine the initial vegetative tone and reactivity based on the analysis of heart rate variability.

Ultrasonography of the carotid and brachial artery was performed on the machine Philips HD11 XE in B - mode with color Doppler flow mapping with a linear transducer in the range of 5 - 10 MHz, 7 MHz optimally. Evaluated the thickness of intima - media on both sides.

Statistical analysis of the results was performed using IBM SPSS Statistics, version 20 (2013), using parametric and nonparametric methods for assessing the results.

Results and discussion

The course of asthma in children accompanied by the development of endothelial dysfunction and increased level of homocysteine in the blood serum VEGF within 2.35 - 16.45 times higher than in healthy children that depended on the level of control of the disease. Vessel regulatory dysfunction of vascular endothelium confirmed by changes in processes of vital activity of the sympathetic division of the autonomic nervous system (stress index during cardiointervalography 100,91±0,46 units.) and the carotid ultrasonographic examination (thickening of intima - media to 1,07±0, 02 mm).

Prospects for further research is to determine the effect of instrumental and biochemical markers of endothelial dysfunction to improve timely diagnosis and treatment of asthma in children.

Key words: bronchial asthma, children, endothelial dysfunction.

Pantyo V.V., Koval G.M., Pantyo V.I., Nazarchuk O.A.

INFLUENCE OF LASER IRRADIATION OF STAPHYLOCOCCUS AUREUS CULTURE ON MINIMAL INHIBITORY CONCENTRATION OF SOME ANTIBACTERIAL DRUGS

Nowadays opportunistic pathogens of nosocomial infections are characterized with high adaptation abilities. Fast extension of resistance of microorganisms to antimicrobial medicines happen in conditions of their wide spread use. That is why new attempts to combine physical action of low-intensity laser radiation in complex with antibiotics is actual.

The ***aim*** was to study the influence of low-intensive laser radiation with 635 and 870 nm wavelengths on the sensitivity of *Staphylococcus aureus* to traditionally used antibiotics of different groups.

Materials and methods

We studied the influence of low-intensive laser radiation (LILR) with 635 and 870 nm wavelengths on the Staphylococcus aureus clinical isolates (n=73) sensitivity

and also collection S. aureus ATCC 29213 test-strain to the different groups of antibacterial drugs by the serial macro dilutions method in a liquid nutrient medium.

Results and discussion

In the research results we found significant sensitivity increase to antibiotics (penicillin group of semi-synthetic antibiotics, cephalosporins, aminoglycosides, tetracyclines) of irradiated Staphylococcus aureus cultures. During the irradiation of all Staphylococcus aureus strains, minimal inhibitory concentrations of all investigated antimicrobial drugs has decreased by 2-4 times in comparison with control series of experiments in which unirradiated cultures have been used.

Conclusion

LILR (wavelengths 635 and 870 nm) has expressed photo-modifying action leads to the improving of sensitivity of *Staphylococcus aureus* strains to antibiotics of different groups.

Key words: Staphylococcus aureus, antibiotic, sensitivity, laser.

Kovalchuck L.I., Mokiyenko A.V., Nasibullin B.A., Solodova L.B., Oleshko A.Ya., Baholdina E.I.

COMPREHENSIVE ASSESSMENT OF STRUCTURAL AND FUNCTIONAL CHANGES IN HEALTHY RATS THAT CONSUMED AS DRINKING WATER THAT OF LAKE KATLABUH

The ***purpose*** of this work is a complex assessment of structural and functional changes in the healthy rats drinking water from the lake Katlabuh.

Materials and methods

Samples of water from lake Katlabuh in 3 replications were taken 23, 24 July 2014 Before the water research performed on laboratory animals physicochemical and sanitary-chemical study of the relevant techniques.

Experimental studies conducted on 30 white rats of Vistar line female of outbred breeding with a body weight 150-200 g. During a whole period of the experiment the animals were on constant standard food and drinking regime in terms

of keeping them in a vivarium control "Ukr Research Institute of Ministry of Health of Ukraine." The animals were taken out of the experiment by decapitation under ether anesthesia. Research on animals conducted in accordance with the existing legal instruments. The experimental data were compared with similar indicators of intact rats (control group). The rats were divided into 2 groups. The first - the comparison control group (12 intact animals). Animals of the second (research) group (18 animals) used water from lake Katlabuh in the mode ad libera (free access). The duration of the experiment was 30 days.

We investigated the state of hepatic metabolism (alanine transferase / ALT / aspartate transferase / AST / thymol test, malonic dialdehyde / MDA / catalase) and structural and functional changes in the internal organs (stomach, liver, spleen, kidney, brain).

The resulting material was treated by statistical methods of indirect differences. Significant changes are those that were on tables Student at the limit of probability <0.05.

Results. Discussions

The results of physico-chemical and sanitary-chemical investigations of the lake Katlabuh water indicate its compliance with the requirements of Ukrainian state standard (DSTU) 4808: 2007 to the sources of 2-4 class quality. 2 species of cyanobacteria *Merismopedia minima* and *Spirulina laxissima*, which cause water bloom have been found. The use of healthy rats as a drinking water that of lake Katlabuh was accompanied by compensatory activation of lipid peroxidation in combination with the weakening of the antioxidant defense system. Pathomorphological changes, e.g. degenerative liver changes, hypoxic changes in brain, signs of compensatory depletion activity in the spleen took place as well. It is suggested that the biological effects identified are a consequence of the action of eeither cyanotoxins or any toxic organomineral complexes. The expediency of expansion and continued research of cyanobacteria in the contexts of their detection in water, the identification of cyanotoxins, the impact of these xenobiotics on the state of warm-blooded animals and humans has been substantuated.

Key words: water, lake Katlabuh, chemical composition, anthropogenic pollutants, cyanobacteria, biological effects, rats.

Kryvovyaz S.O.

FEATURES OF COVERING SIZES AND WIDTH OF DISTAL EPIPHYSIS EXTREMITIES IN PATIENTS WITH MYOPIA RURAL BOYS AND GIRLS FROM PODILLYA

Numerous studies suggest that qualitative and quantitative characteristics of view organ health should have territorial, ethnic and age and character and should be compared between healthy and sick studied of different somatotypes. Today information about the state of visual acuity depending on individual typological characteristics and ethnicity is absent, and that was the basis for our study.

Aim of our work – installation features of covering size and width of distal epiphysis of the extremities in patients with myopia rural boys and girls of Podillya.

Materials and methods

From data bank of scientific and research center Vinnitsa National Medical University named after Pirogov taken initial anthropometric and somatotypological indicators of practically healthy and patients with myopia girls and boys period of the second childhood (63 healthy and 46 patients with myopia boys aged from 9 to 12 years and 54 healthy and 49 patients with myopia girls aged from 9 to 11 years) that in the third generation living in rural areas in the territory of Podilsky region of Ukraine. Anthropometric survey of adolescents conducted in accordance with the scheme of V.V. Bunak. Definition of somatotype by method J. Carter and B. Heath. Statistical data processing was performed using licensed software package «Statistica 6.1» using parametric and nonparametric methods for assessing the results.

Results. Discussions

Established that the distal epiphysis width of the shoulder in patients boys ectomorphes significantly ($p<0,05$) higher compared to healthy boys of similar somatotype. This indicator in healthy or sick boys ectomorphes and in patients ecto-

mesomorph boys was significantly (p<0,05) higher compared with girls of similar comparison groups. The width of distal epiphysis forearms of healthy or sick boys ectomorphes significantly (p<0,05) higher and has the significant trend (p=0,056) compared to larger values of similar groups of girls comparisons. The width of the distal femur epiphysis in healthy or sick boys ectomorphes and in patients ecto-mesomorph boys was significantly (p<0,05-0,001) higher compared with girls of similar comparison groups. The width of the distal tibia epiphysis in healthy or sick boys ectomorphes significantly (p <0,05) higher compared with girls of similar comparison groups.

Arm circumference in healthy boys ecto-mesomorph significantly (p<0,05) higher compared with patients similar somatotype boys. The circumference of forearm in patients boys ectomorphes significantly (p<0,05) higher compared to healthy boys of similar somatotype. The mentioned size in healthy or sick boys ectomorphes significantly (p<0,05) higher compared with girls of similar comparison groups. The circumference of the femur and tibia in healthy boys ecto-mesomorph significantly (p<0,01) higher compared with patients similar somatotype boys.

Key words: boys, girls, covering size, width of distal epiphysis limbs, myopia.

Gunas I.V., Cherkasov V.G., Kovalchuk O.I., Dzevulska I.V., Cherkasov E.V., Malikov O.V., Tytarenko V.M., Lachtadyr T.V., Matkivska R.M.

ROLE OF ENDOGENOUS INTOXICATION IN MORPHOGENESIS OF FEATURES IN INTERNAL ORGANS UNDER THE CONDITION OF BURN DISEASE FLUID THERAPY

Aim of our work – the identification of the interdependence of the level of endogenous intoxication and structural features of the compensation of disturbed functions of internal organs during infusion therapy of burn disease with combined hyperosmolar solutions (HAES-LX-5% and lactoprotein with sorbitol).

Materials and methods

Experimental study of morphological changes in the adenohypophysis, thymus, adrenal gland, kidney and group lymphoid nodules of the ileum in burn disease (1, 3, 7, 14, 21, 30 days after burn trauma) and subject to the action of infusion colloid-hyperosmolar drug detoxification, rheological, energy, antishock action HAES-LX-5% lactoprotein with sorbitol was performed on 90 male rats of Vistar line weighing 155-160 grams.

Animals were divided into 7 groups: I - intact animals; II, III, IV - rats without thermal injury who underwent separate infusion: a) 0.9% solution of NaCl; b) HAES-LX-5%; c) lactoprotein with sorbitol - respectively at a dose of 10 ml/kg; V, VI, VII - animals with burns, which in a similar way and in the same dose regimen conducted separate administration of the test substances.

The selection of material was performed under general anesthesia. In animals after decapitation, was performed autopsy of skull cavity, thoracic and abdominal cavities and cut using blade small pieces of examined organs. The material for morphological studies were treated by the standard technique.

Ultrathin sections were prepared on ultramicrotome "LKB", examined and photographed with an electron microscope PEM-125K. Semifine sections were stained with methylene blue and toluidine, examined and photographed using an Olympus microscope VH51. The experiment was carried out on the basis of the Scientific Research Centre of the Vinnitsa National Medical University named after Pirogov. Electron microscopic study was carried out on the basis of the department of electron microscopy (supervisor - professor Stechenko L.A.) of Institute of problems of pathology of the National Medical University named after Bogomolets.

Results. Discussions

A manifestation of pathological changes in the internal organs in the thermal trauma of skin and developed of burn disease is the alteration of their histohematic barriers that initiates and aggravates the endogenous intoxication.

The development of edema and hemorrhage, and the formation of through transmural defect ("leaks") in the wall of blood capillaries and some venules and

relevant intraorgan intercellular extensions ("penetration") is a structural equivalent of alterations histohematic barriers in the internal organs in burn disease.

The use lactoprotein with sorbitol allowed to clearly visualize the characteristics of burn disease "flow" and "penetration" in the internal organs and evaluate as compensatory all those structural reforms that have been associated with the formation in the internal organs "membrane-complex".

Using a hyperosmolar solution HAES-LX- 5% and lactoprotein with sorbitol is a method of effective prevention of early and development of severe endogenous intoxication during thermal injury to the skin. The use HAES-LX-5% and lactoprotein with sorbitol allows providing optimal functioning of histohematic barriers and preventing massive loss of cell structures of damaged tissues.

The prospect of further research in this direction is to study the isolated action of each component lactoprotein with sorbitol and HAES-LX-5% on the structural mechanisms of cytoprotection in the internal organs in experimental burn trauma.

Key words: burn disease,endogenous intoxication, internal organs, structural features, electronic microscopy.

Monastirskiy V.M., Kulik A.Ya., Pivtorak V.I., Kozak I.A.

MODELLING REPOSITION SINGLE KIDNEY AFTER HYPERTROPHY

Activities of the kidneys and their regulation have been the subject of study as biologists and doctors of various specialties, but many issues still remain unclear. When nephrectomy developed a number of compensatory-adaptive reactions of kidneys, which remain the main mechanism of which is to increase the volume and mass of the kidneys, which is carried out by hyperplasia of tubule cells and regenerative intracellular processes. The increase in weight often leads to nephroptosis. What position will take a kidney while it is important to know the mechanisms for evaluation of complications.

Purpose: to determine patterns of change in position of kidney with hypertrophy.

Materials and methods

The kidney is placed in an environment that can be considered homogeneous. Difficulty of modelling requires imposing of additional constraints: the environment in which the kidney is located, is considered isotropic without regard anisotropic properties; not taken into account a change in temperature and its impact on the environment of the location; kidney also considered homogeneous body without gradient mass; the side effect components of the forces is not considered.

For modelling principle should be used to aggregate the centre of mass forces. Modelling combination of viscous and elastic properties makes it possible to build a consistent element of Maxwell combination of springs and piston. But this element has a residual deformation therefore appropriate to select an item of Voigt.

Results. Discussions

The simulation results show at this stage quasi linear dependence of the angle of rotation of kidney from shift mass centre horizontally. This rotation angles at an early stage small. Angle characteristics show the difference in weighti-dimension parameters of the left and right kidney in men and women.

Require further research stage in the increased rotation angles, especially close to critical. It is necessary to pay attention to the significant nonlinearity characteristics and location of additional local masses.

Key words: single kidney, modelling, kidney position.

Vlasenko V.V., Blashchuk M.V., Blashchuk V.V., Vlasenko I.G.

INFLUENCE OF PLANT ORIGIN POLYSACCHARIDES ON GROWTH PROPERTIES OF NUTRIENT MEDIUM APM-VINTUB FOR ACCELERATED DETERMINATION OF THE CAUSATIVE AGENT OF TUBERCULOSIS

For detection of mycobacterium tuberculosis use all microbiological methods: bacteriological, bacterioscopic, serology, biological and allergic samples. Important advantage of cultural research method is the possibility of obtaining culture, which

can be thoroughly investigated, identified and studied it`s drug sensitivity, virulence and other properties.

Mycobacterium do not grow on simple nutrient media, they need substances for cell metabolism. There are several limit factors to widespread use of culture method, which connected with the handling complexity of pathological material and slow growth of mycobacteria, and with the need to use expensive nutrient media. This reduces the value of this method and doesn`t allow to get results quickly and necessitates to search improved method and nutrient media, which would have boosted the results and increased the efficiency and sensitivity of the methods.

The ***purpose*** of our study was to create a nutrient medium for accelerate detection of Mycobacterium tuberculosis, which due to the new components composition and proportion achieved possibility duration reducing of incubation up to 24 hours. Duration of tuberculosis diagnostics can be reduced by 30-90 days.

Materials and methods

On the basis of Vinnytsya National Agrarian University conducted research of influence of plant origin polysaccharides on growth properties of nutrient medium APM-VINTUB for accelerated determination of the causative agent of tuberculosis. As test sample we used special biological additive «MAIS». Research conducted with using nutient medium APM-VINTUB.

Results. Discussions

Based on obtained results we proposed nutrient media APM-VINTUB, which include as one of the components special biological additive “MAIS”.

This nutrient medium has high growth properties in comparison with traditional due to it`s special plant component which containing polysaccharides up to 19%.

This component is available and inexpensive. All components of declared composition and equipment are manufactured in Ukraine, which is very convenient for industrial, scientific and medical laboratories. Qualitative and quantitative composition of all components are necessary for obtain optimal results.

Study results of the proposed nutrient medium APM-VINTUB show the perspective of development new tuberculosis diagnostic method and allow to reduce duration of bacteriological study up to 30 times.

Keywords: polysaccharides, mais, nutrient medium, tuberculosis, APM-VINTUB.

Nebesna Z.M.

ULTRASTRUCTURAL CHANGES OF COMPONENTS OF THE RESPIRATORY PORTION AERO-HEMATIC BARRIER OF THE LUNGS AFTER EXPERIMENTAL BURNS UNDER COMBINED USING OF LYOPHILIZED XENOGRAFT SUBSTRATE AND EXOGENOUS SURFACTANT PREPARATION

The ***aim*** of work was to establish submicroscopic reorganization components of aero-hematic barrier respiratory alveoli of the lungs of animals in the dynamics after thermal damage when application shredded substrate of lyophilized animal skin and exogenous surfactant drug.

Materials and methods

Experiments carried out on 20 mature white rats males. Third degree burn was applied under ether anesthesia with copper plates heated in boiling water to a temperature 97-1000C. Size of the area destruction accounted for 18-20% of the body surface shaved rats. Early necrectomy of affected skin was performed one day after applying burn. The wound that formed, covered with crushed substrate of lyophilized animal skin. Crushed substrate of lyophilized xenograft made from pig leather by "Combustiolog" and it allowed for clinical use in Ukraine.

Simultaneously, under general anesthesia with drawing animal skin substrate on burn wound one time performed intra tracheal instillation of exogenous surfactant preparation "Kurosurf" in a dose of 300 mg/kg. The animals were decapitated at 7, 14 and 21 days. For electron microscopic studies took small pieces of the respiratory department of lungs fixed at 2.5-3% solution of glutaraldehyde, after fixed in 1%

osmium solution tetroxide on phosphate buffer pH 7,2-7,4, left a water in alcohol and propylene oxide and embedded in a mixture of epoxy resins with araldite. Ultrathin sections contrasted by uranyl acetate and lead citrate by Reynolds and analyzed in the electron microscope PEM-125 K.

Results. Discussions

Preliminary conducted research submicroscopic state of aero-hematic barrier respiratory components of the lungs in experimental thermal trauma set deep destructive changes of respiratory and secretory alveolocyte, endothelial cells and the basement membrane of hemocapillaries.

Electron microscope examination of the respiratory department of lungs of animals which after thermal trauma used crushed substrate of animal skin lyophilized combined with injection of preparation surfactant, showed that already on 7 day of the experiment destructive changes of components of aero-hematic barrier are less pronounced than in the group of untreated animals.

On the 14 day of experiment under conditions of using corrective factors on the submicroscopic level of organization aero-hematic barrier pulmonary component is significantly improved compared with a group of untreated animals. Revealed a lower degree of damage and active regenerative processes progress with updating the ultrastructure of their components. The most pronounced positive impact of drugs on correcting structural organization of aero-hematic barrier of lung observed especially on the 21day of the experiment.

The obtained results of submicroscopic studies suggest that early removal of necrotic skin after thermal destruction and closing wounds with crushed substrate lyophilized of animal skin with simultaneous injection of preparation surfactant prevents the action of pathogenic factors on the lungs and reduces the degree of damage to the structures of the respiratory department. The combined use of drugs creates the conditions for an active flow of regenerative processes in the components of aero-hematic barrier that provides a gradual improvement of their ultrastructure. Therefore, at the end of the experiment takes place relative normalization of structural components walls of the alveoli and hemocapillaries.

Key words: aero-hematic barrier, ultrastructural changes, thermal trauma, lyophilized xenograft substrate, surfactant.

Melnik A.V.

INFLUENCE OF ESTRADIOL DIFFERENT CONCENTRATIONS ON HYDROGEN SULFIDE FORMATION IN MYOCARDIUM OF FEMALE RATS

H_2S is a signaling molecule that regulates vascular tone and myocardial contractility. The role of gender and sex hormones in H_2S production in myocardium remain unclear what became the objective of our research.

Materials and methods

Estradiol's level in Wister rats was modulated by castration and hormone replacement therapy. H_2S levels, cystathionine γ-lyase (CSE) activity and kinetic parameters in heart, sex hormones levels in blood were measured.

Results

Different female estradiol concentrations have a significant influence on H_2S metabolism in myocardium. Thus, female castration causes significant decrease in CSE activity by 25.6% and H_2S content by 19.4% in rats myocardium compared to controls. Hormone replacement therapy to castrated animals almost completely normalizes H2S metabolism in myocardium of rats. Estradiol administration to castrated females causes the increase of CSE activity and H_2S content respectively 16.0 and 15.3%, compared to castrated animals. Correlative analysis between plasma estradiol levels, myocardial CSE activity and H_2S concentration shows significant direct correlation.

Low cysteine concentrations (0,12-0,95мМ) in female rats' myocardium illustrate direct correlation with the velocity of enzymatic reaction (in the range 0,025-0,148 nmol H_2S/min.·mg of protein). Further elevation of cysteine concentration results in lowering of reaction rate increase. Cysteine concentration 7.5 mM sets up the curve forms plateau. Cysteine rise above 7.5 mM was accompanied

with substrate inhibition phenomenon, a decrease in the activity of the reaction catalyzed by CSE. In females with gonadectomy the kinetic curve shifting in direct coordinates to the right and the curve in Lineweaver–Burk coordinates - to the left. In addition, it is recorded statistically significant increase in Km for cysteine (23.8%) and decrease of Vmax (16.4%) for H_2S synthetic reaction, catalyzed by CSE. Estradiol-replacement therapy moves kinetic curves closer to control group curves, while statistically tolerance variations of kinetic parameters (Km and Vmax) do not differ from pseudo-operated female rats. Correlation analysis illustrates considerable correlation of plasma estradiol with Km (backward) and Vmax of CSE catalyzed H_2S production reaction (direct).

Conclusion

Thus, estradiol is involved in regulation of H_2S production in rats myocardium.

Keywords: hydrogen sulfide, cystathionine γ-lyase, kinetic parameters, female, estradiol, myocardium.

Tkachenko M.M., Cherkasova L.A.

AGE DIFFERENCES ECHOMETRY PARAMETERS OF UTERUS AND OVARIES IN DIFFERENT PHASES OF THE MENSTRUAL CYCLE IN TEENAGE AND YOUTH AGE WITH DIFFERENT SOMATOTYPE

Aim of our work – determining the age differences of ultrasound female genital size in healthy urban girls and girly of Podillya with different somatotypes in different phases of the menstrual cycle (MC).

Materials and methods

To accomplish our goal, from database Scientific and Research Center of Vinnitsa National Medical University named after Pirogov, were taken primary indicators ultrasonography right and left ovaries (length, width, thickness and volume) of 120 healthy urban girls aged from 13 to 15 years and 108 girly aged from 16 to 18 years in different phases of the MC.

Materials of research do not deny the basic 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.

Ovarian ultrasound performed at 7, 14 and 21 days after the onset of menstruation (according follicular, phase ovulation and luteal phase MC) using devices "Toshiba SSA-220A" (3.75 MHz convex sensor) and Voluson 730 Pro (4-10 MHz convex sensor). Sonographic study make by the standard method Medvedev and others (1997) in different phases of MC were determined: length, width and thickness of the right and left ovaries. These ovarian dimensions used to determine their value in the formula F. Sample: $V = d1 \times d2 \times d3 \times 0{,}523$, where d1 - length, d2 - width, d3 - the thickness of the ovary.

Anthropometric survey of girls conducted by the scheme Bunak (1941). Somatotype of studied was determined by the method of J. Carter and B. Heath (1990).

Statistical analysis of the results conducted using the program "STATISTICA 6.1" using nonparametric methods for assessing the results.

Results. Discussions

Results of scientific researchers have shown the dependence puberty from physical data teenage girls. Despite the fact that adolescents are different proportionality anatomical structure, they differ in the rate of sexual maturation and therefore dimensional characteristics of the reproductive organs.

In girls older age and different somatotype state activity pituitary-ovarian system is stabilized and has no such vivid constitutional differences, as in adolescents. Teens mesomorphic and brachymorphic constitution types compared to dolichomorphic before the adolescence by the dimensional characteristics are close to the older age group and therefore will have less dimensional variability of the uterus and ovaries (Borodina et al., 2004; Kaarma, 1991).

The largest number of age-related differences in the size of the uterus and ovaries set in girls and girly ectomorph compared to other studied somatotypes. In

addition, the smallest number of age-related differences in size was observed in girls and girly of mesomorphic somatotype.

In girls ectomorph found significantly greater values of thickness myometrium in all phases of MC compared to the older age group of girls that may be associated with age-related characteristics of morphological alterations in the uterine wall of this somatotype (Kurjak, Kupesic, 2010; Ikpe et al., 2012).

Established smaller number of significant age differences in size of ovarian compared to the size of uterus (especially in the luteal phase MC), due to the prevailing modifying influence of sex hormones on ovarian size and especially their lower dimensional variability in the luteal phase (Engeland et al., 2008; Kurjak, Kupesic, 2010).

Key words: ectomorphic ovarian indicators, menstrual cycle, healthy girls, age differences.

Yevtushenko V.M.

ANALYSIS OF THE MORPHOFUNCTIONAL AND IMMUNOMORPHOLOGICAL CHARACTERISTICS PROSTATE GLAND IN ADOLESCENCE

Aim of our work – study of morphological and functional features and immunomorphological characteristics of human prostate in adolescence.

Materials and methods

As objects of the study were taken 10 human prostate in age from 17 to 21 years. The material was fixed in 10% neutral formalin and then embedded in paraffin and serial sections were made. Paraffin sections were stained with Karatstsi and Ehrlich hematoxylin, eosin, azure II - eosin, PAS-reaction. To measure the morphometric characteristics of lymphoid populations used a computer system for digital analysis with image VIDAS-368 (Kotron Electronik, Germany). To evaluate the proliferative activity and the state of smooth muscle tissue was used monoclonal antibody Ki-67 (MIB-1 clone, DakoCytomation) - indicator of proliferative activity,

LSMA - smooth muscle actin marker. Statistical analysis of the results carried out by the programs Statgraph. Comparison of the average values was carried out in terms of the Fisher - Student. Differences of two medium were considered significant at $p<0.05$.

Results. Discussions

The prostate gland in 17 years is perfectly formed organ, both in morphological and functional relationships. Secretory units predominate over the excretory ducts. The bulk of the epithelium is formed by two-lane prismatic epithelium, the cells of which are subject to significant changes related to the functional state of the lobes and the nature of the secretory process in them. Analysis of structural features, morphological and histochemical differentiation shows that at this age the leading position in the functional load organ tissue belongs to epithelium, connective tissue located on the deep biochemical adjustment step prior its histophysical and morphological changes. Proliferative processes in glandular parenchyma prevail over those processes in other tissues. At this age, there is a positive expression of markers Ki - 67 in epithelial cells of the glandular epithelium. Among the cellular elements of connective tissue, dominate fibroblasts, fibroblasts, lymphocytes and macrophages are also found, and mast cells.

The correspondence of the highest levels of morphological organization of lymphoid formations prostate stage of stabilization morphodevelopment processes and most of the functional activity of the prostate gland.

Keywords: prostate, fibroblasts, glandular epithelium cells, lymphocytes.

Zheliba M.D., Chornopyshchuk R.M., Burkovskyi M.I., Osolodchenko T.P.

ANTIMICROBIAL ACTIVITY OF LIASTENUM COMBINED WITH HYDROPHILIC OINTMENTS

The problem of prevention, diagnosing and treatment of wound infection remains urgent as it holds a leading position in the illness pattern of the Ukrainian and world population. Further deterioration of the results of the traditional treatment

method that are mostly based on the antibacterial therapy and considerable material costs require development and implementation of more effective remedies for correction of this pathology. At present scientists pay more attention to the study of possibilities of using microbial polysaccharides for prevention and treatment of wound infections that in addition to immunostimulating properties can serve as the basis for joining of the other active components. At the Ukrainian market the drug Liastenum – glycopeptide of the lactic-acid bacterium cell wall – can be found. Non-availability of information about antimicrobial properties of this immunostimulant and its combination with hydrophilic ointments preconditioned this microbiological study.

Therefore, the objective of our work was to study the antimicrobial activity of Liastenum and its combination with the ointments Levomekol, Miramistinum, Nitacid and Inflarax.

Materials and methods

Liastenum solution with the concentrations of 0,008 g/ml, 0,004 g/ml, 0,002 g/ml, 0,001 g/ml, 0,0005 g/ml, 0,00025 g/ml and their combination with the ointments Levomekol 20 g and Miramistinum 20 g were used for the study. The antimicrobial activity of the solution Liastenum 0,002 g/ml combined with the ointments Inflarax 20 g and Nitacid 20 g was also studied. For control purposes the same ointments were studied without addition of any foreign substances.

The antimicrobial activity of antibacterial drugs was determined by the agar diffusion method with “wells”.

Statistical processing of the results was carried out using the computer program STATISTICA 6.1.

Study results

All the studied Liastenum solutions showed low antimicrobial activity. The study results of the ointment antimicrobial activity and their combination with Liastenum revealed the diameter difference of the growth inhibition of microorganisms in all the studied groups as compared to the corresponding control group. It was established that for combination with Levomekol the optimal

concentration of this immunostimulant was 0,0005 g per 20,0 g of the ointment, for Miramistinum 0,00025 g and 0,0005 g, respectively, depending on the studied microorganism strains.

The results of combining the ointments Inflarax 20,0 g and Nitacid 20,0 g with Liastenum with the concentration of 0,002 g were also characterized by increase in the antimicrobial activity as compared to the control group.

Conclusions and prospects of further developments

Thus, the obtained results have revealed the dose-dependent potentiating antimicrobial effect of Liastenum on all the studied groups of hydrophilic ointments. The available immunomodulatory effect of the drug and its ability to increase antimicrobial properties of antibacterial agents “in vitro” opens a prospect for further studies of the possibilities of using similar combinations during treatment of infectious wounds in experiment and under clinical conditions.

Key words: Liastenum, hydrophilic ointments, antimicrobial activity.

Lukyantseva G.V.

HISTOLOGICAL STRUCTURE OF THE PROXIMAL EPIPHYSEAL CARTILAGE OF THE HUMERUS DURING APPLICATION TIBIAL DEFECTS WITH ADMINISTRATION OF SODIUM BENZOATE

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

Materials 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 frontal sections of HE stained proximal epiphyses were put to morphometry of zones of EC using classification of V.G. Koveshnikov (2003). The data obtained was analyzed using variation statistics methods by means of standard software.

Results and discussion

Sodium benzoate administration resulted in decrease the bone formation at proximal epiphyseal cartilage of the humerus, which depended on sodium benzoate concentration. Sodium benzoate in dosage of 1000 mg (group SD2) had more expressed influence on bone formation at epiphyseal cartilage than in dosage of 500 mg (group SD1). In readaptation period adverse effect of sodium benzoate on bone formation at epiphyseal cartilage persisted in both groups throughout the whole observation period yet in group SD2 those effects were more expressed.

Defect in proximal portion of tibia also resulted in decrease the bone formation at proximal epiphyseal cartilage 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 bone formation at proximal epiphyseal cartilage of the humerus after application defect of the tibia.

Conclusions

1. Defect in tibia after 60-day administration of sodium benzoate is accompanied by decrease the bone formation at proximal epiphyseal cartilage of the humerus 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 bone formation at proximal epiphyseal cartilage of the humerus after application defect of the tibia.

Key words: skeleton, bone defect, epiphyseal cartilage, sodium benzoate, mexidol.

Nefedov A.A.

PERFORMANCE EVALUATION OF NEUROPROTECTIVE THERAPY OF EXPERIMENTAL ALLERGIC ENCEPHALOMYELITIS UNDER BASIC THERAPY OF SOLU-MEDROL

Multiple sclerosis is a severe demyelinating disease of the central nervous system resulting from the development of autoimmune reactions to myelin proteins followed by axonal damage neurons varying degrees. The basic standard method of therapy of multiple sclerosis is the use of schemes intravenous corticosteroids in pulse doses. However, multiple sclerosis (MS) remains a problem with many unresolved issues. The need of neuroprotection in MS is due to injury as myelin sheaths of nerve fibers, or neurons themselves (this leads to the atrophy of brain substance) and oligodendrocytes (glial cells, providing maintenance and reproduction of myelin). Application neuroprotective complex promotes inhibition of progression of MS, slowing the rate of apoptosis of neurons and oligodendrocytes, as well as ameliorating myelin damage by free radicals, antibodies and inflammatory cytokines.

The ***purpose*** - a comparative analysis of the neuroprotective effect of Citicoline, Neurovitan and α-lipoic acid on the model of experimental equivalent of multiple sclerosis in rats under baseline hormone therapy with methylprednisolone (Solu-Medrol) was conducted.

Materials and methods

To evaluate the effectiveness of the protective action of drugs studied on a model of experimental allergic encephalomyelitis for each group of rats were calculated: 1) long latency period; 2) the total number of cases and severely ill rats (in% of the group); 3) the mean clinical index at the peak of the disease; 4) the average cumulative disease index; 5) the average duration of the disease. All figures are compared with those of the control group and the group receiving standard therapy Solu-Medrol.

Results. Conclusion

Experimental allergic encephalomyelitis (EAE) was developed for 9 - 11 days after inoculation of encephalitogenic mixture in 92% of the rats of the control group. Most rodent control group prevailed severe and prolonged during EAE (mean cumulative index of 27.2; mean duration of illness of 16.4 days).

Introduction Solu-Medrol (SM, 3.4 mg / kg intravenously over a week) prevented the development of EAE in 20% of animals from infected rodents and significantly reduced the severity and duration of neurological disorders, in 2 - 3 times (compared with control) reducing the average cumulative index and duration of the disease.

Course application of Neurovitan (25 mg / kg) during therapy with Solu-Medrol prevented the development of EAE in 25% of the animals. Neurovitan average of 1.1 - 1.2 times the clinical index decreased at the peak of disease, as well as the cumulative index and duration of the disease compared with the group treated with basic hormonal therapy. Neurovitan support axoplasmatic vehicles involved in the synthesis of transport proteins, and delivers fatty acids for cell membranes and myelin sheaths.

Combined use of an antioxidant Berlitione (50 mg / kg of α-lipoic acid) and methylprednisolone completely prevented the development of EAE is also 25% of animals with mild disease. The other rodents administration of the drug on a background of a base hormone therapy moderately attenuated the severity and duration of EAE: clinical index at the peak pathology decreased by 19%, cumulative - by 17%, and the duration of EAE - 1.3 times as compared with the group treated

with Solu-Medrol. Therapeutic effect of Berlitione is realized by inhibition of expression of adhesion molecules, the synthesis of pro-inflammatory cytokines, increased intracellular glutathione levels, as well as antiradical action

The animals treated with Citicoline (500 mg / kg) in a course of hormone therapy SM EAE developed only after completion of drug administration (19 - day 20), leaking momentarily (average 5 days) and mild (average cumulative index 6.6). High efficiency of Citicoline with EAE mediated likely to continue internal and external (cytoplasmic and mitochondrial) neuronal membranes due, on the one hand, the weakening of the activity of phospholipase A_2 activation and neuronal mitochondrial cytochrome oxidase, and the other - the inhibition of glutamate-induced apoptosis.

Key words: multiple sclerosis, experimental allergic encephalomyelitis, Solu-Medrol, neuroprotection, Citicoline, Berlitione, Neurovitan.

Motruk I.I., Kremenska L.V., Palamarchuk O.O., Rodinkova V.V.

POLLEN SPECTRUM SEASONAL OVERVIEW IN RELATION TO HAY FEVER TYPE PREVALENCE IN VINNITSA, UKRAINE

Thus, the ***aim*** of our work was to establish the main pollen spectrum of ambient air of Vinnitsa, city located at the Central Ukraine in relation with patients' sensitivity in this city.

Materials and methods

Pollen collection was done by volumetric sampling in Vinnitsa employing a Burkard trap placed at a height of 25 meters above the ground on the roof of a Vinnitsa Medical University building for years 2009 - 2014. Samples were taken from the March 1 until October 31.

Pollen grains were identified by using the Pollen Identification Key Program [Sulmont, 2008] and Pollen Atlas issued under edition of American National Aerobiology Bureau [Kagen et al. 2005].

Symptoms of seasonal allergy were analyzed by reviewing the medical records from allergy specialty clinics at Vinnitsa Regional *Clinical* Children's *Hospital* and at Vinnitsa Municipal Hospital Number 1, Vinnitsa, Ukraine. 38 patients aged from 3 to 16 years were reviewed with 20 selected for further analysis among children admitted from 2004 to 2013. 38 patients aged from 18 to 45 were selected for analysis in Municipal Hospital as well. Prick tests for inhalant pollens using extracts made in Ukraine were done. The results of 50 separate clinical testing of children and 38 testing of adults of study group were analyzed.

Results and discussion

Study shows *Urtica, Betula, Pinus, Alnus, Fraxinus, Ambrosia, Artemisia, Juglans, Carpinus, Populus, Quercus, Acer, Salix, Ulmus, Corylus*; Poaceae, Amarathaceae, Polygonaceae, Asteraceae, Brassicaceae, Ranunculaceae, Cannabaceae are main airborne pollen types in the urban atmosphere of Vinnitsa city.

As it was shown *Urtica* pollen is prevalent in the ambient air of city mentioned. However, pollen of the nettle is not present in the list of the regional causal allergens due to its low allergenicity. *Ambrosia* and *Artemisia* pollens are more allergic being important for children while tree pollens like *Betula* and *Alder* ones are important for the adults of the Vinnitsa population.

There were noted children from rural territories of central region of Ukraine were much more susceptible to the grass and weeds allergens than to arboreal ones from the early childhood time. The severity of sensitization to tree pollen increases with age. However, reaction to grass and weed allergens stays at high and very high level in these patients as well.

Acute reaction of patients to *Alnus spp.* pollen might be explained by highest tree pollen peak was recorded in Vinnitsa for this category. Also increased abundance of this pollen type and peaks which are determined month early than 10 years ago might be important for patients' sensitivity. Thus, data of constant airborne pollen monitoring remains significant for pollinosis' control.

Key words: pollen spectrum, hay fever, pollen sensitivity types.

Semenenko O.N.

OXIDATIVE STRESS IN HOMOGENATES OF KIDNEYS IN CASE OF EXPERIMENTAL BURN DISEASE AND ITS CORRECTION WITH POLYFUNCTIONAL INFUSION SOLUTIONS

Treatment of acute renal failure and renal protection remains problematic and cause a series of discussions. Kidneys in burn disease are the target organ in the early stages of the process, respectively, severe complication of burn shock.

The ***objective*** was to study the protective properties of Gekoton (HAES-LX-5%) in an experimental model of burn kidney damage in rats, with an estimate of possible correction of oxidative stress.

Materials and methods

Using the model of experimental burn disease in rats (in case of enlargement of injured area up to 21-23 %) it has been studied the level of oxidative stress in renal tissues during the early period of burning injury, the 1^{st}, 3^{rd} and 7^{th} days.

Results. Discussions

It has been establised that the primary products of lipid peroxidation (LP) considerably increased in homogenates of renal tissues, particularly only in case of correction with 0,9% NaCl solution: thus, the increase of trienoic ketonic grew more than 3,5 – 5 times during the observation period from 1^{st} to 7^{th} days. The use of pharmacological correction with lactoprotein and sorbitol (LPS) or HAES-LX 5% significantly reduced accumulation of primary products of activation PPA, with a great effect of HAES-LX 5%. Similarly, the dynamics of the derivative product LP-MDA, against the background of NaCl its level increased more than 3-4 times whereas both solutions moderated the rate of growth (only 115,5%-74,1% of HAES-LX and 108,6%-65,5% of LP). The development of oxidative stress was associated with reduced catalase activity in renal tissues and both corrective solutions reduced its deficiency twice. Test solutions also protected superoxide dismutase activity increasing its level 1,8-2,7 times as much, though, the complete normalization of it had not been observed by the 7^{th} day of experiment. The most positive dynamics was

found for keeping of glutathionereductase activity, the level of tocopherol grew up to 50 % as well. It is obvious that both infusion solutions protected the renal tissues in an indirect way from oxidative stress in a case of burn disease. Further study can be continued during the clinical trials of HAES-LX 5% in a case of a burn disease.

Key words: burn disease in rats, lactoprotein, HAES-LX of 5%.

Yurchenko P.A., Zaichko N.V.

MARKERS OF NEURODEGENERATION AND BEHAVIORAL RESPONSES IN RATS WITH HYPERHOMOCYSTEINEMIA UNDER MODULATION OF HYDROGEN SULFIDE METABOLISM

The ***aim*** was to study the influence of modulators of exchange H2S (NAHS, amino oxide acetate) on the content of brain-derived neurotrophic factor (BDNF) and neuron specific enzolase (NSE) in serum and behavioral reactions in the test "open field" in rats under isolated hyperhomocysteinemia (HHC).

Materials and methods

Experiments conducted on 38 white laboratory male rats weighing 220-280 g. Animals were in standard mode with natural light day/night, receiving water and feed *ad libitum*.

Model of isolated HHC created by entering the thiolactone D,L-homocysteine (Sigma, USA) intr/ventr in a dose 200 mg/kg for 14 days. H2S synthesis inhibitor amino oxy acetate (AOA) was administered at a dose of 15 mg/kg once a 1 day intr/perit, donor of H2S (NaHS) – at a dose of 3 mg/kg intr/perit 1 a day from 10 to 14 day. Taken out of the experiment the animals by decapitation under propofol anesthesia ("Fresenius Kabi" 60 mg/kg/perit).

H2S content in the brain was determined as described by the reaction of N, N-dimethyl-para-phenylenediamine [Wiliński et al., 2011]. Homocysteine (HC), neuron-specific enzolase (NSE) and brain-derived neurotrophic factor (BDNF) in serum were determined by the IFA method according to standard sets "Homocysteine

EIA" (Axis-Shield, England); "NSE EIA KIT" (DAI, USA); "BDNF Quantikine ELISA" (R & D Systems, USA).

Behavioral responses of animals with isolated HHC assessed by neurological test "open field".

To assess differences in the studied parameters used parametric t-test Student (normal distribution) and the Wilcoxon test (with a deviation from the normal distribution), to assess the relationships between parameters was performed by Pearson correlation analysis. Plausible data considered at $p < 0.05$.

Results. Discussions

Entering inhibitor cystathionine–β-synthase -amino oxy acetate (15 mg/kg) deepens H2S deficiency in the brain, potentiates the increasing of content NSE and reduction of BDNF in the serum, increases the neurotoxic effect of isolated HHC. The introduction of NaHS (3 mg / kg) reduces the severity of HHC, increases the content of H2S in the brain, which is associated with regression content of disorders neurospecific markers in serum.

Stimulants of exchange H2S (amino oxy acetate, NAHS) affect the behavioral pattern of animals with HHC: synthesis inhibitors H2S enhance the depressing impact of high levels of homocysteine at approximately and research activity and vegetative balance in rats in the test "open field" and donors H2S show the opposite effect.

Studying the role of neurotrophins in the mechanisms of influence modulators of exchange H2S on the functional state of the central nervous system and cognitive function of animals is a promising direction for future research.

Key words: homocysteine, hydrogen sulfide, brain, behavioral responses, aminooxyacetate, NaHS.

Rykalo N.A., Androshchuk O.V.

MORPHOMETRIC PARAMETERS OF STRUCTURAL COMPONENTS OF KIDNEYS IN IMMATURE RATS WITH MEDICAMENTAL DEFEAT AND PATHOGENETIC CORRECTION

Recently there has a tendency to increase the number of medicinal defeats of internal organs, including kidneys, associated with taking antibiotics which is caused by constant increase in the pharmaceutical market, frequent and uncontrolled use of drugs by populations. Among the wide range of antibacterial drugs that can cause kidney damage, not least place take the anti-TB drugs, isoniazid and rifampicin in particular. This is due to the fact that, despite the gradual decline in the overall morbidity on TB, in Ukraine is the TB epidemic. In addition, each year we have increasing the number of patients with chemotherapy resistant TB, including MR and TB with expanded resistance, which increases the risk of infection of children with a resistant form of the parasite. We know that in children infected by mycobacteria tuberculosis can occur nephropathy characterized by focal lymphoid-macrophage infiltration of interstitial, perivascular and interstitial sclerosis, degenerative changes in the tubules, indicating the development of tubulointerstitial nephritis. Found that on the nature of the functional and morphological changes in the kidneys affects long-term infection of children by Mycobacterium tuberculosis, accompanied by the increase of focal glomerular, interstitial sclerosis and degeneration of epithelial tubules, and the duration and methods of entering of nephrotoxic antituberculosis drugs, including rifampicin.

Objective: make morphometric study of structural components of kidneys nephron in immature rats with medicamentous defeat by isoniazid and rifampicin and correction with quercetin and thiotriazolin.

Materials and methods

Experimental study of kidney drug damage by anti-TB drugs was conducted on an experimental model of chronic drug hepatitis (CDH) by intragastric entering of isoniazid and rifampicin three times per week for 29 days. Experimental animals (48 nonlinear white laboratory immature rats with an initial body mass 60-70 g) were divided into 4 groups: 1st (n = 12) - intact animals, 2nd (n = 12) - modulating CDH, animals of 3-d group (n = 12) in parallel with rifampicin and isoniazid daily for 29 days intragastric entered respectively quercetin at a rate of 75 mg/kg, 4-th group (n =

12) - thiotriazolin at a rate of 22.5 mg/kg. Conversion OD50 for quercetin and thiotriazoline conducted by the method of Rybolovlev.

For histological research pieces of kidneys were fixed in 10% solution of buffered neutral formalin. Further histological preparations carried out by conventional methods. Production of serial paraffin sections 4-6 microns thick conducted on sledge microtome. Painting of preparations carried out with hematoxylin and mixture by Van Hizon. Morphometric parameters that were analyzed in the study of histological structure of kidneys were: the perimeter of the lumen of the proximal and distal tubules, the external perimeter of the proximal and distal tubules, collecting tubules lumen perimeter, area of renal corpuscles, vascular glomerular and capsule of lumen.

Conclusions

Morphometric confirmed that intragastric entering of isoniazid and rifampicin three times per week for 29 days in immature rats causes damage to all parts of the nephron.

At toxic damage of kidneys anti-TB drugs application of thiotriazoline and quercetin positive impact on morphological structure of kidneys, reduces dystrophic and necrotic changes in glomerular and tubular apparatus of kidneys.

According to parameters of morphometric study thiotriazolin has more expressive kidney protective effect compared with quercetin, as indicated by a significant decrease in the area of renal corpuscles vascular glomeruli and reduce necrotic epithelial changes.

Further, due to the relevance of morphological studies, which aim is to create a theoretical basis for the prevention of toxic nephropathy caused by anti-TB drugs, promising is further research on the use of kidney protective properties of thiotriazoline and quercetin.

Key words: immature rats, kidneys, histological changes, morphometric parameters, isoniazid, rifampicin, thiotriasolin, quercetin.

Pinchuk S.V.

LINKS OF COMPUTED TOMOGRAPHY SIZES LUMBAR SPINE IN THE MEDIAN-SAGITTAL SECTIONS WITH ANTHROPO-SOMATOTYPOLOGICAL PARAMETERS OF HEALTHY YOUNG BOY'S MESOMORPH AND ENDO-MESOMORPH GIRLS

Aim of our work – establishing links of computed tomography sizes lumbar spine in the median-sagittal sections with anthropo-somatotypological parameters of healthy young boy's mesomorph and endo-mesomorph girls.

Materials 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 according to the scheme of V. Bunak. 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).

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.

To evaluate the somatotype we used mathematical scheme of J. Carter and B. Heath. Established next somatotypes distribution among surveyed young boys and girls: endomorph - 4 and 18; mesomorph - 37 and 10; ectomorph - 10 and 11; ectomesomorph - 8 and 1; endomesomorph - 13 and 26; middle intermediate somatotype - 10 and 12 people.

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.

Results. Discussions

Found that in young men mesomorph most of vertical sizes of the vertebral bodies have significant direct links with covering body size and in girl's endo-mesomorph - with width of distal epiphysis extremities. Most of vertical dimensions of the intervertebral discs between the lumbar vertebrae in boy's mesomorph have reliable direct connections with mesomorphic component somatotype by Hit-Carter and in girl's endo-mesomorph - accurate feedback with the greatest width of the head. In girls endo-mesomorph most of transverse dimensions of the vertebral bodies have significant direct relationships with thick of skin and fat folds.

The obtained results allow in the future building more correctly computed tomographic models of sizes of the lumbar spine in the median sagittal sections in young boys and girls with different somatotype.

Key words: computed tomography, lumbar spine, morphometry, healthy young women and men, somatotype, correlation.

Chereshnyuk I.L., Zagoriy G.V., Khodakovskiy O.A.

NEYRORETYNOPROTECTIVE EFFECTS OF MEXIDOL IN CONDITIONS OF TEMPORARY ISCHEMIA OF THE EYE

The vast majority of vascular eye disease is associated with retinal ischemic-reperfusion. The presence of succinic acid derivative - mexidol neuroprotective

effects makes it possible to hope for its effectiveness not only in terms of cerebral insufficiency, but also in retina ischemia.

Objective – to describe the presence and estimate the neuroprotective activity of mexidol for neurodestruction markers after the acute eye ischemia-reperfusion.

Materials and methods

To reproduce the model of retinal ischemia used the model of single-eye ischemic-reperfusion in rats by applying and further tightening ligatures to the disappearance of blood flow in the vessels of the retina (exposure time 1 hour). Therapy was started in 30 minutes after imposition of retrobulbar ligatures followed by administration of these substances with an interval of 12 hours (twice a day). Neuron-specific enolase activity and S 100 protein in serum of rats was measured by ELISA using kits NSE ELISA KIT (DAI, USA) and S 100 ELISA KIT (Fujirebio Diagnostics Inc., Sweden).

Results

In experimental conditions (60 minutes of total ischemia-reperfusion in rats eyes) was found mexidol ability (100 mg/kg intraperitoneally) to weaken the destruction of membranes of retinal neurons, which showed stabilization of serum markers that reflect the integrity of the membranes of the retina neurons – the activity of neuron-specific enolase and level protein S 100. These results indicate the existence of the study drug neuroprotective activity, which is the basis for the preservation of the structural and functional integrity of the retina in a model of pathology. These data substantiate the feasibility of using mexidol as a reference drug in preclinical evaluation neuroprotective activity of biologically active compounds.

Key words: Mexidol, neuroprotective effect, retina, ischemia-reperfusion of the eye.

CLINICAL ARTICLES

Zaporozhchenko M.B.

ALGORITHM FOR THE MANAGEMENT OF PATIENTS WITH UTERINE LEIOMYOMA

The most widespread good-quality tumour of reproductive system of the woman is uterine leiomyoma. Evolve two clinico-morphological variants of a myoma of a uterus: simple and proliferative type that demands the differentiated approach to diagnostics, treatment and preventive maintenance of possible relapses. Now there is no uniform algorithm of diagnostics, preventive maintenance, therapeutic tactics of conducting patients with leiomyoma of uterus. The approach to a choice of treatment-prophylactic actions should be especially individual and pathogenetic proved taking into account specific features and an assessment of a reference state of an organism of the woman. The account numerous etiologic factors and pathogenetic mechanisms of formation of a good-quality tumour is the core in definition complex etapic combined treatment leiomyoma of uterus.

Research ***objective*** was on the basis of the analysis of the data of clinico-laboratory and tool research of women to improve algorithm of conducting patients with leiomyoma of a uterus.

Materials and methods

We examined 354 women with uterine leiomyomas. Treatment and preventive measures were carried out according to clinical protocols, approved by the orders of Health of Ukraine. Detailed history of patients collected, laboratory and instrumental examination and hardware, morfogistological and immunohistochemical markers of endometrial defined antigens CD34, Ki-67, CD45, α-SMA was held. Algorithm for the management of patients with uterine leiomyoma improved.

Results and discussion

The algorithm of conducting patients of reproductive age with a uterus myoma is developed. Medicamentous treatment is shown at planning of pregnancy at patients with uterine leiomyoma simple. It is shown myomectomia on a case of absence of

effect of such category of patients. Patients accept surgical treatment in a specialised oncological clinic at presence oncology processis. Following variants of conducting patients with with leiomyoma of uterus proliferative type are possible: conservative therapy, surgical treatment, medicamentous therapy in a combination with surgical treatment of a myoma of a uterus, embolisation parent arteries.

Conclusions

Accounting for multiple etiologic factors and pathogenic mechanisms of the formation of a benign tumor is a major landmark in the definition of an integrated combined treatment of uterine leiomyoma. Approach to the selection of treatment and preventive measures should be purely individual and pathogenesis warranted by the individual characteristics of the women at the molecular genetic level, baseline assessment of her body (genetic predisposition, the presence of concomitant extragenital, generative characteristics, reproductive functions, patient age, clinical uterine form). Medication, and in the absence of effect - myomectomy shows in patients with uterine leiomyoma simple when planning pregnancy. Possible options of the treatment of patients with uterine leiomyoma proliferative type: conservative treatment, surgery, medical therapy in combination with surgical treatment of uterine fibroids, uterine artery embolization, each of which has its own strict indications, in the absence of oncological process.

Key words: management algorithm, uterine leiomyoma.

Dudik O.P.

REMOTE RESULTS TREATMENT OF PATIENTS WITH CHRONIC FIBROUS APICAL PERIODONTITIS WITH USAGE FOR ROOT CANALS OBTURATION NEW MATERIAL “SYNTHETBONE”

The ***aim*** - to conduct nearest and remote observation of endodontic treatment in patients with chronic periodontitis using sealers based on the bioactive ceramics "Syntekost" and compare the results to material "Vyedent".

Materials and methods

During laboratory tests it was found that the closest by physical - mechanical and antiseptic properties to research material "Syntekost" is sealers "Vyedent" (VladMyva, Russia) based on epoxy resin. Therefore, these materials have continued to investigate clinically.

Analysis of immediate results of treatment was conducted in 56 patients with chronic periodontitis fibrotic aged from 18 to 40 years; among them 38 (67.86%) women and 18 (32.14%) men. They were treated 60 teeth of the upper and lower jaws with chronic periodontitis fibrous.

All patients were divided into two equal groups of age, depending on the obturation of the root canal by sealers. The material based on bioactive ceramic (made ex tempore) was used in 28 patients of the main group, which was sealed root canals in 32 teeth. In the control group, 28 patients (28 teeth) for root canal filling material was used based on epoxy resin "Vyedent" ("VladMyva", Russia).

Results and discussion

Analysis of remote results of treatment of chronic periodontitis fibrous (24 months of observation) using statistical methods for analysis of survival showed that the difference in the number of complications in patients of main and control group statistically significant ($p < 0.014$). The obtained results of statistical analysis point to more likely the potential complications when used for root canal obturation material "Vyedent" In the main group "survival" of teeth, have treated much more.

The study revealed difference manifestations of pain symptoms during the nearest observation, which depended on the type of used sealers. Clinically confirmed irritating action material based on epoxy amine polymers and minor irritating action based on the bioactive ceramics that probably due to irritation of tissues during periodontal instrumental and medication treatment of root canals.

Confirmed presence current pattern of irritating action of periapical tissues, depending on the composition of sealers and not just on the level of root canal obturation.

We believe that the materials based on bioactive ceramics "Syntekist" may be used as sealers in the treatment of periodontitis, which is a clinical and experimentally proved.

Key words: chronic apical periodontitits, new material for root canals obturation “SYNTHETBONE”.

Konoplitskyi V.S., Lukiyanets O.O., Nesterenko I.G.

JUSTIFICATION OF METHODS FOR DIAGNOSING CHILDREN WITH CHRONIC COLOSTASES

At present chronic colostases (ChC) in children rank first among non-specific pathologies of the large intestine (LI) that can be caused both by the changes in the intestine itself and extraintestinal disorders. In the ChC structure a significant place is held by the anomalies of development, location and fixation. At present traditional irrigography remains the most common ChC diagnostic method that, unfortunately, in many cases does not allow to verify anatomical-physiological and organic factors of the disease development clearly.

Materials and methods

The work has been performed on the basis of the Pediatric Surgery Clinic of Vinnitsa National Pirogov Memorial Medical University. The study performed during 2009-2014 involved a total of 255 patients with ChC (dolichosigmoid – 70, dolichocolon – 160, Hirschsprung disease – 25)

Results. Discussion

The analysis of the number of children with ChC according to the age proved prevalence of patients aged from 3 up to 12 years – 183 patients, that made up 71,76 % of the total number of observations. Among the children with ChC boys prevailed – 149 (58,43 %), and there were 106 (41,57 %) girls.

We performed multiple view contrast irrigographies in children with ChC for determination of the pathological LI mobility and study of the value of anorectal and sigmorectal angles.

It is known that there are large concentrations of cholinesterase (ChE) in the area of the neuromuscular junction. That's why, we determined the ChE level in the blood serum of 42 children with ChC for predictive appraisal of the large intestine mobility.

A comparative study of the ChE level in the group of patients with Hirschsprung disease (at different treatment stages) constituted a separate fragment of the research.

Conclusions

Determination of the pathological mobility of the distal parts of the large intestine revealed its presence in 88,57 % of children with chronic colostases among which in 95,14 % of cases the patients with dolichocolon and dolichosigmoid prevailed. In the children with chronic colostases the value of the anorectal angle made up 111,3±1,6° horizontally and 87,1±1,9° vertically ($p<0,05$) on the average. In the children with chronic colostases the value of the sigmorectal angle made up 123,4±1,9° horizontally and 82,6±1,6° vertically ($p<0,05$) on the average.

The cholinesterase level in the blood serum of children with chronic colostases was higher than of healthy children, 9467,2±129,9 U/l versus 8777,9±139,2 U/l ($p<0,05$), respectively. The cholinesterase level in children with Hirschsprung disease (at different treatment stages) was higher than in the norm, 10098,6±131,3 U/l versus 8777,9±139,2 U/l ($p<0,05$), respectively. The cholinesterase level in the children with Hirschsprung disease (at different treatment stages) was higher than in the patients with dolichosigmoid and dolichocolon, 10098,6±131,3 versus 9467,2±129,9 ($p<0,05$), respectively.

Key words: children, chronic colostasis, uriven cholinesterase.

Suhodolya A.I., Nazarchuk S.A.

STUDY OF THE INFLUENCE OF DISEPIDERMIC XENODERMOIMPLANTS ON INTESTINAL SUTURES' REGENERATION

The majority of postoperative peritonitis, peritoneal abscesses, intestinal fistulas and concerning them re-laparotomies and mortality first of all depend on suture disability. Nowadays the new perspective trend of its solution have appeared. Using of biostimulators and bioadhesives have appeared.

The ***aim*** was to study the influence of new qualities disepidermic xenodermoimplants on intestinal sutures' regeneration of sutures and anastomosis in intestinal surgery.

Materials and methods

Experimental study was carried out on male and female mature white rats "Wistar". For the study the qualities of regenerative processes in combined intestinal sutures experimental rats were divided on control group (n=24) and experimental one (n=30), which underwent surgery with consolidated intestinal suture by means with lyophilized xenodermoimplants. The condition of intestinal suture zones were studied via standard histological, histochemical, morphometric methods and pneumopression method.

Results and discussion

The use of disepidermic xenodermoimplants while forming intestinal suture provides optimal conditions for intestine wound reparation, approaching this process to the form of initial tension. It develops physical strength of intestinal sutures on the 5^{th} and 9^{th} day after the surgery in 1,78 and 1,4 times respectively. The use of disepidermic xenodermoimplants also provides biological tightness of intestinal sutures. Lyophilized xenodermoimplants on the surface of intestine predict the appearance adhesive process in zones of intestinal sutures. We found that total biological destruction of xenodermoimplants takes place in the terms when finishing of full welt takes place (30 days) in the area of intestinal suture. In such a way their qualities of predicting of postoperative adhesive related intestinal obstruction disease. Disepidermic lyophilized xenodermoimplants were found to stimulate tissue immune process while stimulating the increase of immunoglobulins' levels.

Conclusion

Disepidermic lyophilized xenodermoimplants are able to provide optimal conditions for intestine wound reparation, activate tissue immune processes, conducing in this way regenerating process in the area of formed intestinal suture.

Key words: xenodermoimplant, intestine, suture, anastomosis.

Shkilniak L.I.

POSSIBILITIES OF ULTRASONOGRAPHY DURING DIAGNOSTICS OF TEMPOROMANDIBULAR JOINT PATHOLOGIES

Ultrasound examination of musculoskeletal system has recently become a generally recognized and clinically significant method of diagnostic visualization. The changes specific for inflammatory processes of temporomandibular joints can be identified during the ultrasound examination much more earlier than during the physical or X-ray examination.

Objectives **– e**o research the possibilities of ultrasound visualization of elements of temporomandibular joints. One of the principal tasks was to estimate a movement amplitude of a head of mandible.

Materials and methods

The examination with Ultrasound scanner ToshibaXarioXG with a linear measuring device of 5-14 MHz frequency was carried out for 10 patients who had some joint disfunctions of different ethiology and for comparison - for 10 patients who had no clinical features of pathology.

Results

During the examination the correlation of clinical functional indices was made, in particular, the presence of articular sounds (articular noise, crackle, knock), a degree of opening of a mouth and tension of masticatory muscles, morphological and bone changes of a joint (CT) and location of interarticular disk (MR-image). The results make it possible to estimate a size of joint space and location of “joint” position while movements of a head of mandible.

Conclusion

The use of the method allows to visualize the movement pattern of a head of mandible of a temporomandibular joint in real time and estimate the presence of intracapsular exudate, upgrade a pathology diagnostics, makes it possible to exclude radiation load on a patient and medical stuff.

Key words: ultrasonography, ultrasound examination, a temporomandibular joint.

Lysunets O.V.

HYPERPLASIA OF THE SUPRARENAL GLANDS IN FAMILY PHYSICIAN'S PRACTICE

Objectives – to develop the algorithm of differentiated and diagnostic search for congenital hyperplasia of adrenal cortex in premature newborns with a period of gestation > 32 weeks on the ground of a clinical case analysis.

Materials and methods

There was a newborn boy at the Newborn Pathology Department, Vinnytsia Municipal Hospital under observation, it was the first pregnancy for his mother and he was born during the natural premature delivery, a period of gestation 32-33 weeks. During the post-conceptional age of 36-37 weeks he was rehospitalized at the insistence of his mother as the newborn had rumination of breast milk after his feeding that was developed into posseting of large amount of milk and even projectile vomiting.

Results. Discussion

Whereas the symptom complex associated with digestive disorder played the main role in the clinical presentation and almost every feeding was followed by rumination, posseting and vomiting, the differentiated and diagnostic search was focused around the gastrointestinal tract pathology in neonatal and infant age, hypoxic and ischemic central nervous system damage, dyselectrolyte changes associated with renal and suprarenal gland disorders.

Conclusions and Prospects for the Further Development

1. Neonatal period is an important stage of human ontogenesis.

2. A transient state of gastrointestinal tract in neonatal age and difficulties of breast feeding have a lot of pathogenetic and morphofunctional factors associated with neuroendocrinal and central nervous system.

3. The use of screening methods for an examination of newborns does not except manifestation of hereditary diseases in future.

4. The differentiated and diagnostic search during the period of primary health care helps reduce the duration of diagnostics, begin effective and adequate treatment in time.

5. The algorithm of differentiated and diagnostic search for reasons of newborn's vomiting during the neonatal period should include additional examination of central nervous, digestive, excretory systems and water-electrolytic balance monitoring.

Prospects for the Further Development is in examination of clinical, pathogenetic and morphofunctional peculiarities of premature newborns in order to develop, evaluate the algorithms of diagnostics and to provide medical care during the III stage of nursing of such newborns.

Key words: hyperplasia of the suprarenal glands, clinical thought, a family physician, preterm newborns.

Korchinsky V.S.

PHYSICAL REHABILITATION OF PATIENTS WITH REACTIVE ARTHRITIS

The ***aim*** - to explore the features the application of physiotherapy in the complex spa treatment for the rehabilitation of patients with reactive arthritis and evaluate their effectiveness.

Materials and methods

The study was conducted on the basis of clinical sanatorium "Chmielnik". Under supervision was 70 patients with a diagnosis of reactive arthritis reliable. To evaluate the results of the studies used a range of clinical, clinical laboratory,

biochemical and immunological parameters that characterize different aspects: the presence and severity of clinical manifestations, disease activity and changes in the health resort treatment. Statistical analysis performed by means of material application package Statistica 6,0.

Results. Discussion

Reactive arthritis - a systemic disease which develops due to chlamydia or (much less often) other infections in individuals with a genetic predisposition, characterized by lesions of the urogenital organs and joints and is often combined with lesions of the skin, mucous membranes, visceral manifestations. Reactive arthritis is completed recovery becomes chronic or recurrent course.

Modern concepts of treatment of patients with reactive arthritis based on the principles of early diagnosis and early start getting therapy because of disease in most of people acquire chronic course with systemic lesions of the musculoskeletal system.

The application of complex physical rehabilitation in patients with reactive arthritis with the inclusion of individual programs of therapeutic physical training, massage, physiotherapy techniques radon leads to improved clinical course, reduce inflammatory activity.

In the construction of complex physical rehabilitation in spa stage must take into account peculiarities, the presence of systemic lesions, joint performance indexes, the activity of the inflammatory process, the mechanisms of action of physical factors.

Presented differentiated program of physical rehabilitation of patients with reactive arthritis can be recommended for use in rehabilitation centers, rheumatic and physiotherapy department of hospitals and clinics, spa establishments.

Key words: reactive arthritis, physical rehabilitation, therapeutic physical training, massage, theatments.

Lobko K.A.

FOREIGN BODY EAR CANAL (CASE FROM PRACTICE)

Foreign body in ear - a foreign object located in the external auditory canal (EAC) or fell into cavity of the middle or inner ear.

The clinical picture of foreign body in EAC can be varied, depending on the nature of the foreign body, its size and shape, localization in the EAC, stay in it, age (child or adult) and general condition. There are lightning (very sharp), acute, subacute, chronic and asymptomatic clinical forms of existing foreign body.

Foreign body of ear in most cases, usually manifested by nasal and ear pain, hearing loss, sensation of pressure in the ear, sometimes dizziness and vomiting, facial nerve paresis. Sometimes long foreign body is asymptomatic, but after some time provokes inflammation of the outer or middle ear.

Materials and methods

Foreign body ear diagnostic is made using otoscope, microotoscope, beam diagnostics: radiography, spiral computed tomography. Removal of a foreign body in ear, depending on its size, nature and forms is carried out washing, instrumental method or by surgery. Living foreign bodies previous sacrificed using alcohol or oil drops, then wash.

In Vinnytsia Oblast Clinical Hospital named after Pirogov in the otolaryngology department, at 04:00, on a fixed-term indicators admitted patient with complaints of bleeding from the right ear, the presence of a foreign body of the right EAC. When otoscope: the outer ear canal filled with bloody clots, after toilet which was visualized metallic object. In patient revealed paresis of the facial nerve on the side of the affected ear. The acuteness of hearing has not been possible to determine, because the patient was not a pin. In medical history, it was found that the patient tried to commit suicide, with broken aluminum spoon, sending it broken end in the EAC and making hit on it.

Results. Discussion

The patient performed CT of the temporal bone, which was visualized foreign body penetration to the apex of the pyramid of the right temporal bone. Under general anesthesia, with massive needle holder captured foreign body in the EAC, clip recorded. Controlled by tapping osteoclasts on the castle of needle holder from the

middle outward foreign body was removed from the EAC, minor bleeding stopped by tamponade of the canal. The patient intended antibacterial, antiedematous, anti-inflammatory and symptomatic therapy.

The peculiarity of this case lies in atraumatic removal of foreign body. Thus, all foreign bodies ear, especially with penetration into the middle and inner ear require an individual approach to each case.

Key words: external auditory canal, foreign body, otoscopy.

Pikas O. B.

FEATURES COMPOSITION OF FATTY ACIDS OF PLASMA LIPIDS IN SUFFERING FROM DISSEMINATED PULMONARY TUBERCULOSIS, UNAFFECTED BY THE CONSEQUENCES OF THE CHERNOBYL ACCIDENT

The ***purpose*** - to examine and assess the composition of fat acids lipids in the blood plasma in patients with disseminated tuberculosis and to determine their role in disease development.

Materials and methods

It was examined 103 (64.37% of 160) healthy individuals aged from 18 to 65 who did not smoke cigarettes (I group control) and 57 (35.63% of 160) of people of the same age, patients with disseminated tuberculosis (II group). Healthy individuals and patients with disseminated tuberculosis were not involved in the accident at Chernobyl. Inspection of people was conducted in Kyiv City TB Dispensary number 1.

Sample preparation and chromatographic analysis was performed according to methods L.V. Sizonenko and T.S. Briuzgina (2003). Determining composition of fat acids phospholipids in the blood plasma was conducted by biochemical method based on the extraction of lipids from plasma, separation of phospholipids methylation and chromatographic analysis of fatty acids in the gas-liquid chromatograph "Tsvet-500" of plasma ionization detector in isothermal mode. Quantitative assessment of the fatty

acid composition of lipids in the blood plasma was performed by the method of valuation area and the portion of the fatty acids expressed as a percentage (%). The error parameters were ± 10%.

Statistical analysis of the results of research carried out on a personal computer using the application package Microsoft Office Excel, 2007.

Results. Discussion

The range of fat acids in the blood plasma lipids in patients with disseminated tuberculosis is characterized by the emergence of imbalances ratio of total saturated fatty acid content of the total content and unsaturated fatty acids. Our results set the likely increase the total level of saturated fatty acids against the lowered total content of unsaturated fatty acids and polyunsaturated fat acids content ($p < 0.001$), indicating the lipid metabolic disorders in these patients as a result of enhanced activation of peroxidation. Reduction of palmitic (C16: 0) and stearic (C18: 0) fat acids argues about destructive changes lecithin phospholipids fraction, as a result of tuberculosis and the presence of significant hepatic dysfunction.

Our results show that an important factor in the development of disseminated tuberculosis is a metabolic lipid with modification of the composition of fatty acids in blood plasma that must be considered during treatment of these patients and is very important in the long term practical phthisiology. Significantly pronounced changes in the fatty acid composition in the blood plasma determine their sensitivity to lipid peroxidation, which will assess the nature of the metabolic processes and establish the severity and consequences of the disease in patients with disseminated pulmonary tuberculosis (by determining the fatty acid composition in plasma) and is in the future further developments of data research.

Key words: fatty acid, plasma of blood, disseminated pulmonary tuberculosis.

Korobko O., Iliuk I., Stepanuk T.

PRACTICAL EXPERIENCE OF USING THE ALTERNATIVE SCHEMES IN TREATMENT TO ACHIEVE CONTROL ASTHMA

The research ***objective*** is to study the level of control over bronchial asthma using different treatment schemes and ACT.

Materials and methods

64 patients with moderately severe persistent asthma aged from 18 to 75 years were examined. The patients of the main group (36 persons) took 50 μg of the long-acting β2-agonist Salmeterol and an average daily dose of 1000 μg of inhaled glucocorticosteroids of beclomethasone dipropionate. The patients of the comparison groups (28 persons) took only a high dose of 2000 μg/day of inhaled glucocorticosteroids of beclomethasone dipropionate.

Results. Discussion

As compared with the patients of the control group who took only a high dose of 2000 μg/day of inhaled glucocorticosteroids of beclomethasone dipropionate, divided into two intakes, the patients of the first group whose baseline therapy included 50 μg of long-acting β2-agonist Salmeterol, divided into two intakes, and a small daily dose of 1000 μg/day of inhaled glucocorticosteroids of beclomethasone dipropionate, divided into two intakes, showed a statistically significant ($p<0,05$) positive dynamics of the clinical course of the disease. It manifested itself in the reduction of asthma symptoms, contributed to reduction of the daily dose of short-acting β2-agonists and achievement of control over the disease.

Conclusions

The study of alternative schemes of the baseline therapy for patients with bronchial asthma increases the possibility to choose an adequate treatment for such patients, contributes to more rapid achievement of the control over this disease with possible transfer to the lower step of the therapy and reduction in the volume of the drug therapy.

Key words: asthma, therapy, control.

Tomasevskyi Ya.V.

PREVENTIVE AND METABOLIC CORRECTION OF CYTOPATHIC HYPOXIA SYNDROME IN CASE OF ACUTE PANCREATITIS OF BILIARY ETIOLOGY FOR THE PATIENTS WITH DIABETES

Rising interest of the scientists in the problems of surgical and conservative treatment for the patients with acute pancreatitis of biliary etiology predetermined by increase in the incidence of gallstone disease. The emerging combination of surgical pathology and its complications with the abnormal systemic concomitant of somatic pathology at the initial stages of treatment of acute pancreatitis of biliary etiology complicates choice of appropriate and best practices and technologies for diagnosis and treatment. The situation is much more complicated when pateients with diabetics mellitus also have surgical pathology in the form of acute pancreatitis of biliary etiology, as emergency situation is realized at the compromised background.

Materials and methods

The work analyzes the results of the treatment for 122 patients with diabetes mellitus who have an acute pancreatitis of biliary etiology. Laboratory analysis was carried out within the monitoring of cytopathic hypoxia markers depending on the morphological forms of acute pancreatitis and efficiency of the optimized and traditional medical treatment of conservative therapy. For the patients of the main group the basic therapy of acute pancreatitis of miliary etiology is supplemented by a secured transport of medication factors, primarily antibiotics and hepatoprotective drugs by systemic influence of the prepared liposomes to create high concentrations of therapeutic factors in hepatopancreatobiliar area for prevention of biliary translocation, postoperative cholangitis and liver dysfunction. The method is based on the use of the properties of phosphatidylcholine (Lipin), which has no alternative metabolic substrates to maintain physiological activity of hepatocytes to transport in hepatobiliary zone of antibiotics, thus, achieved double cumulative effect: firstly, the problem of creating a high liver concentrations of antibacterial agents which according to the pharmacokinetics derived bile sanifying thus biliary tract and providing treatment and prevention of inflammatory complications of the bile ducts;

secondly, it is carried out targeted protective effect on the liver parenchyma for the treatment and prevention of liver dysfunction.

Results

The received results show that acute pancreatitis of biliary etiology for patients with diabetes mellitus accompanied by consequent patterns of imbalance in the system of cytopathic hypoxia, severity of which is determined by morphological changes in the pancreas. In particular, edematous form is accompanied by increased level of carbonyl groups by 30.7%, 38.75% adenozyndezaminazy and reduced arginine composition by 18.05%; isolated pancreatic necrosis is characterized by increased markers of endothelial dysfunction (nitrates and nitrites by 18.35%, homocysteine by 52%); disseminated necrotizing pancreatitis is characterized by markers increase of stimulated catabolism of purine nucleotides (xanthine and hypoxanthine by 85.2%); subtotal and total pancreatic necrosis – is characterized by the growth of relevant enzymes (xanthine oxidase and ksantyndehidrohenaza) by 44.39%.

Conclusion

The pattern dynamics of cytopathic hypoxia markers allows their use as predictors of functional liver failure and multiple organ failure for the patients with necrotic forms of acute pancreatitis of biliary etiology against the background of diabetes mellitus. Using traditional therapy does not allow effective correction of disorders in the system of cytopathic hypoxia. Instead, the proposed complex of optimized conservative therapy allows to conduct effective and timely correction, namely: for the form of edematous form on the 4th day, for separated form of pancreatic necrosis on the 7th day, for the common form on the 10th day, for the subtotal and form on the 14th day from the beginning of the conservative treatment.

Key words: acute pancreatitis of biliary etiology - diabetes mellitus - syndrome and markers of cytopathic hypoxia - methods of preventive metabolic correction.

Rikalo N.A.

PROGNOSTIC SIGNIFICANCE OF CONTENT OF FREE AND PEPTIDE CONNECTIVE HYDROXYPROLINE IN THE BLOOD SERUM WHEN CHRONIC VIRAL HEPATITIS

Objective: to establish the prognostic value contents of free and seasm peptides bound hydroxyproline in chronic liver disease.

Materials and methods

To evaluate the metabolism of connective tissue determined the concentration of free and peptide bound hydroxyproline in blood serum of 98 children with chronic viral hepatitis B and C, aged from 8 months to 18 years who were on dispensary observation at the Department of Pediatric Infectious Diseases VNMU named after Pirogov. Control group consisted of 63 practically healthy NVsAg- and anti-HCV-negative child of the age.

Etiology and phase of viral hepatitis infection was determined by ELISA and PCR. Chronic viral hepatitis B diagnosed according the presence of specific markers: NVsAg, NVeAg, Anti-SIS IgM, IgG Anti-SIS, anti-NVe DNA HBV. On the viral replication phase showed the presence of serum NVeAg, Anti-SIS IgM and HBV DNA over 6 months. Chronic Hepatitis C verified by the presence in the serum anti-HCV IgG, IgM anti-HCV, antibodies to non-structural proteins (anti-HCV NS3, NS4 and NS5), and HCV RNA of more than 6 months. Phase of replication in chronic hepatitis C was characterized by the presence of serum IgM anti-HCV RNA and HCV. The degree of inflammatory activity in the liver set according to activity of ALT. To evaluate the metabolism processes of connective tissue were tested for free and peptide bound hydroxyproline in research clinical-diagnostic laboratory based on VNMU named after Pirogov.

Results. Discussion

Features of the pathogenesis of chronic viral hepatitis in childhood determine the nature of the processes the formation of connective tissue, as evidenced by the imbalance between the processes of synthesis and degradation of connective tissue in the direction of increasing its synthesis. Confirmation is significantly higher values

peptide bound hydroxyproline in children with viral replication phase, high activity of the inflammatory process in the liver, as well as with increasing age. The increase of the peptide bound hydroxyproline is the most important indicator of collagen, in the serum children of all ages with chronic viral hepatitis B and C, in our opinion, is a marker of progression of the disease, the formation of fibrosis and cirrhosis. Therefore, the peptide bound hydroxyproline content can be used as a biochemical marker of fibrogenesis and intensity of adverse predictor of the disease.

Diagnostic determining the content of hydroxyproline fractions in the serum mainly bound peptide, will in future determine the presence of fibrotic changes in liver parenchyma without using invasive methods.

Key words: serum hydroxyproline, children, chronic viral hepatitis.

Nochvina E.A.

DESCRIPTION OF PAIN IN WOMEN OF REPRODUCTIVE AGE WITH CHRONIC PELVIC PAIN

The ***aim*** of this study was to investigate the clinical characteristics of display characteristics of the syndrome of chronic pelvic pain and determination of the components forming pain for further pathogenetic therapeutic correction.

Materials and methods

To solve an object and objectives were prospectively examined 350 women of reproductive (18 - 45) age with chronic pain syndrome in the lower abdomen. A survey of patients was carried out by a specially designed questionnaire which included an analysis of somatic and gynecological history, menstrual and reproductive function, psychological status of women, evaluation of objective examination, results of clinical, laboratory and instrumental studies. To differentiate neuropathic pain and nociceptive components used questionnaire DN 4.

Results. Discussion

Patients with chronic pelvic pain could not pinpoint the beginning of the disease, but clearly noted the appearance of pain mainly in adolescence.

In studying the characteristics of the disease female main group noted the increase in the frequency with relapses every year for no apparent reason, stages of development, increasing the intensity of pain.

For patients with chronic pelvic pain distinctive long time, periodic, spastic nature of pain, different intensity with irradiation in the lumbosacral, suprapubic area and iliac predominantly left-sided localization is not related to the menstrual cycle.

By the nature of the formation of pain pain in women of the main group is predominantly neuropathic component, accompanied by a wide range of complaints from internal organs (mainly gastrointestinal and cardiovascular systems) functional nature and sphere of mental patients.

Thus, chronic pain in the area of the pelvis has a variety of clinical characteristics and determined by different mechanisms of pathological processes, resulting in further studies need to develop a comprehensive approach to the treatment of this pathological condition considering pathogenetic mechanisms - nociceptive and neuropathic components that provide development and demonstration pain.

Key words: chronic pelvic pain, pain, nociceptive pain, neuropathic pain.

Sakovych V.N.

ABOUT TREATMENT OF EPIDEMIC KERATO-CONJUNCTIVITIS

Purpose of the research – improvement of the treatment efficiency of epidemic kerato-conjunctivitis with inclusion of endogenous interferon subalin inducer in complex therapy.

Materials and methods. Examination and treatment was performed in 65 patients (130 eyes) with epidemic kerato-conjunctivitis. They were divided into 2 clinical groups: main group of 34 patients (68 eyes) and control group of 31 patients (62 eyes) group. Patients of both groups received traditional therapy which includes antiviral, antiseptic and anti-inflammatory drugs. Patients of main group were additionally prescribed with probiotic subalin: 2 drops every 2 hours.

Results and their analysis

The use of subalin probiotic in addition to conventional therapy in the main group of patients helped by the positive dynamics of the visual organ. Thereby, the disappearance of the eyelids and conjunctiva edema, in patients with epidemic conjunctivitis happened 3.12 days earlier compared to the control group of patients with the same disease ($p<0,05$). The main group of patients recovery was faster by 6.42 days ($p<0,01$).

During treatment corrected visual acuity consistently increased in all patients. The use of probiotics in all clinical groups of patients led to higher visual acuity in the main group of patients after performed treatment: increase in visual acuity more than 0.7 in the main group of patients with epidemic kerato-conjunctivitis was shown in 36.4% cases, and in the control group – 28.1% cases.

Conclusion

Usage of subalin in the main group in the complex therapy, undoubtedly contributed to faster resortion of conjunctival hemorrhage, disappearance of follicles and conjunctival hyperemia. The treatment duration is shorter if to compare with treatment duration of control group.

Key words: epidemic kerato-conjunctivitis**,** probiotic subalin, treatment.

Homovskyy V.V.

VERTEBRA THERAPEUTIC METHODS IN REFRACTORY ARTERIAL HYPERTENSION

The topical issue is a treatment of patients with refractory arterial hypertension, when a simultaneous application of three and more antihypertensive drugs of different types (one of which is diuretic) can not cause a target arterial blood pressure.

For many years, the application of multiple remedies simultaneously was the only way to normalize an arterial blood pressure in patients with refractory arterial hypertension. But such a method increased frequency and number of serious bad

effects. Therefore a search for drug-free methods in treatment of refractory arterial hypertension is to be interesting.

As pathological spinal changes can cause refractory arterial hypertension, a vertebra therapy is one of therapeutic methods used for adequate control of arterial blood pressure in patients.

Materials and methods

There were examined 52 patients aged 45,5 ± 2,8 with stage II arterial hypertension with a resistance to the drug treatment.

For the period of vertebrological examination and treatment the drug treatment was not changed.

Selection criteria of the patients to be examined: findings of concomitant pathological changes of cervical-thoracic spine; resistance to the drug treatment; positive results of vertebra therapeutic testing (patent No 15487, Ukraine (19) A61 B10/00 “The method of vertebrogenic arterial hypertension diagnostic”).

The following diagnostic techniques were applied for the examination of the patients: general examination; somatoscopy and somatography; X-ray study of cervical spine in two projections; magnetic resonance tomography (MRT); tonometry and 24-hour arterial blood pressure monitoring; transcranial dopplerography; rheoencephalography; statistical processing of results.

All the patients were treated vertebrologically. The number of sessions and selection of vertebra therapeutic methods depended on main spinal pathology and traumatic elements diagnosed. Depending on the vertebrological treatment efficiency a drug dose and number were reduced.

Results. Discussions

The spinal pathology was diagnosed in all the patients with refractory arterial hypertension by the clinical features, results of somatoscopic, X-ray and magnetic resonance studies: changes of physiologic form of cervical-thoracic spine was diagnosed in 52 (100%) patients, osteoporosis – in 23 (44,2%), osteochondrosis – in 49 (94,2%), spondylarthrosis – in 50 (96,1%), diffuse idiopathic skeletal hyperostosis and spondylosis – in 9 (17,3%). There were also diagnosed traumatic elements which

can cause a constriction injury or an irritation of sympathetic vegetative structures, vertebral artery, spinal venous plexuses and vertebrogenic arterial hypertension or resistance: osteophytes, dislocation of vertebra, deformation of articular and uncovertebral processes, intervertebral foramen height and width reduction, pseudoosteophytes, diskal hernia, cords edema, edema of intervertebral joint capsules.

Vertebrological treatment influences positively on traumatic elements decreasing their negative influence on vascular and intervertebral structures. According to the rheoencephalographic study, the maximum speed (Vmax) of the blood filling ($p<0,05$) increased and the average speed (Vcep.) of the arterial vessel filling ($p<0,01$) increased significantly after the vertebrological treatment. This indicates on the improvement of the microcirculatory processes in brain tissues. According to the received data of the dopplerographic study, most patients had linear blood flow velocity increased after the vertebrological treatment: systolic (Vmax) ($p<0,001$), diastolic (Vmin) ($p>0,05$) and average (Vcep.) ($p<0,001$).

The asymmetry of measurements received from the left and right vertebral arteries decreased. Thus, a disorder of cerebral hemodynamics and microhemodynamics can cause the arterial hypertension and the resistance to its treatment.

Normal cervical-thoracic spine recovery and improved hemodynamics in vertebrobasilar system decreased the average systolic blood pressure / diastolic blood pressure, the time index (TI) of systolic blood pressure / diastolic blood pressure, the magnitude of morning rise (MMR) of systolic blood pressure / diastolic blood pressure, the systolic blood pressure / diastolic blood pressure variability in 24-hour, at day and night, and increased the level of systolic blood pressure / diastolic blood pressure reduction at night. According to the 24-hour arterial blood pressure monitoring, the 24-hour arterial blood pressure profile was transformed to normal one.

Thus, the pathological changes of the cervical-thoracic spine can cause the arterial hypertension resistance to antihypertensive drugs.

Vertebra therapy decreased the number of pharmaceutical drugs taken by the patients, reduced their dosage, removed the resistance to pharmaceutical drugs.

Conclusions

The patients with the main etiological factor of the arterial hypertension resistance can have the pathological changes of the cervical-thoracic spine, which can cause the cerebral hemodynamics disorder.

The vertebra therapy can be one of the perspective methods of the complex treatment of such patients.

Key words: vertebra therapeutic methods, refractory arterial hypertension.

Tokarchuk N.I., Pugach M.M.

THE ASSESSMENT OF RELATION BETWEEN THE LEVEL OF SERUM HYDROXYVITAMIN D (25(OH)D) AND LIPID EXCHANGE INDICATORS IN INFANTS WITH RICKETS RELATED TO OBESITY

Objective: to examine the contents of 25(OH)D and indicators of lipid metabolism in infants with vitamin D - deficient rickets against the background of obesity.

Materials and methods

Conducted clinical-anamnestic examination of 68 infants who had clinical signs of vitamin D-deficient rickets. All of them held determination in serum concentrations of 25(OH)D and indicators of lipid metabolism (total cholesterol (TH), triglycerides (TG), high density lipoproteins (HDL), low density lipoprotein (LDL) lipoproteins of very low density (VLDL) and atherogenic coefficient). Determination of indicators of lipid metabolism carried out by enzymatic colorimetric method (reagents production of High Technology Inc., the USA on apparatus BioChemSA). Atherogenic coefficient (AC) was calculated using the formula: AC = (total cholesterol - HDL) / HDL.

To determine the concentration of 25 (OH) D in the serum used quantitative electrochemiluminescence method using the apparatus Elecsys (Roche Diagnostics,

Germany) test systems cobas. Assessment of vitamin D status in the body of the child was carried out according to the latest classification developed by the Institute of Medicine (IOM).

Statistical analysis of the results accomplished by methods of variation statistics using the program SPSS 17.0.

Results. Discussions

Among the patients studied prevailed boys (56.8%). By age dominated children from 3 to 6 months (61.3%). Average age of children of the main group was 5,1 ± 1,2 months comparison group - 4,8 ± 1,1 months, the control group - 6,4 ± 1,7 months. From anamnesis it was found that a specific antenatal prevention of rickets, which was in use vitamin and mineral complexes during pregnancy (cholecalciferol content - 500 IU), held only 4.4% of cases.

Lower vitamin D status was found in patients with rickets who were obese, compared to children whose physical development was within the age norm ($p<0,05$). A direct correlation between serum hydroxyvitamin D and high-density lipoproteins (HDL) ($r=0,91$, $p<0,001$) in infants was observed. A strong inverse correlation between the blood serum 25(OH)D data and triglycerides (TG) was found ($r=-0,84$, $p<0,001$). Based on data obtained in the study, we can assume the causal link between obesity and vitamin D-deficiency rickets in infants.

In the future, further examination of patients expected to vitamin D-deficient rickets in the background of obesity to analyze the association of markers of bone metabolism with vitamin D sufficiency level and lipid profile.

Key words: infants, vitamin D-deficient rickets, obesity, 25(OH) D, lipids.

Guminskiy Y.I., Andriychuk V.M., Shpakova N.A.

LAWS ANNUAL CHANGES OF SOMATOMETRIC AND SPIROMETRY INDICATORS BOYS (STUDENTS AND SOLDIERS)

The study ***aims*** to establishing patterns of annual changes in somatometric, somatotypological and spirometric indices in practically healthy young men 18-19 years - students and regular military service.

Materials and methods

After preliminary psychogigienic and psychophysiological questioning were selected 180 youths, urban and rural residents, representatives of the Ukrainian ethnic group who had no complaints about the state of health at the time of inspection and chronic diseases in history. The contingent of surveyed consisted of two groups: young recruits (80 people), called to military service, young men of military age students of medical college (100 people). Among the captured contingent by questioning found young men that smoking, and among students defined those who involved in additional physical culture and sport (sporting activities and gyms). A survey of every young man conducted at the same time at the start of the call (autumn) and a year later for both groups of observation.

Determining of anthropometric indexes was performed by the method of Bunak V.V. in modification Shaparenko P.F. To determine the component composition of body weight using the formula of J. Matiegka, for determining somatotype used a mathematical scheme for somatic typing by J.L. Carter, B.H. Heath and to assess the physical development of boys used 11 indexes of harmony. For functional diagnosis of respiratory system used data of spirometry, which was conducted by a portable spirometer USPTS-01. Analysis of anthropometric parameters and spirometric parameters performed using STATISTICA-6.1 (StatSoft) using nonparametric and parametric methods to assess performance.

Results. Discussions

Found the features change in 24 from 43 somatometric options during the year for youths - students and soldiers, representing 55.8%, of which only 6 (25.0%) found to be more in students and 18 (75.0%) - in soldier.

Found he features of the annual changes in 2 of the 3 indexes component composition of body weight in adolescent soldiers and students that amounts 66.6%, including both components: muscle and bone were significantly greater in the

military servicemen (100.0%). Annual change of endomorphic, ectomorphic and mesomorphic somatotype components in groups of adolescent soldiers and students do not have significant difference except significantly greater mesomorphic component in the group of soldiers with the growth of this component.

Found the features of annual change in 3 of 11 indexes of harmony physical development, which is 27.3%; found that indexes of the length of the upper and lower limbs and body length index were significantly higher among students (100.0%).

Determining patterns somatometric dynamics of annual change of parameters, composition body mass and indexes of harmony physical development in boys depending on the initial and final values - identified generally group desire of indicators that have growth or decline to an average value.

Found the features of the dynamics of annual change in 3 of 4 spirometric parameters in soldiers and students that amounts 75.0%, among which all three parameters: vital capacity, forced expiratory volume in 1 sec., Tifno index were significantly higher in the military (100.0%).

Found the quantitative and percentage increase in adolescent mesomorph group of soldiers and a decline in students and a slight increase in ectomorphes students, along with a decrease in ectomorphes soldiers as a result of differences of physical activity and smoking in the studied groups.

Key words: somatometric parameters, spirometric indices, young people.

Romanova V.O., **Mayko O.V.**

I**NDICATORS** OF **VASCULAR ENDOTHELIAL FUNCTION AND THEIR RELATION TO HEMODYNAMIC PARAMETERS IN PATIENTS WITH CORONARY HEART DISEASE**, **HEART FAILURE COMPLICATED**

Purpose of research - assess the impact of dysfunction of vascular endothelial on origin and progression of heart failure in patients with coronary heart disease and explore the relationship between the degree of endothelial dysfunction (EDF) and structural changes in the functional state of the myocardium.

Materials and methods

The study involved 68 patients with coronary heart disease, stable angina pectoris, including 32 patients (47.0%) in functional class (FC) II and 36 patients (53.0%) - with FC III. Age of surveyed ranged from 42 to 70 years (average 56,1±4,8 years). In 43 (63.2%) patients complicated course of the underlying disease chronic heart failure II-III FC on classification NYHA (New York Heart Association), 25 (36.8%) clinical manifestations of heart failure were absent. Among the patients was 40 (58.8%) men and 28 (41.2%) women. The control group consisted of 20 practically healthy persons of similar age and sex who studied parameters defined standards. The diagnosis of coronary artery disease based on the presence of typical angina, endured and documented myocardial infarction antiquity for more than 6 months (46 patients), corresponding changes in the ECG at rest and during holter monitoring, bicycle ergometry results and coronary angiography (47 patients).

Condition of cardiac hemodynamics were studied by echocardiography and Doppler echocardiography using the scanner "SIM 7000 CFM Challenge" (Italy). To study endothelial vasomotor function applied test with reactive hyperemia [Celermajer et al., 1992].

Statistical data processing was performed using the programs Microsoft Excel 7.0 and Statistica for Windows v. 10.0.

Results. Discussions

In patients with stable angina pectoris there is a violation of endothelium-dependent and endothelium-independent vasodilation. Development and progression of chronic heart failure in patients with coronary heart disease associated with impaired vascular endothelial function regulator.

In patients with stable angina, congestive heart failure complicated, observed disturbance as endothelium-dependent and endothelium-independent vasodilation disorders advantage of endothelium-dependent vasodilation, as evidenced by the change coefficient indicator of endothelial dysfunction.

Determination of vascular endothelial function parameters may help clarify prognosis and treatment optimization.

Key words: coronary heart disease, hemodynamic parameters, endothelial dysfunction.

Salii Z.V.

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

Objective: investigate basic brain morphometric indices in patients with the effects of traumatic brain injury.

Materials and methods

In 130 patients with the effects of traumatic brain injury and 35 persons who included in the control group (mean age 38,40 ± 1,11 years), analyzed brain morphometric characteristics by analyzing brain CT on the device Asteion Super 4, Toshiba (Japan).

Made qualitative and quantitative assessment of axial tomograms obtained, defining the following morphometric characteristics: the width of the third and lateral ventricles, dimensions subarachnoid spaces at the level of pole of the frontal lobes, Sylvius cracks and occipital lobe. Index of front horns, index of lateral ventricles bodies, bicaudal-temporal index, bifrontal and bicaudal indices, index Shlatenbrandt-Nuremberg, the number of Hakman, Evan value. Statistical analysis of the results is made using a software package Statsoft Statistica.

Results. Discussions

In patients with mild effects of traumatic brain injury and severe brain injury found significant deviations from basic norm values of morphometric indexes brain. The biggest change experienced bifrontal index, value of Evan and the index of lateral bodies of ventricles, markers of the external option cerebral atrophy.

The highest percentage of patients with signs of cerebral atrophy (external and mixed) were in the age group 51-60 years.

In patients with severe consequences of traumatic brain injury found significant strength correlation between duration of post-traumatic period and bodies index lateral ventricles and bifrontal index, moderate - with bicaudal index.

Patients who have suffered severe traumatic brain injury at the age till 40 years should be attributed to the risk of development and progression of atrophic cortical process.

In future it is planned to investigate the clinical and morphological correlation effects in patients with traumatic brain injuries of varying severity.

Key words: morphometric indices, traumatic brain injury, consequences.

Furman V.G.

HAEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS – CLINICAL SAMPLE IN PEDIATRICS PRACTICE

The ***aim*** of the study was to trace according to the literature data clinical course haemophagocytic lymphohistiocytosis to analyze changes in target organs, and reproduce them on their own observations.

Materials and methods

Here is the actual observation of the patient, who was diagnosed haemophagocytic lymphohistiocytosis. The child A., aged 8 months, entered the hematology department of the Vinnytsia Oblast Children's Hospital. From history we know that a child from the first pregnancy, first-term birth, Apgar score on 8-9 points, birth weight 3050.0 g, height 52 cm., from young parents, family history is not burdened. Vaccination with BCG in the maternity hospital. From 1 month on artificial feeding. Mother during pregnancy TORCH examined at infection markers negative.

Results. Discussions

Haemophagocytic lymphohistiocytosis - rare inherited and acquired diseases in which cell immune response occurs through defective cytotoxic activity of T lymphocytes and natural killers. Its feature is the uncontrolled activation of

macrophages and associated with this unregulated phagocytosis of blood cells and their precursors.

Haemophagocytic lymphohistiocytosis combines two different state-family hereditary (primary) and secondary, are difficult to distinguish from each other.

Clinically haemophagocytic lymphohistiocytosis evident sustained fever, hepatosplenomegaly, cytopenia. Other most frequent diagnostic characteristics include: hypertriglyceridemia, coagulopathy with lower levels of fibrin, hepatic dysfunction with higher levels of ferritin and transaminases, as well as neurological symptoms that may be associated with a high amount of protein and pleocytosis in cerebrospinal fluid. Less commonly observed lymphadenopathy, skin rash.

The presence of severe immune system disorders in haemophagocytic lymphohistiocytosis and unfavorable prognosis dictates the necessity of detailed immunological survey study of bone marrow morphology and biochemical changes, genetic screening of children with suspected on haemophagocytic lymphohistiocytosis.

Key words: Children, haemophagocytic lymphohistiocytosis.

METHODICAL ARTICLES

Tkachuk O.O.

THE STUDY OF POISONOUS PLANTS DURING THE FIELD PRACTICE ON BOTANY

Aim of the work was to study the species diversity of flora Vinnitsa region during training and field practice for students of biological specialties of natural-geographical faculty of Vinnytsia State Pedagogical University named after Mykhailo Kotsiubynsky.

Results. Discussions

Training and field practice is a mandatory part of the program of the educational process, in which students complete the study, reinforce and deepen the knowledge obtained in lectures and laboratory work. One of the components of the educational practice of biological disciplines in Vinnytsia State Pedagogical University named after Mykhailo Kotsiubynsky is a section "Botany. Systematics of plants".

During the of practical training, students must achieve the following objectives: 1) learn to distinguish the nature of the main representatives of higher plants in the area of practical training; 2) to master the methods of fixation and botanical herbarium of material; 3) independently find the main habitats of plant species and to observe in nature; 4) acquainted with rare and endangered, poisonous, medicinal, fodder, food plant species of Vinnitsa region.

When conducting field practice for students of biological specialties under the educational program are conducted acquaintance with the different types of plant groups, while drawing attention to the useful properties of certain types and poisonous plants. Much attention is paid to rare and endangered species.

After the practical training, students in writing reports conclude that the most poisonous plants in the Vinnytsia region among angiosperms. Far fewer of them among gymnosperms, pteridophytes, mosses, algae and lichens. Among flowering plants poisonous higher than among monocots. There are families in which most

species are poisonous, buttercups (Ranunculaceae), nightshade (Solanaceae), euphorbiaceae (Euphorbiaceae) others. In the aster family (Asteraceae) and cactus (Cactaceae) very few poisonous plants, and labiatae (Labiatae) are not not.

Based on practical training on botany envisages the creation of practical recommendations, which will be disclosed value of poisonous plants and their use.

Key words: educational and field practice, plant communities, poisonous plants, toxic substances.

REVIEW ARTICLES

Gadzhula N.G.

INDIVIDUAL APPROACH TO ODONTOPATHOLOGY PREVENTION IN PREGNANT WOMEN WITH THE DIFFERENT LEVELS OF CARIES RESISTANCE

High level of occurrence and intensity of dental caries in women during pregnancy proves the need of individual approach to using of medicines and methods for dental caries prevention. For this purpose various medicines with local and systemic action are used. Mechanism of their action is based on reducing of dental plaque formation, decreasing of the activity of oral microflora, improving of the physiological mineralization of enamel and increasing of the resistance of hard tooth tissues.

Purpose: to explain of using of the methods and medicinal drugs of individual prevention of the major dental diseases in pregnant women with different levels of resistance and susceptibility to dental caries.

Results. Conclusion

Regular examination of an oral cavity, treatment of caries and its complications and performing of professional hygiene of the oral cavity in women with average caries resistance should be carried out one time in trimester, with low caries resistance – every two months.

Individual prevention of major dental diseases includes using of the simultaneous complex of free-medicinal prevention (strengthening of somatic health, rational and balanced nutrition with additional introduction in ration of seaweed, individual oral hygiene and its control) and medicinal prevention (intake of calcium-containing drug Biocalcevite and polyvitamin drug Pregnavit).

Pregnant women with low caries resistance necessary to carry out additionally local therapy with remineralizing gel usage R.O.C.S.® Medical Minerals, for the prevention of inflammatory oral cavity diseases – to appoint antibacterial drug Lisobact and mouthwash Sandrine).

Purposeful influence to the mineral homeostasis with calcium drugs usage based on natural components of macro- and microelements, improving of the physiological enamel mineralization and increasing of the resistance of hard tooth tissues during local remotherapy is important, expedient and necessary measure of prevention of the dental diseases in this group of population.

Key words: dental caries, prophylaxis, pregnant women, caries resistance.

Kozlovskyi Yu.K.

FUNDAMENTALS OF HEMORHEOLOGY

Study of the blood flow during the 20th century has created a new part of the medical science – Hemorheology dealing with patterns of blood functioning as a circulatory tissue under physiological and pathological conditions. The blood transport dysfunction in case of various diseases is important for development of critical conditions. The ***objective*** of the work was to study the literature data concerning blood viscosity and factors influencing thereon at different levels of the bloodstream.

Blood is a complex mixture of interacting cells, proteins, electrolytes in the water environment with a variable peculiar structure changing in motion. The blood flow velocity in the body depends on the emptying capacity of heart, bloodstream resistance, interaction between blood components – hemorheology. This dictates different pathogenetic mechanisms for research of blood flow disorders and methods of their treatment in case of many diseases and syndromes.

The method of the blood viscosity measurement is the most common in haemorheologic researches. According to modern views based on studies in viscometers, on isolated organs and in the body the blood viscosity and RBC aggregation is a dynamic value – different in segments of large arteries, medium-diameter vessels and capillaries. That's why methods enabling the study of the blood viscosity indices in different segments of the bloodstream at different shear stresses and rates are the most informative.

Except the viscosity index the current blood properties are determined by rheological properties of its certain components – plasma and cell blood elements. Among the microrheological parameters the hematocrit, RBC deformation, plasma viscosity, RBC aggregation activity, RBC surface electric charge are most commonly measured. The blood flow efficacy at the microcirculation level is influenced by RBC interaction also depending on the ratio of plasma proteins and circulating peptides in the blood serum.

Conclusions

1. Critically-ill patients often have abnormal blood rheological properties in different segments of the bloodstream.

2. To measure the blood viscosity at low shear rates it is important to use low-gradient rotary viscometer.

3. To determine the role of the cell factor in the microcirculation disorder genesis it is necessary to measure the zeta-potential and deformability of red blood cells.

4. Despite multiple factors and high laboriousness of rheological properties in critically-ill patients the abnormalities of blood rheological properties should be revealed and corrected.

Key words: hemorheology, viscosity, red blood cells (RBC).

Pylyponova V.V., Lyah Yu.M.

CURRENT CONCEPTS OF MECHANISM OF EPIGENOMIC CARCINOGENESIS

Oncological diseases constitute the second most important cause of mortality. According to WHO, in the world more than 57.2 million patients with cancer. The most relevant epigenetic hypothesis that the activity of genes regulated by external influence, now is confirmed in many experiments [Shykeyeva et al., 2013]. Analyzing the results of these studies it becomes apparent that a living organism is not entirely dependent on the genome. Research of epigenetic gene regulation allows

more broadly influence on mechanisms of their management. Opening the mechanisms of oncogene activation and inhibition suppressor genes of tumor growth, greatly expanding range of diagnosis and treatment of cancer.

The term "epigenetics" (Greek. « επί » - over, above, external) was proposed Karl Hann Waddington in 1947. Currently it is seen as the science about hereditary properties of organisms that are not associated with changes in the nucleotide sequence of DNA, and which do not directly but indirectly encoded in the genome.

Molecular mechanisms of ontogenesis are the same for transformation, promotion and progression. They are divided into mutational that alter the structure of the genome, and epigenetic that alter gene activity without changing their structure. Epigenetic mechanisms include the impact of viral oncogenes and their oncoproteins, hormones, phenols, bile acids, immunosuppressants, and more. These mechanisms may contribute to the activation of the division already malignant cells.

Most clearly demonstrated epigenetic etiology for malignant tumors, but it should be noted that the occurrence of malignant tumors resulting by genetic and epigenetic changes in cells and altered cells interaction with the surrounding stromal components (host microenvironment). Many substances have properties of epigenetic carcinogens: they lead to increased frequency of occurrence of tumors thus not showing mutagenic effects (eg diethylstilbestrol arsenite, hexachlorobenzene, nickel compounds). Peculiarity of epigenetic processes that occur in cancer cells, is that along with global DNA dymethylation (often associated with chromosomal instability) in them at the same time occurs hypermethylation of certain promoter of genes suppressor tumor growth. Scientists have concluded that violations of DNA methylation – is a right way to development oncopathologies and information about character of methylation of genes used as an early diagnostic sign of tumor development. This is confirmed by research of L. Puar'ye from the National toxicological center of the USA. In their experiments, he excluded from the diet the amino acid methionine (source of methyl groups) and found that in all experimental rats after two weeks irreversibly developed liver cancer. But the process of tumor

develops in the liver and in the case where the activated gene of transgenic mice of human DNA – methylase that leads to super methylation of genome.

Thus, epigenetics, at the present stage of its development, is a fundamental discipline in the study of the causes of cancer. Its rapid development in recent decades has led not only to a better understanding of the etiology and pathogenesis of cancer, but also the appearance of new non-invasive diagnostic methods, creation of fundamentally new therapies. And nevertheless not all the secrets of epigenetics and its interaction with genetics actually disclosed.

Key words: epigenetics, carcinogenesis, methylation, histone post-translational modification, chromatin remodeling.

Zakalata T.R.

CLINICAL AND LABORATORY RATIONALE OF MODERN METHODS OF TREATMENT AND TRANSVERSAL DENTITION ABNORMALITIES IN PEOPLE OF DIFFERENT AGE GROUPS (lITERATURE REVIEW)

In the treatment of transversal bite anomalies great importance has the knowledge and understanding of the etiology and pathogenesis of this disease. According to domestic and foreign authors etiological factors that contribute to the development of transversal bite anomalies are divided into endogenous and exogenous. Endogenous factors include mainly endocrine pathology and genetic predetermination. Exogenous factors in turn are divided into prenatal and postnatal. Among the prenatal factors have the greatest influence unfavorable ecological environment that is deficient in fluoride in drinking water, high radiation background.

Analysis of the literature showed that many experts reasonably indicate that abnormalities of teeth and jaws at narrowing of the upper jaw treatment of this disease require different methods. This dictates the necessity of defining features of diagnostic clinics and treatment of patients with narrowing of the upper jaw.

Prevalence this pathology among the population over foreign and domestic sources was observed in 76,6%.The leading symptom of which is the discrepancy

closing dentition in a horizontal plane. These disorders lead to incorrect occlusion contacts, changing the concentration of pressure on the bone at a young age and lead to violation of dental arch from and configuration of the face as a whole. The above functional and morphological violations indicate the need for a thorough study on the etiology and pathogenesis. Despite the positive results of maxillary expansion in the application of various devices marked undesirable side effect caused by using too much of orthodontic forces So a number of these issues requires further scrutiny.

Key words: narrowing of the upper jaw, mid-palatal suture, device with the screw.

Tkachenko T.V., Mostovoy Y.M.

ANTIBIOTIC-ASSOCIATED DIARRHEA: CLINICAL FEATURES, DIAGNOSIS, TREATMENT

The term antibiotic-associated diarrhea (AAD) is referred to the diarrhea developing on the background of antibiotic therapy several days after its administration up to four weeks after its withdrawal (when other causes of diarrhea syndrome development are excluded). The aim of this review is to present the recent data concerning the diagnosis and treatment of AAD to general practitioners, surgeons, gynecologists and experts in resuscitation.

The incidence of AAD development is 5-35 per cent depending on the class of antibiotics used. AAD develops mainly in oral intake of antibiotics but it occurs in parenteral and even in transvaginal administration as well. The risk factors for AAD development are: unwarranted use of antibacterial preparations and noncompliance of drug therapy; the use of antibiotics in high doses; the age of patients under 6 and over 65 years; the presence of associated pathology; hospitalization and long-term in-patient treatment; operative interventions and invasive procedures. From the practical point of view it is necessary to differentiate idiopathic antibiotic-associated diarrhea and *C. Difficile*-caused diarrhea. Idiopathic AAD develops as a result of the direct effect of the antibiotic and most often is not associated with any infective agent.

Treatment of this type of diarrhea implies either the withdrawal of antibacterial preparation or decrease of its dose and the use of symptomatic therapy if necessary. Diarrhea associated with *C. Difficile* is characterized by the development of antibiotic-associated colitis which clinically varies from transient diarrhea to severe pseudomembraneous colitis. In suspected *C. Difficile*- caused diarrhea stool of the patient is investigated for *C. Difficile* toxins by means of immune-enzyme analysis and cytotoxic test using specific antiserums in neutralization reaction. The gold standard in this case is cytotoxic test for toxin B detection.

Modern treatment of *C. Difficile*-associated diarrhea/colitis depends on the severity of the disease and the number of recurrences, but management of patients with frequent recurrences remains undetermined. In severe *C. Difficile*-associated diarrhea/colitis empirical administration of antimicrobial preparations is warranted. Metronidasole is the first-line drug for treatment of mild and moderate infection. Vancomicine is the preparation of choice in case of ineffectiveness of metronidasole or its intolerance, in pregnant women and nursing mothers as well as in severe course of the disease. Arrangement of general measures to fight the infection and the efficient use of antimicrobial agents is the best prophylaxis.

Key words: antibiotic-associated diarrhea, *Clostridium difficile*, diagnostics, treatment.

Iliuk I.A.

PULMONARY INSUFFICIENCY – MODERN APPROACH TO THE ISSUE

The article gives current data concerning the main causes, pathogenetic mechanisms of occurrence and progression of pulmonary insufficiency. The modern classification of pulmonary insufficiency (Order of the Ministry of Public Health of Ukraine No. 555, 2013) and types of pulmonary insufficiency depending on the mechanisms of pulmonary ventilation impairment are provided. Clinical signs of acute pulmonary insufficiency and acute respiratory distress-syndrome (ARDS) are clearly indicated. Clinical manifestations of chronic pulmonary insufficiency are

described. The importance of spirography in diagnosing chronic pulmonary insufficiency as well as the main principles of its current treatment, prevention and rehabilitation are pointed out.

Special attention is given to Berlin criteria of ARDS contributing to the increase of informativity and validity of the criteria for diagnosing the acute diffuse lung injury. The examination algorithm and main approaches to the treatment of a patient with acute pulmonary insufficiency are presented.

It is shown that pulmonary insufficiency rather often (4-65%) accompanies a lot of diseases among which diseases of the bronchopulmonary system prevail. Taking into account high frequency, complexity of the occurrence mechanisms, disability and mortality from pulmonary insufficiency the study of the fundamentals of its diagnostics, treatment and prevention is an urgent task both for pulmonologists and other specialists.

Key words: pulmonary insufficiency, acute pulmonary insufficiency, acute respiratory distress-syndrome, chronic pulmonary insufficiency.

Lutsyuk M.B., Artemchuk M.A., Tertishna O.V., Kachula S.O, Balicka O.P.

FOOD AND SYNDROME HYPERHOMOCYSTEINEMIA

Recent years, the interest increased in homocysteine (GC) as a factor in the pathogenesis of many diseases (accelerated development of cardiovascular disease, thrombophilia, defects of the neural tube, etc.). GC level in plasma is largely dependent on the amount of methionine in food, so the authors set out to conduct a review of scientific papers on the impact of nutrition on the development of the syndrome hyperhomocysteinemia (GHz). Syndrome GHz means elevated levels in plasma amino GC and complications specific to this condition.

Contents

Despite the different causes of the appearance of GHz, more or less hypohomocystinemic effect was observed in the absence of bad habits in a person and the using of high doses of vitamins (especially B6, B9, B12), essential fatty

acids, minerals, drugs with proven hypohomocystinemic action (eg, betaine, choline , female sex hormones), careful using of drugs with hiperhomotsysteyinemichnoyu action etc. GC level in plasma depends on the number of methionine in foods because this amino acid - the only source of EH in the body. So the diets containing large amounts of animal protein, which are rich in the amino acid methionine, increase the GC levels. By the nutrients that are involved in the metabolism of GC-GC as part metabolizuyuchyh enzymes are vitamins B2, B6, B9, B12, and the minerals zinc and iron. A certain level of ability to reduce or prevent the complication Hz characteristic GHz are also substances containing moving methyl groups (such as choline and betaine) vitamins A, C, polyunsaturated fatty acids, antioxidants, some minerals and food supplements.

According to our data, casein-starch diet enriched with vitamins B6, B9, B12 and minerals (zinc, chromium and vanadium) on experimental models GHz demonstrates as a therapeutic and prophylactic effects. Scientists also studied the possibility of primary prevention of cardiovascular disease (CVD) in people with the diet that included foods with higher or lower contents of vitamins B6, B9 and B12. They concluded that consumption of foods rich in folic acid and vitamin B6 is strong prophylactic and can reduce the risk of cardiovascular disease, particularly heart attacks in men and mechanism of action of these vitamins is associated with their ability hypohomocystinemic.

In the nonfiction, there is evidence of the significance of nutrients, such as vitamins B6, B9, B12 and ω-3 polyunsaturated fatty acids (PUFAs) for secondary prevention of cardiovascular disease, these studies were conducted on the residents of France, who had a history of myocardial infarction, unstable angina or ischemic stroke. It was found that vitamins and ω-3 fatty acids significantly reduce plasma total GC content. Despite of these positive developments it was not found any effect of vitamins and ω-3 fatty acids on the number of cardiac events in men and women. However, it should be noted the particular way of life of residents of France. Thus, according to the WHO, the people in France are in the best seven countries of healthy lifestyle. They also consume higher amounts of fruits, vegetables, nuts, legumes,

olive (only the first extraction) and canola oil, and fish, whole grains, pasta, fish and small amounts of meat (so-called "Mediterranean diet") . Such diet is characterized by a high content of antioxidants, vitamins (PUFA), and the inhabitants have reduced rates of CVD, blood cholesterol, GC, fibrinogen, C-reactive protein and so on. We believe that with healthy lifestyle, diet and GC normal levels in the blood to enrich the diet of people studied vitamin B6, B9, B12, and ω-3 PUFAs could not give the expected preventive effect on the risk of heart disease.

It is known from scientific sources that research of GC level of vitamin B12 was conducted in vegetarian and omnivorous people. We made the following general conclusions: first, there is an inverse relationship with all people regardless of food between the levels of GC in plasma and the concentration of serum vitamin B12, secondly - most vegetarians have increased overall plasma GC compared to omnivorous. However, there is evidence of the inferiority food vegans, leading to a pronounced deficiency of vitamin B12 and other nutrients and the majority of people of moderate GHz. Attention is drawn to the fact that even moderate GHz in vegans reduced CVD cases probably due to reduction of high blood pressure, obesity, diabetes and more. One might think that a group of factors that inhibit the development of CVD and vegans in GHz (i.e., reduction in blood pressure and onset diabetes, obesity, deficiency of methionine, etc.) prevails over the factors that have opposite effects (lack of vitamins B12, B2, A, ω -3 PUFA). It should be noted that only the high GHz can be attributed to the leading risk factors for CVD, while in vegans and especially mladovegetarians available only minor GHz. However, it is possible that a small but long GHz can affect negatively other biological processes vegetarians and cause abnormalities that against the background of a longer life may reduce the quality of life. Neuro- and Developmental GHz, communication with osteoporosis, bone fractures, lesions of the structures of the eye and other changes marked in several clinical and experimental works - signs that are often seen in vegetarians.

Conclusions

According to the majority opinion of scholars problem GHz is of some importance for medicine and food quality significantly affects the level of GC in plasma exchange and its pathogenic effect. We consider it appropriate to conduct focused research on the establishment of preventive diets (e.g., patients with cardiovascular disease, diabetes, hypertension, etc.), taking into account their impact on exchange GC.

Key words: homocysteine, hyperhomocysteinemia prevention, nutrition and hyperhomocysteinemia.

Kakarkin O.Ya., Kovalchuk B.A., Biktimirov O.V.

PROBLEMS AND PROSPECTS FOR IMPROVEMENT OF THE QUALITY OF LIFE AND REHABILITATION OF THE PATIENTS WITH COLORECTAL CANCER

Colorectal cancer (CRC) belongs to the most common tumor diseases of the abdominal cavity organs and ranks fourth in the general structure of the cancer morbidity.

Surgical treatment of colon cancer often leads to prolonged disablement and sometimes to the patient's permanent disability. That's why, except provision of radicalism in treatment of oncologic patients at present more importance is attached to the possibility of improvement of their life quality. The problem of rehabilitation of the patients with colorectal cancer in the world, as well as in Ukraine, remains one of the most urgent in the modern oncology.

The ***objective*** of this work was to analyze the experience of the domestic and foreign oncologists in rehabilitation of the patients with CRC and to develop a set of recommendations for doctors and patients.

Rehabilitation of the patients with CRC depends on a number of factors, such as: the age of the patients, disease stage, type of surgical intervention, cancer complications, presence or absence of a colostomy, methods of combined treatment, individual peculiarities of patients and other causes.

The complex program of rehabilitation measures for the patients with CRC implies qualitative preoperative preparation, performance of surgical, medicamentous, psychological and socially-labour rehabilitation, procedure of readaptation in the society and health resort treatment. Having analyzed the experience of the domestic and foreign oncologists we developed a rehabilitation program.

Conclusions and prospects for further developments

The rehabilitation program aimed at recovery of functions of the gastrointestinal tract and general state of the patients that underwent surgical treatment of CRC includes the following provisions:

1. Detailed examination of patients using physical, laboratory, rontgenologic, endoscopic methods, spiral computed tomography, magnetic resonance imaging, radioisotopic, ultrasound methods and others.

2. An explanatory talk of the doctor from the Admission Department and operating surgeon with the patient.

3. Operative intervention with restoration of the intestinal integrity and natural patency and maximum observance of the rules of ablastics and asepsis.

4. Correction of the revealed metabolic disorders and changes of the intestinal flora.

5. Use of a special diet and dietary pattern.

6. Daily care of the stoma and perineum.

7. Irrigation of the large intestine.

8. Use of the specially developed complex of physiotherapy exercises aimed at recovery of the functionality of muscles of the rectum closing apparatus.

9. Work with a medical psychologist according to the specially developed program.

The period after the discharge from hospital.

1. Detection of complications occurred during different periods after the discharge from hospital (strictures, intestine prolapse, hernia).

2. Surgical removal of strictures, colostomy reconstruction or closure, removal of paracolostomal hernias, intestine prolapse, etc.

3. Restoration operations (restoration of the gastrointestinal tract continuity after Hartmann's operation and abdominoanal resection of the rectum with a colostomy).

4. Continuation of the complex of physiotherapy exercises.

The use of the developed program of rehabilitation measures for the patients with CRC contributes to essential improvement of the treatment functional results and quality of the patient's life that requires further studies. The studies in this sphere are prospective for the modern oncology.

Key words: colorectal cancer, domestic and foreign oncologists in rehabilitation, recommendations for doctors and patients.

Kyrychenko L.M.

INFLUENCE OF HUMORAL AND CELLULAR IMMUNE DEFENSE FACTORS ON THE DEVELOPMENT OF THE PLACENTA DURING GESTOZE

The article analyzes the role of immune protection factors on the formation of the placenta in pathological pregnancy.

When gestosis infringement placental tissue formation is accompanied by increased synthesis of endogenous factors and decreased expression proangiogenic factors, something leads to disruption of physiological processes of angiogenesis.

In addition, during pregnancy in the third trimester placental tissue observed increased secretion of proinflammatory cytokines (IL-6, IL-8) at the level of secretion preserved anti-inflammatory cytokines (IL-4, IL-10), indicating the likelihood of inflammation.

In the third trimester when implemented gestosis molecular mechanisms of vital functions of cells of the placenta and protect them from the effects of cytotoxic lymphocytes mother. These mechanisms include: increased production proangiogenic

factors (angiogenin, PDGF), and the expression of TGFβ receptor TRAIL, increased secretion of soluble forms of surface receptor (sFas, sFasL), downregulation of receptors (Fas, FasL, TGFβ-R1, CD105).

Local immunological disorders in the tissue of the placenta during gestosis accompanied by increasing content in peripheral blood of activated lymphocytes (CD3 + \ HLA-DR +), cytotoxic lymphocytes (CD3 + CD8 +, NK-cells, NKT-cells) with a simultaneous drop contents of subpopulation of helper cells (CD3 + CD4 +) which shows the development of cytotoxic cellular immune response.

When toxicosis pregnant peripheral blood monocytes have capacity for enhanced adhesion to intact and activated endothelium, indicating increased functional activity of peripheral blood mononuclear cells.

Serum of peripheral blood of pregnant women with gestosis contains factors that increase the intensity of lipid absorption by endothelial cells and peripheral blood monocytes and contribute to systemic dysfunction of the endothelial cells of blood vessels.

For infringement of gestosis is characterized mechanisms of mutual control function of immune system cells and cells of the placenta, impaired interaction of factors that regulate angiogenesis and apoptosis phenomena that take part in the formation of the placenta.

Determining of early prognostic signs of gestosis will further reduce the risk of complications from the side of the mother and fetus.

Key words: placenta, immunological mechanisms, humoral and cellular factors, preeclampsia.

Oniskova O.V.

PROVISION OF VITAMIN D AND RISK OF DEVELOPMENT DISFUNCTION OF CARDIOVASCULAR SYSTEM

Despite the fact that the most common consequences of vitamin D deficiency is the impact on the musculoskeletal system, should be considered and that 1,25-OH-D

acts as a steroid hormone. The molecular mechanism of action of 1,25-OH-D similar to other steroid hormones and is in interaction with specific receptors in tissues, called vitamin D-receptor (VDR). These receptors are well represented in the body and investigated in 35 organs and tissues of the human body.

Recent evidence shows that people with vitamin D deficiency often have cardiovascular disease (CVD). Cross-studies indicate that vitamin D deficiency is associated with risk of CVD, including high blood pressure, sudden cardiac arrest and coronary artery disease. Initial prospective studies have also shown that vitamin D deficiency increases the risk of developing hypertension or sudden coronary death in people with existing cardiovascular disease. Very few prospective clinical study was conducted to investigate the effect of vitamin D supplements on the effects of cardiovascular disease. The mechanism of the protective effect of vitamin D GCC is not fully understood. The models include the effects on the renin-angiotensin system, glycemic control, inflammatory cytokines, direct effect on blood vessels, regulation of PTH and calcium delay in vascular smooth muscle. Indirect effect of vitamin D3 on the function of the cardiovascular system may be associated with the regulation of lipid metabolism cholecalciferol.

Until recently, only a few studies concerning the prevalence of the problem of vitamin D deficiency in pediatric populations, but less discusses pathogenetic connection of low levels of vitamin D with risk of CVD. According to two studies by NHANES 2001-2004 years, found that young people in the risk of complications of cardiovascular disease such as heart attack and stroke associated with deficiency of vitamin D. It conducted an independent study (NHANES 2001 and 2006) connection of 25-OH-D serum PTH and calcium to the formation of CVD risk factors in adolescents (12-19 years).

Assessing vitamin D3 should be no indirect way to determine the content of phosphorus, calcium and alkaline phosphatase levels, and by direct determination of metabolites of vitamin D3. The most reliable method of assessing exogenous supply of vitamin D3 is determination in blood 25-OH-D.

Typically, cardiovascular disease often occurs during or after the fifth decade of life, but there are predictors of a child. Long-term studies show that the levels of risk factors in childhood predict the occurrence of cardiovascular disease in adulthood. Significant relationship between vitamin D and CVD risk factors in pediatric populations suggests that significant potential saturation of vitamin D reduces the risk of cardiovascular disease in childhood and adolescence and reduces the risk of cardiovascular disease in adulthood. Unlike adults, little is known about the connection between vitamin D and risk factors for cardiovascular disease in children.

Key words: Vitamin D, cardiovascular system.

Ocheretna O.L.

BASIC ASPECTS OF TEACHING OF NORMAL PHYSIOLOGY FOR STUDENTS OF VINNYTSYA NATIONAL MEDICAUNIVERSITY THE NAME OF M. I. PIROGOV

Summary. One of major tasks of higher school there is an improvement methodology of teaching fundamental disciplines, increase student's knowledge level and professional preparation of teachers.

With introduction of the credit-module system in higher medical education in course of time there is an adaptation the national and European newest credit-module technologies of studies.

In the articles presented the students of medical university have basic theoretical and practical aspects of teaching normal physiology in according to the modern requirements of higher school.

Key words: Normal physiology, methodological approaches, fundamental science, clinical thinking, process of vital functions, organism.

Palamarchuk V.B., Plakida A.O., Datsenko G.V.

BREAST CANCER, ETIOLOGICAL FACTORS, CLINICAL FEATURES, DIAGNOSTIC METHODS, TREATMENT AND PREVENTION

The ***purpose*** of the study - on the basis of published data to identify the main etiological factors, modern methods of diagnosis and prevention of breast cancer.

Risk factors in the incidence of breast cancer: age over 40 years; high levels of estrogen in the blood; the presence of relatives of the 1st line, patients with breast cancer; hormonal drugs for contraception or the regulation of the menstrual cycle, hormone replacement therapy in menopause; first pregnancy over the age of 30 years; previously ported ovarian cancer or breast cancer; contact with sources of radiation; changes in the breast that the doctor treated as the emergence of atypical epithelial hyperplasia.

Diagnosis of breast cancer. Modern diagnostic methods used worldwide, is the key to successful treatment. As a result of complex diagnosis becomes clear how much widespread a process. Then he can choose the optimal treatment strategy for each patient. Diagnostic methods can be divided into 3 groups: Methods of imaging breast cancer: X-ray (mammography); ultrasound; magnetic imaging method. Mammography is the most informative diagnostic method.

Diagnostic biopsy. For the production an accurate diagnosis is necessary to biopsy. Biopsy - minimally invasive method - lets you take a suspicious area of tissue for histological examination before treatment. Histopathological study determines the type of tumor and immunohistochemical tests can determine hormone dependence of the tumors (ie the presence of estrogen and progesterone receptors). Hormonal status affects the prognosis and treatment options. You must use all necessary types of biopsies. Diagnostic procedures performed with anesthesia in an outpatient setting, no special training prior to such manipulations is not required.

Treatment of breast cancer. In the last decade the global oncology made significant progress in the treatment of breast cancer. The basis for successful treatment is a comprehensive approach - an optimal combination of surgery, chemotherapy and radiotherapy stages.

Prevention of breast cancer is primarily in the timely treatment of patients in detecting seals in the mammary glands, and in compliance with normal physiological rhythm of life of women (pregnancy, breast feeding) the reduction to a minimum the number of abortions.

The prognosis for breast cancer depends on the stage of the process, its flow rate and the age of patients. In advanced stages of the life expectancy is 2-3 years. The diagnosis of breast cancer provides successful treatment of most patients. Five-year survival in the treatment of localized forms of stage I-II is 90%, with localized forms of cancer - 60%, much worse treatment outcomes in the presence of distant metastases.

Key words: cancer, breast cancer, lymph nodes, methods, screening programs, preventive measures.

Bobyr V.V., Ponyatovsky V.A., Djugikowa E.M., Shyrobokov V.P.

MODELING OF DYSBIOTIC DISORDERS WITH LABORATORY ANIMALS

Prior to pressing problems of clinical medicine and medical microbiology include diagnosis and correction of dysbiosis of gastrointestinal tract. Dysbiosis rights are one of the most common pathological conditions among the population of Ukraine. The problem of violations of the intestinal microflora has acquired special significance due to the growth of chronic diseases of the digestive system, and the widespread use of antibiotics.

To study the nature of the change, the composition and properties of intestinal microflora and to substantiate rational approaches correction microecological disorders requires the development of adequate model of dysbiotic violations. This is especially important given that obtained in experiments on laboratory animals results can be further extrapolated to humans both in terms of prevention and treatment dysbiotic states. Today in the scientific literature, there is very little information on the possibility of playing an effective and adequate intestinal dysbiosis in laboratory

animals, although the number of researchers in carrying out experiments on laboratory animals observed in their manifestations of intestinal dysbiosis.

Analysis of the literature shows the existence of different approaches to modeling dysbiosis in laboratory animals. However, there are some factors that can distort the results of such experiments. Due to rapid development of the theory of normal microflora, use of new probiotic microorganisms and testing established on their basis probiotics shortly the urgent task of modern microbiology should be standardization of methodology for the formation of dysbiosis in laboratory animals.

Key words: modeling, dysbiosis, antibiotics, laboratory animals.

Holodkova O.L., Badyin I.Yu., TsyurupaO.V.

PERSPECTIVES OF CELL TECHNOLOGIES IN EXPERIMENTAL DEGENERATIVE DISC DISEASE

In the last two decades, scientists around the world are actively exploring the regenerative potential of stem cells and the possibility of using stem cell therapy in various fields of medicine. In 1999, Science recognized the discovery of embryonic stem cells the third most important event in biology after decoding the DNA double helix and the program "Human Genome". In the media there were allegations of a possible cure a wide range of diseases and "rejuvenation" of the body. A number of publications confirming the positive effect of stem cells in the treatment of various diseases of the cardiovascular system, radiation injury, diabetes, trauma and orthopedics in practice. Cell therapy has turn the idea of the possibilities of modern medicine, particularly in the treatment of incurable and chronic diseases, such as such as osteochondrosis.

Prevalence of osteochondrosis (from foreign sources - " dorsopathies") in developed countries, according to WHO is the nature of the pandemic. About 84% of people at least once in their lives experienced back pain in 90% of cases caused by degenerative changes in the spine varying degrees of severity. In Ukraine, about a million people annually seek help because of spinal osteochondrosis, more than

16,000 of them becomes disabled. The incidence of the disease increases with age, reaching 97% in 40-50 years and 100% in persons older than 60 years. Standardized treatment of osteoarthritis is not effective. They do not restore anatomical and functional integrity of intervertebral discs (IVD), leaving the question of finding new treatments open.

The ***aim*** of study was to clarify the question of the efficacy of stem cell therapy in experimental osteochondrosis.

The review of the developed strategies of the experimental treatment of degenerative disc disease with the use of mesenchymal stem cells, as well as different ways of their introduction into the damaged tissue, is represented. Although, there is a data about the applying of different methods of injection of mesenchymal stem cells, the question about the most effective one remains unexplored. A popular up-to-date kind of cell therapy platelet-rich plasma (PRP) is also mentioned. The examples of effective therapy of experimental osteoarthritis using PRP injection form and the form of hydrogel microchips are shown. Related to the decreased activity of mesenchymal stem cells and their number in the patient's body with age of sickness issues are mentioned. The use of cell therapy in the treatment of degenerative disc disease is a promising method, but it requires the solution of a number of important issues related to the transplantation of mesenchymal stem cells before being introduced into clinic.

Key words: cell therapy, osteochondrosis, mesenchymal stem cells, platelet-rich plasma.

SOCIAL ARTICLES

Shevchuk V.I., Zabur'yanova V.Yu., Vernygorodska M.V., Vernygorodskyi S.V.

MEDICAL AND SOCIAL CHARACTERISTICS OF PRIMARY DISABILITY DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND ASTHMA IN PEOPLE OF WORKING AGE

The purpose - to examine the level, structure and dynamics of primary disability due to chronic obstructive pulmonary disease (COPD) and asthma (BA) and the reasons and characteristics form a contingent of disabled people of working age with this pathology.

Materials and methods

The study of the state of primary disability in COPD and BA in Vinnytsia, Zhytomyr and Khmelnytsky regions in 2007, 2009 and 2011 Analyzed medical and expert documentation of 416 disabled (COPD - 178 people. BA - 238 people) Vinnytsia region, 853 disabled people (COPD - 467 people. BA - 386 people) Zhytomyr oblast and 809 disabled (COPD - 399 people. BA - 410 people) Khmelnitsky region. Total primary was 2078 disabled people. (COPD - 1044 people. BA - 1034 people). Methods: socio-hygienic, statistical, analytical.

Results and discussion

Average level of primary disability due to COPD and asthma in people of working age are respectively 0.91 and 0.89 per 10,000 working age population. Indices of primary disability due to COPD range from 0.37 to 1.30 cases in different regions; because of asthma - from 0.50 to 1.09. These significant differences suggest poor pulmonary system state aid patients in regions with high levels of disability and the absence of integrated assessment of the degree of disability and social failure of individuals.

A significant reduction in levels of primary disability due to asthma found in the dynamics in contingent of the working population of Vinnitsa region may be due to more effective control of asthma, asthma, timely diagnosis and treatment of patients with increased efficiency.

The structure of primary disability due to COPD among people of working age with disabilities I by groups of make up 0,9%, II group - 14,0%, III group - 85.1%; because of asthma - respectively 0.5%, 15.3% and 84.2%, that is about the same severity of disability, contrary to this scientific literature.

The structure differs by gender. The structure of primary disability due to COPD revealed the superiority of men (67.7% vs. 32.3%), due to BA - women (53.5% vs. 46.5%). However, significant differences observed structure of disability by gender in different areas, especially in COPD, where the proportion of men ranged from 55.5% to 83.7%.

Established a fairly large proportion of disabled young age (average 45.4% in COPD and 62.6% in asthma) and its significant variations within the limits of different areas: from 15.2% to 57.1% of the primary disability due to COPD and from 56.3% to 73.6% of the primary disability due to asthma.

One of the main causes of disability due to COPD and asthma in people of working age - is a common disease that is on average 85.5% of all cases in COPD and asthma in 75.6%; childhood disability takes place 2: respectively 3.9% and 17.5%. A small percentage makes up Chernobyl invalids and disabled army, the Interior Ministry, Security Service and others. Virtually no impact on disability occupational diseases.

Revealed extremely low rates rehabilitation of disabled people of working age with COPD and asthma. Average rate of full rehabilitation equal to 6.8%, ranging from 0.9% to 7.0% in different areas of disability due in COPD cohort and 2.4% (from 0.3% to 3.7%) - in contingent disabled due to asthma. The average index of the partial rehabilitation of the disabled as a result of COPD and asthma was respectively 4.5% and 11.6%.

Key words: disablement, rehabilitation, chronic obstructive diseases of the lungs.

Savoljuk S.I.

PRINCIPLES OF EFFECTIVE PERIOPERATIVE SUPPORT SURGERY FOR NONCANCER OBSTRUCTIVE JAUNDICE AND ITS COMPLICATIONS

Objective - estimate the efficacy of perioperative optimized maintenance landmark and radical surgery in patients with non-cancer obstructive jaundice (NCOJ).

Materials and methods

The paper analyzes the results of laboratory monitoring of surgical treatment of 510 patients with NCOJ. The materials for laboratory studies were venous and capillary blood. Changes determined at the time of hospitalization, after preoperative preparation, at 1, 3, 5, 7, 9, 12, 15, 18 postoperative days within 9 syndrome: SIRS, immunoreactivity, antioxidant imbalance, cytopathic hypoxia, endothelial dysfunction, functional state of the liver, endotoxemia, lipid and carbohydrate metabolism (62 indexes, 10 indexes). Survey results were analyzed by methods of variance, correlation and multivariate regression analysis and forecasting.

Results and discussion

The initial difficulty conditioned by NCOJ in patients with ALF, which is determined by the degree of influence of pathological hypoxia due to biliary hypertension and caused by it oxidative-nitrosative damage of hepatocytes, extent of which record by the changes in organ enzyme, markers of endothelial dysfunction, cytopathic hypoxia and antioxidant imbalance and define pathogenetic grounded priorities for preventive their correction in the principles of perioperative intensive care.

Increase of bilirubinemia and deepening severity of ALF in patients with NCOJ accompanied by dependent changes in cytokine profile with the implementation of stage of immunological defect of distress syndrome (IL-1, IL-6, IL-10) against the background of increased risk of biliary translocation (IL-1) and postoperative complications (septic (inorganic phosphorus), organ and multiple organ dysfunction.

Strengthening primordial for postoperative complications in patients with NCOJ with the growth of total bilirubin and the severity of ALF occurs due to suppressive type of immunogram that are carried out by progressive lymphocytopenia against the background of activation dependent apoptosis (CD95), reducing the population of T lymphocytes (CD3) due to T-helper (CD4) and the negative impact on the cell (NK-cells (CD16)) and humoral (reduced IgA) immunity and macrophage dysfunction, which provide regionarny microbial protection. Processing of optimization approaches to differentiated choice of surgical treatment, diagnostic algorithms and protocols of perioperative conservative support helped to reduce postoperative complications at 10.26% from 16.87% to 6.61%, post decompression ALF at 9.19% from 10.84% to 1.65% and mortality at 6,4% from 7.23% to 0.83% and redistribution structure of performed surgery in favor of minimally invasive correction, which reduced the number of complications after surgery laparotomnoy at 10.8% from 13.24% to 2.44% and septic complications at 6.18% from 7.83% to 1.65%, reducing the number of relaparotomy at 5.8% from 6,63% to 0.83%.

The following scientific developments will be directed on individualisation of choice of surgical tactics in patients with NCOJ depending on the risk of postoperative complications on the background of negative premorbid status (high operational and anesthetical risk, subcompensated and decompensated concomitant somatic pathology and variations of combinations, advanced age, concomitant surgical pathology).

Key words: noncancer obstructive jaundice, program of perioperative treatment, tactics of surgical treatment, metabolic predictors.