SUMY STATE UNIVERSITY
MEDICAL INSTITUTE

«BIOMEDICAL PERSPECTIVES»

ABSTRACT BOOK

International Scientific and Practical Conference
of Students, Postgraduates and Young Scientists

(Sumy, October 16-18, 2019)

Sumy
Sumy State University
2019

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY STATE UNIVERSITY
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FUNDAMENTAL MEDICAL SCIENCES

WORLDWIDE USED DRUGS ORIGINATED FROM PLANTS IN NIGERIA

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Introduction: Over the years, plants have been the major source of medicines before the manufacture of chemicals. Nigeria, a country in West Africa is richly blessed with some of these plants. Medicinal plants in Nigeria are used for home remedies and traditional medicine and are gaining more recognition, this is seen in how much enquiries people make concerning them, as more than a quarter of the world's population and an increasing rate globally is involved.

Aim: This study aimed to evaluate the extent of use and the general knowledge of the benefits, mechanism of action and side effects of medicines that have been made from animals or plant derivatives from different regions of Africa.

Materials and methods: In this endeavor, scientific database have been looked at to analyze the chemicals found in some of these plants, their health benefits, mechanism of action and some of the side effects.

Results: Historically, Nigeria has produced many pharmacological products that were derived from previous human experience. The diverse flora and fauna of Africa offers many prospects for further development of new drugs.

Conclusions: The study concludes with some recommendations that although herbal medicine is becoming popular among the respondents, care should be taken regarding its potential toxicities.

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HYDROGEN PEROXIDE-INDUCED DNA DAMAGE AND REPAIR IN K562 HUMAN MYELOGENOUS LEUKEMIA CELLS

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Introduction. Hydrogen peroxide causes DNA single- and double-strand breaks after conversion to the hydroxyl radical. Among the proposed mechanisms involved in the regulation of DNA repair after the action of H_2O_2 are follows: depletion of two thiol-dependent DNA repair enzymes, including poly (ADP-ribose) polymerase and O(6)-alkylguanine-DNA alkyltransferase; oxidation of cellular glutathione and protein thiols; the regulation of cell cycle; modulation of transcriptional factors.

Aim. Investigation of the effect of H_2O_2 on DNA damage and its repair in human myelogenous leukemia K562 cells.

Materials and methods. K562 cells were cultured in RPMI-1640 medium supplemented with 10 % fetal bovine serum, 2 mM L-glutamine, 1% v/v non-essential amino acids solution, 1 mM sodium pyruvate and antibiotic (50 μg/ml of gentamycin) and at 37°C in an atmosphere containing 5% CO_2. The kinetics of DNA repair in K562 cells recovering after incubation with H_2O_2 were assessed using an alkaline single cell gel electrophoresis (SCGE, comet assay). DNA damage was expressed in arbitrary units (a.u.) on a scale from 0 to 400.

Results. Initial levels of DNA damage and subsequent DNA repair in K562 cells was assessed at 0, 15, 30, 60, 120 and 180 minutes after addition of H_2O_2. In alkaline conditions, cells exposured to a concentration of 100 μM H_2O_2 showed a high score of DNA damage (251,7±9.8 a.u.) immediately after the treatment, rapidly decreased with time to reach a score of 110,6±5,1 a.u. after 15 minutes. The basal score of DNA damage in K562 cells was equal 69,5±9,4 a.u. It should be noted that DNA single-strand breaks repair was the most effective during the first 30 minutes after H_2O_2 treatment. Besides, we showed that DNA single-strand breaks induced in K562 cells by H_2O_2 (100 μM) were more faster repaired than those induced by irradiation (2 Gy).

Conclusion. K562 cells carefully maintain their redox homeostasis. The mechanism whereby cells repair H_2O_2-induced damage may have important implications for the study of resistance to anticancer quinones and other xenobiotics.

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SIDE EFFECTS OF MALARIA TREATMENT IN NIGERIA

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Introduction Malaria occurs in tropical and sub-tropical areas of the world, including Africa, Nigeria. Nowadays combination regimens are preferred due to P. falciparum resistance to the inexpensive and widely used drugs that has reached very high levels. Two of these are commonly used in Nigeria: Artemeter/Lumenfantrine (AL) and Artesunate/Amodiaquine (AA) will be researched on. These drugs are effective for combating malaria, but they have their own shortcomings.

Aim was to observe side effects of the most common anti-malaria drugs in Nigeria.

Materials and methods. This study was conducted in May 2019 and questions were asked to the general public in Nigeria with the cooperation of officials of local government in charge of Malaria treatment. Questionnaire method of receiving information cutting across 6 geo-political zones. Sample size was restricted to 60 people who has had Malaria within the last 12 months or lesser. Questions that were asked were divided into 5 sections including; bio data, demographic data, access to malaria treatment, malaria treatment and side effects of this malaria treatment. Statistical method was applied using Microsoft excel.

Results. The predominant drug that was taken in all the zones was AA. In terms of gender disposition to the medicine, AA was used among males and females without preferences (51% and 50% respectively). It was found that the usual side effects of AA were headache and body weakness. Headache was more common and seen in 60% of the respondents, but without gender dependence. According to indications on body weakness, 44% complained of this side effect in which 45% of them were male and 55% of them were female.

However, AL was prevalent in South-East zone (27% of respondents). Though, analysis of the adverse effects of it showed headache and body weakness were on the top of complaints. For headache, 53% had it and 37,5% were male while 62,5% were female. Body weakness analysis showed a total of 40% of people with it, 33% of the people were males and 67% were females.

Conclusion The prevailing side effect for both AA and AL was headache. However, female more often than male complained about body weakness.

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REGULATION OF FREE HEME POOL IN RAT LIVER UNDER THE ACTION OF L-TRYPTOPHAN

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Introduction: Heme is a prosthetic group of numerous hemoproteins: hemoglobin, myoglobin, catalase, NO-synthase, soluble guanylate cyclase, cytochromes and others. Free heme has potent prooxidant properties because it contains an iron atom. The concentration of free heme in hepatocytes is 0,1 % of the total heme content. There are several heme-binding proteins that can protect cells from heme-induced oxidative damage. Tryptophan-2,3-dioxygenase (TDO) is the main heme-binding protein of the liver. It catalazes a key reaction of the kinurenine pathway of tryptophan catabolism. The level of saturetion of the TDO by heme is used as an indicator for the content of free heme. The heme saturation of TDO is about 40 %. TDO activityis regulated by L-tryptophan.

The aim of the study is to investigate the regulation of the free heme pool in rat liver under the action of L-tryptophan.

Materials and methods: The study was conducted on 20 adult male Wistar rats. The animals were divided into two groups: 1- intact rats, 2 – rats under the action of tryptophan during 20 hours. L-tryptophan was injected intraperitoneally in dose 15 mg / 100 g body weight. The level of free heme pool has been determined as saturation of TDO by heme. Activity of TDO has been measurement by spectrophotometry method.

The results of the experiment suggest that concentration of free heme in rat liver does not change after 20 hours of tryptophan administration. The activity of TDO in rat liver was increased under the action of L-tryptophan. The activity of holoenzyme TDO was increased in 2 times, total activity – 1,7 times. It is known that tryptophan can act as a stabilizer of TDO apoenzyme. Tryptophan reduces the rate of degradation of the TDO apoenzyme. The half-life of apoenzyme TDO is about 2,3 hours. It was found that the administration of tryptophan in a dose 50 mg / kg body weight prolongs the half-life of apoenzyme TDO till 4,9 hours. The active TDO is capable to bind more molecules of free heme. It is known that TDO can bind 29 % of free heme in cytosol of hepatocytes.

Conclusions: It has been established that the level of free heme pool in rat liver does not change under the action of L-tryptophan. At the same time L-tryptophan increases the activity of TDO. Activation of TDO by L-tryptophan can be used as a mechanism to protect hepatocytes from damage by toxic agents that destroy intracellular hemoproteins.

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STRUCTURAL CHANGES OF THE THYROID GLAND IN CONDITIONS OF GENERAL DEHYDRATION

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Introduction. The structural organization of the thyroid gland is the object of considerable attention of clinicians and morphologists. The thyroid gland reacts to the influence of various factors, namely meteorological, geological, environmental, since its structure and functions are closely related to the supply of iodine and other trace elements. Changes in the body may be associated with a violation of autoregulation, including at the tissue level. On the basis of these facts, there is a need for a comprehensive study of the structural components of the thyroid gland in dynamics under different degrees of dehydration.

Aim. Therefore, the aim of our study was to study the microstructural features of the structure of the thyroid gland in mature rats in conditions of severe general dehydration.

Materials and methods The studies were conducted on mature white laboratory rats, which were divided into two groups: control and experimental (6 rats each). The animals of the experimental group were simulated severe degree of general dehydration (rats ate dry food and were on an anhydrous diet for 12 days). Histological sections of the thyroid gland stained with hematoxylin-eosin were studied.

Results. The analysis of histological preparations indicates the appearance of larger follicles with altered tinctorial properties of the colloid, as a consequence, the differentiation of lobules into the central and peripheral parts is violated. There is a polymorphism in the size of the follicles; epithelium tends to flatten; some areas of thyroid tissue have a structure of parenchymal type; increased connective tissue layers. Simultaneously with the above-mentioned changes, there are signs of extra-and intra-follicular folliculogenesis, due to the presence of thyrocytes with signs of high functional activity in various parts of the gland parenchyma.

Conclusion. Further carrying out of experiment, by means of various laboratory methods, on the basis of complex anatomical and experimental research, will give the chance to study in more detail morphofunctional features of a thyroid gland in the conditions of various degrees of dehydration.

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ASSOCIATION ANALYSIS BETWEEN *VEGFA* C936T SINGLE NUCLEOTIDE POLYMORPHISM AND TYPE 2 DIABETES MELLITUS DEVELOPMENT AMONG UKRAINIAN FEMALES

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Introduction. Type 2 diabetes mellitus (T2D) belongs to the diseases with genetic predisposition suggesting that both modifiable (environmental) and non-modifiable (genetic) factors contribute to its development. Genome-wide association studies have identified multiple T2D risk genes. One of them is vascular endothelial growth factor A (*VEGFA*) gene which protein product involves in angiogenesis regulation under physiological and pathological conditions. It is known that VEGFA stimulates endothelial cells division and differentiation, provides its migration to the collagen layer in vessel wall and supports endotheliocytes survival. Moreover, the decreased VEGFA activity is associated with reduction of microvascular network and further diabetic microvascular complications emergence. Thus, it can be assumed that C936T polymorphic locus of *VEGFA* 3`-end untranslated region is possibly related to the T2D development.

The aim of the study was to analyze the association between *VEGFA* C936T SNP and T2D development among Ukrainian females.

Materials and methods. Whole venous blood of 75 (average age 65.57 ± 8.66 [SD] year) females with diagnosed T2D and 45 (average age 77.44 ± 10.42 year) control subjects without any disorders of carbohydrate metabolism was collected in sterile conditions for DNA extraction. Polymerase chain reaction with further restriction fragment length polymorphism analysis (PCR-RFLP) was used for genotyping. All statistical calculations were performed by SPSS-17.0.

Results. It was found the following genotypes frequencies in T2D patients and control subjects: C/C – 49.3%, C/T – 38.7%, T/T – 12% and C/C – 55.6%, C/T – 42.2%, T/T – 2.2% respectively. But the differences in genotypes distribution was not statistically significant (χ^2 = 3.526; p = 0.172). There was no association between *VEGFA* C936T SNP and T2D development among females according to the logistic regression neither in crude models of inheritance nor after the adjustment for age, BMI, obesity, smoking habit and presence of arterial hypertension ($p < 0.05$).

Conclusions. It was found the lack of association between *VEGFA* C936T SNP and T2D development among Ukrainian females. The study was a part of scientific project “Molecular-genetic and morphological features of lower limb tissues regeneration under conditions of chronic hyperglycemia”, no. 0117U003926.

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INDOMETHACIN INFLUENCE UPON RENAL CIRCULATION AND SODIUM EXCRETION IN NON-NARCOTIZATED RATS AT TALINOLOL USE

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Introduction. Chronic renal failure is one of the most important cardiovascular complications risk of which is increased in hypertensive patients. β-adrenoblocker use may be reasonable at excessive sympathoadrenal activity observed at early stages of chronic renal failure and permanently supported during its progress. According to literature data, use of β-adrenoblockers in acute experiments on narcotizated rats increases renal circulation, diuresis, and natriuresis. There is evidence about correlation between β-adrenoceptors state and renal prostanoid synthesis.

Aim of the study. To research role of renal prostanoids in influence of talinolol upon blood flow and sodium transport in kidneys of non-narcotizated rats in condition of chronic water load.

Materials and methods. 28 male white rats (weight 200–300 g; receiving standard nutrition). In 14 days before, all rats were operated with the aim to create microcystis for more accurate urine collection. Functional renal activity was estimated against the background of 3% water load. Creatinine concentration was estimated in all urine portions by standard method. Sodium concentration was estimated by flame photometry. Talinolol was administered intraperitoneally in dose 1 mg/kg, indomethacin was administered orally during 5 days in daily dose 3 mg/kg.

Results. It was found that increase of diuresis and natriuresis were changed apocryphally, despite of tendency to elevation. Volume of glomerular filtration (calculated on value of excreted creatinine) was not increased also. Previous administration of indomethacin was not change practically results obtained with β_1-adrenoblocker only. Combined use of indomethacin and talinolol did not exert significant influence upon creatinine excretion that points at absence of changes of glomerular filtration. An increase of sodium excretion developed some tendency to increase at combined use of drugs, but these changes were apocryphally.

Conclusions. In chronic investigations was obtained that functional parameters of kidneys are not depend on state of renal prostaglandin system, because indomethacin didn't change renal responsiveness upon β_1-adrenoblocker talinolol.

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USAGE OF MEXIDOL AS A NEPHROPROTECTOR IN ACUTE STRESS REACTION

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Introduction: Prevention and treatment of renal pathology in our time is one of the main problems of nephrology duaring stress. One of the most urgent tasks of modern medicine is to find opportunities that reduce the impact of stress reactions on the kidneys.

Aim: The aim of the research is to determine the effectiveness of the using of Mexidol as a nephroprotector on the kidneys of white rats exposed to acute immobilization stress.

Materials and methods: The research subjects were 15 adult white male rats. First control group consists of 5 intact animals, group II consists of 5 rats exposed to acute immobilization stress without correction, group III consists of 5 rats exposed to acute immobilization stress with correction of Mexidol. Immobilizing rats lying on their backs for 6 hours was chosen as a method of modeling of acute stress. For the correction of acute stress Mexidol was administered once intraperitoneally 20 minutes before the fixation period at the rate of 100 mg/kg animal weight. Material sampling was performed after animal euthanasia for further macroscopic and microscopic examination. Kidney micropreparations were stained by hematoxylin and eosin using standard techniques.

Results: As a result of studies, we have found that, due to stress macroscopic changes were not detected. At the histological level the lumen of the convoluted tubules of the kidneys is enlarged and some of them are filled by homogeneous eosinophilic masses. On micropreparation is revealed the presence of vacuoles in the cytoplasm of epitheliocyte filled with a translucent fluid, necrosis of some epithelial cells was observed. In the peritubular vascular system focal hemorrhages are exist. The glomerular apparatus is characterized by the expansion of the Bowman capsule, the capillaries are full-blooded, there are swelling of the mesangial matrix. Some nephrons are excluded from filtration due to the sticking together of the inner layer cells of the kidney glomerular capsule.

Mexidol exposed rats have less pronounced morphological changes due to stress. The convoluted tubules of rats of group III are characterized by swelling of epitheliocytes, the lumen of some tubules is filled with a small amount of homogeneous masses. Part of the glomerulus is characterized by a full-blooded capillary, the mesangium is slightly swollen.

Conclusions: Research shows that the usage of Mexidol as a nephroprotector during the influence of acute stress occurs.

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THE INFLUENCE OF AGE AND DEGREE OF HYPOOSMOLAR HYPERHYDRATION FACTORS ON THE MYOCARDIUM OF EXPERIMENTAL ANIMALS

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Introduction. The prolonged influence of hypoosmolar hyperhydration worsens the morpho-functional state of myocardium and is a consequence of many diseases, especially renal failure and endocrine pathology.

Aim of study is to determine the effect of age and the degree of hypoosmolar hyperhydration factors on the relative parameters of myocardium.

Materials amd methods. 108 white laboratory rats of 3, 6 and 22 months of age were divided into the experimental and control groups. The control group included intact rats of respective age series. Animals of the experimental group were forced to drink 10 ml of distilled water three times a day with the addition of "Minirin" 0.01 mg twice a day. The modelling of mild degree of hypoosmolar hyperhydration lasted 5 days for young animals and 10 days for mature and old. The moderate degree was simulated over 10 days for young animals, 15 and 20 days – for mature and old, respectively. The severe degree - 15 days for young and 25 days for mature and old animals. We determined the relative volume of cardiomyocytes in left and right ventricles, the relative volume of connective tissue and vessels in both ventricles by the method of "point" calculation in histological samples. The statistical analysis of data was performed using «GraphPad», the two-factor analysis of variance – by the software package "Microsoft EXCEL-2003".

Results. The effect of age factor on the relative volume of cardiomyocytes of the left ventricle is 80.9% ($p \leq 0.05$), on the relative volume of cardiomyocytes of the right ventricle – 79.05% ($p \leq 0.05$). The degree of hyperhydration has no effect on this indicator. The interaction of controlled factors is weak and is 6.14% ($p \leq 0.05$) and 9.94% ($p \leq 0.05$), respectively. Age factor influences changes in the relative volume of vessels of the left ventricle by 85.71% ($p \leq 0.05$), and hyperhydration factor – only by 7.29% ($p \leq 0.05$). Controlled factors affect changes in the relative volume of vessels of the right ventricle by 87.66% ($p \leq 0.05$) and 8.23% ($p \leq 0.05$), respectively. Age factor has an absolute influence on the relative volume of connective tissue of both ventricles.

Conclusions. The impact of age factor on the relative morphometric indicators is dominant.

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MORPHOLOGICAL CHANGES OF GERM ACTIVITY OF THE RAT TESTIS STRUCTURE UNDER THE INFLUENCE TOTAL DEHYDRATION

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Introduction. The impact of dishydria on the male reproductive system, according to the authors, are undervalued and not fully considered, and that is probably why these problems are still remains relevant in the social and demographic sphereormedicine.

Aim. Detect morphological changesof the rat testis structure under the influence total dehydration.

Materials and methods. Experimental animals were divided into 2 groups: the control and experimental. Experimental series were divided into 3 groups depending on the dishydria level: light – 3 days (the duration of the experiment), medium6-7 days and heavy 9-12 days. We conducted microscopic examination of rats' testis using hematoxylin – eosin colored histological preparation. Quantitative parameters that were used to assess germ activity of the testis: changes in the spermatogenic epithelium.

Results. Microscopic examination of the testis preparations in experimental series on the day 3 of the study in the convoluted seminiferous tubules we can observe spermatogenic epithelium discomplexatio. On the day 6 of the experiment in the seminal gland study revealed a deformity of the structure of the tubuli contorti, especially marked in subcapsular zones as a detachment of spermatogenic epithelium from a basal membrane, desquamation and the appearance in the lumen of the tubuli contorti spermatids. We observe depleted layers of seminiferous epithelium, increased numbers of tubuli contorti sections, which contain less than 3 generations of germ cells. The wall of the tubules has a number of sites with partial fall out of the spermatogenic epithelium, the "windows" phenomenon. On the day 9 of the experiment changes the shap of seminal canal, the number of sections of tubuli seminiferi contorti with 4 and 3 generations of germ cells, and the number of mature spermatozoa is sharply decreasing. In the lumens we observe spermatocytes of the 1st and 2nd orders, the dystrophic changes in the spermatogenic epithelium are widespread. The phenomenon of "falling out" of the spermatogenic epithelium becomes more widespread.

Conclusion. The analysis of the obtained results allows us to conclude that dehydration disorders of the water-salt metabolism significantly affect the morphological state of the gonads in the experimental rats.

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THE USE OF TORASEMIDE AS A STRES PROTECTOR IN MORPHOLOGICAL RESEARCH OF HEPATIC REACTION

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Introduction: Nowadays the negative impact of stress factors on the liver is well-studied and substantiated. However, this issue remains open and priority for medicine, particular attention being paid to the stress protective effect of torasemide saluretics.

Aim: To prove at the morphological level the effectiveness of using torasemide to correct changes that occur in the tissues of liver of white rats under the influence of acute immobilization stress.

Materials and methods: The research was performed on 15 white rats (males), their age ranged from 9 to 10 months, body weight 230-250 grams. The I intact group consisted of 5 animals, the II control group also consisted of 5 animals, which were affected by acute immobilization stress. Group III in the number of 5 white rats stress condition was adjusted by torasemide.A model of acute immobilization stress was reproduced by a six-hour fixation of white rats in the supine position. White rats were administered intraperitoneally with a torasemide dose of 0.1 mg once to correct stress 20 minutes before the time of fixation. As a result of the opening of the abdominal cavity, a macroscopic examination of the liver was performed, as well as the collection of material for microscopic examination.

Results: No macroscopic changes were detected. The obtained microscopic examination revealed that acute immobilization stress in the rat liver produces significant morphological changes. Expansions of perisinusoid spaces and swelling of hepatocytes with smoothing of intercellular borders are revealed. The interlobular vessels and the central vein are full-blooded, mainly in the sinusoidal capillaries the phenomenon of sledging is noted. There is also a slightly full-blooded the sinusoidal capillaries and pronounced perivascular edema. Dystrophic changes (hydropic and hyaline-drip dystrophy) were observed in the center of the lobules. Subcapsular focal collication necrosis of some hepatocytes was observed. White rats with correction of torasemide revealed less pronounced stress changes: moderate plethora of the central veins, in some hepatocytes on the periphery of the lobes hydropic dystrophy, the structure of the liver lobes is preserved, the sinusoids are not expanded, the triads are not changed.

Conclusions: The use of torasemide as a stress protector in acute stress reactions on the example of the liver has shown the feasibility of its use, as a result of morphological studies.

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MORPHOLOGICAL FEATURES OF SKELETAL MUSCLE REGENERATION UNDER THE INFLUENCE OF CHRONIC HYPERGLYCEMIA

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Introduction. Chronic hyperglycemia (CH) is one of the most common metabolic disorders worldwide, and the number of people suffering from excess blood glucose continues to increase every year. CH is often associaed with the development of secondary complications in various organs, including skeletal muscle. To date there are practically no works devoted to establishing the structural features of skeletal muscle regeneration after their mechanical traumatization under the condition of CH.

Aim. The aim of the study was to analyze the histological features of skeletal muscle post-traumatic recovery in rats with CH.

Materials and methods. 90 white male rats were used for the study: 40 rats – control group; 40 rats – experimental group (animals with HG); 10 rats – hyperglycemia control group. Simulation of CH was done using two-week loading with 10 % fructose solution, followed by a single intraperitoneal administration of streptozotocin (40 mg/kg). Morphological features of triceps surae muscle regeneration were studied at 3, 7, 14 and 28 days after mechanical injury. Olympus BH-2 microscope (Japan) was used for light microscopy. Statistical analysis was performed using the SPSS-17 software package.

Results. On 28th day the regenerating muscle fibers number in regeneration zone of experimental animals was smaller by 26.8% ($P < 0.001$ – for pericentral zone) and 15.4% ($P < 0.001$ – for marginal zone), compared to control rats. The total area of regenerating muscle fibers ($P < 0.001$) in experimental group was also significantly smaller, compared to control animals. Also, rats with excessive glucose content had significant development of connective tissue elements, delayed formation of new blood vessels, accumulation of adipocytes, and persistence of leukocyte cells.

Conclusion. The main structural features of skeletal muscle post-traumatic regeneration process in rats with CH are excessive connective tissue development, new vessels formation disorders, reduction of regenerating muscle fibers amount and area along with significant increase of damaged muscle fibers number.

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MORPHOLOGICAL FEATURES OF HAIR STRUCTURE IN MOTHERS' AND THEIR CHILDREN WHICH WERE BORN WITH IUGR

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Introduction. Intrauterine growth restriction (IUGR) is one of the leading causes of perinatal morbidity and mortality**.** It has been defined as a rate of fetal growth that is less than normal in light of the growth potential of that specific infant (Sharma D. et al., 2016).

Aim. To study the features of hair structure in women's hair and their children, which were born with IUGR.

Materials and methods. Material (hair) was collected from 10 mothers and 10 of their full-term infants which were born with IUGR (group I). The comparison group included 10 mothers and 10 of their full-term newborns (group II). Ultramicroscopic analysis was performed using a raster electron microscope.

Results. There are deep tears and broken corneous scales on the surface of mothers' hair (group I). It edges were significantly damaged. Cuticular scales have lost close contact between themselves. Hair got a rough look. Diameter of hair of women of group I was 61.6±3.39 μm, while the group II was 65.7±2.48 μm ($p=0.3419$).

Investigation of hair of the women of group II showed a smooth, shiny surface without bloating and defects. It had a slightly concave spindle-shaped, ribbon cuticle. Investigation of the hair of children (group I) revealed underdeveloped their cuticle pattern. The surface of the hair was dim and smooth. The edges were significantly loose. The diameter of the hair of the children of group I was 20.3±0.73 μm, which is half that of group II ($p=0.0001$).

Investigation of the hair of children of group II showed a uniformly smooth, shiny surface. It had the correct cylindrical shape, the ribbon cuticle. The image of the cuticle was clearly visualized. Edges of the hair were equal.

Conclusion. Consequently, hair of mothers and children born with IUGR was thinner and had significant structural changes. This is probably due to its structural immaturity, deficiency and imbalance of micronutrients involved in the formation of the structure of hair and at the same time, may be one of the factors of IUGR.

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MORPHOLOGICAL ESTIMATION OF THE STATE OF PERITONEUM OF RATS AT EXPERIMENTAL PERITONITIS OF CHEMICAL VARIANT

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Introduction. In spite of plenty of information in literature the question of possible development of peritonitis remains opened.

Aim. Research of the state of viscera layer of peritoneum of rats is in an experiment with the designed peritonitis of chemical variant.

Materials and methods. Experimental animals were divided by two series: experimental and control. The series of experimental animals part on two groups: with peritonitis and peritonitis with a corrector. In control series probed six animals. In the series of experimental zoons probed for six rats in every group. Animal both series were on the ordinary food mode. Animals of the experimental series were operated under conditions of adequate general anesthesia with Sedazin. The operation was performed under operating conditions using sterile surgical instruments and surgical material, using a prophylactic dose of a broad-spectrum antibacterial drug. The animals of the experimental series were surgically installed vasofixes intraperitoneally. A solution of medical bile was injected into the cannula. The solution was obtained by diluting 0.1 ml of medical bile in a sterile isotonic NaCl solution of 0.9% in a ratio of 1:10. After 24 hours, in a series of experimental animals of the group with correction, an antiseptic solution of hydroxymethylquinoxalindioxide in therapeutic doses was introduced into the cannula. Doses of drugs were calculated based on the Rybalovleves formula. Animals were removed from the experiment after 24 and 48 hours, respectively, by decapitation under adequate general anesthesia. Fixed preparations of the peritoneum were stained with hematoxylin and eosin by the conventional method.

Results. A histological examination of the peritoneum of an intact series of rats determines a thin layer of loose connective tissue, covered with a single-layer flat epithelium. After 24 hours, the preparations of rats of the experimental series develop edema of the connective tissue, the diameter of blood vessels increases, mesothelial cells swell with swelling and fragmentation of the nuclei, mesothelial cell death sites, swelling and death of smooth muscle cells. n the study of the preparation group with correction, less pronounced structural changes are observed compared with the experimental group without correction.

Conclusion. A number of authors have studied the structural changes in the visceral layer of the peritoneum of rats when modeling chemical peritonitis by introducing a medical solution of bile. A possible correction option for this pathological condition with a hydroxymethylquinoxalindioxide preparation is considered.

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DIURNAL RHYTHMS OF SOME PARAMETERS OF PROTEIN METABOLISM, MICROSOMAL SYSTEM OF LIVER, AND LIPOPEROXIDATION IN ORGANISM OF WHITE RATS

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Introduction. Diurnal and circadian biorhythms have a key place between different rhythms of living bodies. Their structure depends on different factors and may be one of the causes of pathology development. Research of diurnal rhythms is perspective for investigation of occurring and development of different pathological processes in a body.

Aim of the study. To research diurnal rhythms of some biochemical parameters of microsomal system, processes of lipoperoxidation in liver and blood protein level.

Materials and methods. Male Wistar rats (weight 180–220 g., in conditions ad libitum nutrition) exposed semi-diurnal light regimen (light from 6 to 18 o'clock) for 15 days. Animals killed in dim room with intervals 2–4 hours, starting from 6 o'clock, with the investigation of microsomal system state (estimation of hexenal-induced sleep duration and amount of cytochrome P-450), lipid peroxidation (on the base of concentration of diene conjugates and sulfhydryl groups in liver), and also protein-synthetic function of hepatocytes (on the base of blood protein level and its fractions).

Results. It is found that spike of duration of hexobarbital sleep in rats is observed at 10 and 14 o'clock, and minimum – at 20–22 o'clock and was independent from genuine diurnal time. But this spike was opposite to spike of concentration of cytochrome P-450 in a liver. Concentration of diene conjugates and sulfhydryl groups in a liver were maximal at 18, 22 and 10 o'clock, and minimal at 8, 10, and 22 o'clock respectively. Statistically-valid differences were found in fluctuations of blood level of proteins. Acrophase of total protein, albumin, and γ-globulin was registered at 2–4 o'clock.

Rotation of light pattern on 180 reverses investigated parameters with some decrease of natural diurnal fluctuations. Constant light and adrenalectomy lead to marked disturbances of investigated parameters.

Conclusions. Complex of diurnal biological rhythms plays an important role in change of body reaction on external influences inter alia drugs, including body resistance to potentially dangerous agents.

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COMPARATIVE ANALYSIS OF THE FREQUENCY OF THE COMPLICATIONS OF THE TRANSURETHRAL RESECTION OF PROSTATE AND OPEN ADENOMECTOMY IN PATIENTS WITH BENIGN PROSTATE HYPERPLASIA

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Introduction. The increasing of life expectancy leads to an increased number of patients with benign prostatic hyperplasia (BPH). According to modern literature, in 95% of men aged 55 to 74 years, the volume of the prostate gland exceeds 20 cm3, and it increases with age. Treatment of BPH remains relevant. A review of literature has shown that surgical removal of the prostate gland at the age of 40-49 is 13%, at the age of 50-59 years-25%, and in men older than 60 years-40%. Thus, almost 40% of men in able-bodied age, and about a third at the age of 80 years.

The aim: to conduct a comparative analysis of the frequency of postoperative complications in transurethral resection of the prostate (TUR) and open adenomectomy in patients with BPH.

Materials and methods. There were studied medical documentation of 60 patients with BPH, who were surgically treated in 2018: 30 patients - TUR and 30 patients – open adenomectomy. A statistical analysis of the complications was conducted using Microsoft Excel, Windows 10. The age of the patients was from 50 to 80 years, the average age was 62.0 + 3.2 years. Indications for open adenomectomy were: stones, tumors and diverticulations of the bladder, volume of the prostate gland more than 80 cm3. TUR (without bladder opening) was conducted in cases when severe concomitant pathology was present, if the volume of the prostate gland did not exceed 80 cm3 and in patients under 60 years of age with preserved sexual function.

The results. As can be seen from the table, each of the methods of surgical intervention has its advantages and disadvantages. So, when TUR is accompanied with less bleeding, less infectious and inflammatory complications, the duration of surgical interventions and the duration of patients staying in the hospital are reduced. The disadvantage of open adenomectomy is acute urinary retention.

Complications	TUR	Open adenomectomy
Bleeding	1 (3,3%)	3 (10%)
Urethra and sphincter trauma	2 (6,6%)	3 (10%)
Infectious and inflammatory complications	4 (13,3%)	6 (20%)
Acute urinary retention	3 (10%)	1 (3,3%)
Urinary incontinence (short-term)	5 (16,6%)	2 (6,6%)
Preservation of irritative symptoms	1(3,3%)	4 (13,3%)
Exacerbation of pyelonephritis	1 (3,3%)	3 (10%)
Terms of stay in hospital after surgery, days	5-6	10-12
Duration of operation, minutes	30-40	60-80

Conclusion. Transurethral resection of the prostate significantly expanded the indications for surgical treatment and is becoming a standard operation not only for ordinary, but also for large sizes of BPH. TUR has fewer complications and reduces the duration of inpatient treatment.

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THE STUDY OF DERMATOGLYPHICS IN ATHLETICS

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Introduction. In sports genetics, dermatoglyphic markers of the fingers and palms are currently widely used for individual prediction of a person's predisposition to a specific motor activity or diagnosis sports talent. Dermatological analysis of athletes makes it possible to compare the complexity of their fingers among themselves, as well as with ordinary people.

Aim: to determine the influence of genetic factors in the selection of gifted athletes in the Ukrainian population.

Materials and methods. Survey of research objects; fingerprints using paint; statistical processing of results.

Our study was not age and gender bi ased. Two groups were formed: the main group – 9 athletes with high sports results (International Master of Sports) and control group – 10 athletes with insignificant sports results. The data of dermal ridge patterns of athletes was used in the work.

Results. Total 19 samples were collected from both groups were considered for statistical analysis. According to the results of the study, we determined that the main group of athletes has 15 % less whorls than the main group of athletes. In the norm, for the Ukrainian population, the number of whorls should be 30-40%. That is, athletes with high sports results (international class) in the Ukrainian population have a tendency to a reduced amount whorls.

Measuring the angle of the ATD, the angle that exists between A, D and T triradii on palms. We also see a trend of decreasing angle ATD for palm by 10% in athletes with high sports results (international class) in the Ukrainian population.

Delta index is the summary intensity of the triradius in the 10 (ten) fingers of the hands. The delta index in the main group also has lower values (DI=9,5) than in the control group (DI = 13,3). So, athletes with high sports results (international class) in the Ukrainian population a delta-index of 19% less than athletes with insignificant sports results. This also indicates a tendency for a drop in the delta index for athletes with high sports results (international class).

Conclusion. The athletes with high sports results (international class) in the Ukrainian populationwere characterized by the peculiarities of dermatoglyphic constitution: less values of delta index and the total ridge count, less proportion of complex patterns.

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IMPACT TOUGHNESS AS A CRITERION OF RESISTANCE TO DEFORMATION OF CANCELLOUS BONE UNDER CONDITIONS OF GENERAL DEHYDRATION

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Introduction. Bone destruction occurs in cases when the amount of absorbed energy exceeds limits of physiological strength of a given bone site. The amount of energy that bone can absorb without fracture depends on its strength and stiffness. The stiffer bone is, the less energy can be absorbed by it without fracture. The architectonics of cancellous bone is an individual integral response of bone to stress and deformation, which it undergoes at various loads. According to its mechanical properties cancellous bone tissue is heterogeneous, nonlinear and anisotropic. Besides, these properties can significantly change depending on age, sex, structural-functional condition of bone tissue, the existence of local and systemic pathological processes

Aim. The aim of this research is to adapt a method of determination of impact toughness as a criterion of resistance to deformation of cancellous bone under condition of general dehydration.

Materials and methods. 12 samples of a calcaneal bone of young rats with a perforated defect on the 24th day of reparative regeneration in normal and under condition of severe dehydration were fixed in aluminum frames of a cylindrical shape with epoxy glue. Bone was fixed at the border of the aluminum frame and the regeneration area. In experiment pendulum impact tester weighing 5kg. was used. To measure the area of bone fracture, formed under the action of impact tester, was used a microscope MPB-2. Impact toughness was determined by the formula: an=An/F ,an-impact toughness, An- the work required for breaking the specimen, F-cross-section area of the specimen.

Results. The main purpose of determination of impact toughness during bending is assessment of working capacity of material in difficult loading conditions and its tendency to brittle fracture. Fixing the frames with bone allows to determine the amount of destruction. The impact toughness values are characterized by the values of the fracture toughness of the cancellous bone, which varied in range of 4,10-6,25 kgf·m/cm2 in normal and from 0,76-0,98 kgf·m/cm2 under severe degree of dehydration.

Conclusion. Findings of impact toughness under conditions of general dehydration can be used in further researches during examining other pathological conditions.

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MEDICATION ADHERENCE AMONG THE PATIENTS WITH ESSENTIAL ARTERIAL HYPERTENSION: ASSESMENT AND IMPROVEMENT STRATEGIES

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Introduction: WHO reported that adherence among patients with chronic diseases averages only 50% in developed countries. The significant place among those chronic pathologies takes essential arterial hypertension (AH). Up to 30% of adults have AH. Increased level of blood pressure (BP) is an important preventable risk factor for cardiovascular events. Adherence to treatment (medical and nonmedical) is a crucial part of the treatment of AH and prevention of sudden cardiac death.

Materials and methods: To examine the medication adherence among patients with AH we conducted a randomized study of the 103 patients of the Sumy City Primary Care hospital. To all the patients we conducted clinical interviewing and physical examination (including BP measurement). For interviewing we used particular questionnaires and scales (Self-Care of Hypertension Inventory (SC-HI), Medication Assessment Questionnaire (MAQ), 8-item Morisky Medication Adherence Scale (MMAS-8), Dietary Sodium Restriction Questionnaire (DSRQ), International Physical Activity Questionnaire (IPAQ), Epworth Sleepiness Scale, Hill-Bone Compliance Scale (Hill-Bone). After a baseline examination, patients were divided for two groups. Patients of groupe 1 (64 persons) were involved to Motivational Interviewing process 1 time per month (for 3 month), patients of groupe 2 (39 persons) made a control groupe. The authors had full access to and take full responsibility for the integrity of the data.

Results: It was not found a significant difference in the average BP level among the patients in the Motivational Interviewing groupe (129,1$\pm$7.3 mm Hg) compared to the control groupe (141,3$\pm$8,4) ($p<0.05$). It was detected that adherence to the medical treatment improved for 34,6%, to nonmedical treatment (average) for 39,9% ($p<0.05$).

Conclusion: Adherence to treatment is very important component of the management of the patient. Motivational interviewing can be considered as an efficient method of medical adherence improvement. This study can help the Primary Care doctors to increase the quality of chronic diseases treatment, but further research is necessary to make recommendations clearer for the practical doctors.

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THE CONTENT OF MACROELEMENTS IN THE KIDNEYS AND BLOOD SERUM OF WHITE ADULT RATS IN NORM AND UNDER THE INFLUENCE OF LITHIUM CITRATE

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Introduction. Lithium drugs are widely used for the prevention and treatment of the psychiatric disorders, from 1949 (John Cade, 1949) to the present day (T. P. Hui, A. Kandola, 2019). Blood lithium levels above 3.5 mmol/l are fatal (Thomas L., Xue J. et al., 2018). The most serious pathology of the effect of lithium is the progression of renal failure to the terminal stage (Harald Aiff, Per-Ola Attman, 2019). Lithium causes calciuria, phosphaturia and a decrease of phosphorus in blood serum (J. Neugarten, B. Friedman, and L. Golestaneh, 2018). Due to hypercalcemia, obstructive uropathy, and hypokalemia caused by lithium drugs, nephrogenic diabetes insipidus develops (Dania Shakaroun, Hassan Nasser, 2019).

Aim: To study the effect of lithium citrate on the content of the sodium and potassium of the kidneys and blood serum of adult white male rats.

Materials and methods. The two groups of white adult male rats: experimental and intact, 6 individuals in each, was used. Standard drinking water and feed were given to animals ad libitum. A solution of lithium citrate was added to standard drinking water to a lithium ion content of 10 mg/l. The animals were withdrawn from the experiment by an overdose of anesthesia on day 30. The kidneys and whole blood were taken to determine the content of potassium, sodium and lithium. Whole blood was centrifuged and blood serum was taken for analysis. The blood serum and kidney samples were weighed and decomposed with nitric acid in high-pressure autoclaves for two hours at a temperature of 150-160 ºC. The content of potassium, sodium and lithium was determined by atomic emission spectrometry.

Results. The concentration of lithium and potassium of the kidneys of the experimental group was higher by 70.6% ($p = 0.005$) and 79.1% ($p = 0.002$) respectively in comparison with the intact group. The content of sodium of the kidneys of the experimental group decreased by 24.1% ($p = 0.005$). The content of lithium in serum was increased by 40.6% ($p = 0.002$). The level of potassium in the blood serum of the experimental and intact groups was approximately at the same level - 0.13±0.1 and 0.12±0.1 mg/g, respectively. The situation with sodium in the blood serum of animals of the experimental group decreased by 42.9% ($p = 0.004$).

Conclusions. Thus, investigates of the macroelements content of the kidneys and blood serum of the white male rats under the influence of lithium citrate revealed significant changes in the ratio of the body's main electrolytes – potassium & sodium. The macroelement imbalance can lead to significant impairment of kidney function and requires further histological studies.

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CLINICAL MEDICAL SCIENCES

HEPATOCYTE CELL CYCLE AFTER HEPATIC RESECTION

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Introduction. Liver resection, in most cases, remains the method of choice and the only way to achieve radical treatment and increasing the life expectancy of patients.

Aim. To determine the features of indicators of the cell cycle of liver cells after partial resection in pubescent rats.

Materials and methods. The experiment was conducted on 42 male rats (200-250 g). In the control group (6 rats) – no interventions were performed. All animals of the experimental group (36 rats) underwent liver resection of the median and left anterior lobes of the liver (~ 70% of total liver mass). DNA content in the nuclei of rat liver cells was determined by flow DNA-cytometry. Suspensions of nuclei from rat liver cells were obtained from nuclear DNA test solution using a CyStain DNA Step 1 (Partec, Germany) according to the instruction. Statistical processing of the results was carried out by using non-parametric methods in the licensed package "STATISTICA 8".

Results. Analysis of cell cycle indicators and DNA fragmentation of liver cells revealed a certain balance of nuclear DNA synthesis and fragmentation processes in intact animal liver cells. There is a predominance of the proportion of cells in the phase of proliferative rest (G0G1). The state of proliferative activity (S phase, G2+M phase) contains significantly fewer cells. Characterizing the synthetic activity of liver cells, it's necessary to note a statistically significant increase in the number of cells in phase S on first (2.9 times) and second day (3.8 times) after resection of the liver compared with the animals of the control group. Later, three days after resection, the number of cells were 2.4 times smaller ($p < 0.05$) compared with the animals removed from the study on the second day, but 1.6 times higher ($p < 0.05$) compared with the animals of the control group. Seven days later, the number of cells in this phase were 1.3 times higher ($p < 0.05$) compared to the third day. Ten days later, compared to the seventh day, were found 2.7 times less cells ($p < 0.05$). Fourteen days later, compared to the tenth day, the number of cells were 1.3 times higher ($p < 0.05$) and were closer to that in the control group of animals.

Conclusion. The cell cycle of liver cells in adult animals in the immediate postoperative period after liver resection has its own features: the number of cells in the synthetic period of the cell cycle (phase S) increases in a wavy manner. The first wave of growth (largest) was observed for 1-2 days, the second wave - for 7 days, the third - for 14 days postoperatively.

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DIROPHYLARIOSIS IN SURGICAL PRACTICE

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Introduction. The problem of dirofilariosis in Ukraine today is relevant in connection with the increasing morbidity of animals and humans, a significant number of carriers of invasion, the absence of parasitological and serological diagnostic methods, and the difficulties in preventing them.

Aim. The purpose of the work is to remind native doctors of the possibility of dirophylariosis on the territory of Ukraine, which was previously considered a low risk area for the development of this tropical helminthiasis.

Materials and methods. In the clinical case presented by us, a patient K., 35 years old, a resident of the city of Okhtyrka of the Sumy region for 1 year complained of a feeling of movement of a foreign body under the skin in the head area, weakness, nausea, irritability, anxiety, sleep disturbance, headache, allergic reactions.

Results. A transverse incision of the skin is made over a pathologic neoplasm up to 2 cm in the right neck area. Hemostasis. After dissection of the skin was removed a long thin worm in length 11 cm, width 0.5 mm. The wound is tightly sewn. Wound toilet is done. An aseptic band is applied. When macroscopic examination of a parasite clearly visible filamentous body, narrowed to the ends; the front end of a round shape, slightly larger in diameter than the posterior, white cuticle, a dense crunchy consistency. When microscopic examination on the outer cuticle, small delicate transverse grooves, clear longitudinal crests, well-developed muscle layer under the cuticle were determined. In the cavity of the body of the helminth, visible contours of the uterus, filled with oocytes. Conclusion: female Dirofilaria repens. In the laboratory of the sanitary-epidemiological station, the helminth D. repens was identified. Clinical diagnosis: "Dirophylariosis of the right neck segment". The postoperative period proceeded without complications. Seams removed for 5 days; the wound was healed by the primary tension. After removing the parasite, all of the above complaints stopped.

Conclusion. Due to the increase in the incidence of dirofilariosis in Ukraine, there was an urgent need to remind the general public of doctors about the possibility of cases of this transmissible helminthiasis in low-risk areas with moderate climate. Ultrasound examination makes it possible to clarify the diagnosis before surgery.

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PREVALENCE OF METABOLIC SYNDROME AMONG ADOLESCENTS WITH EXCESSIVE WEIGHT

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Introduction. Metabolic syndrome (MS) describes a combination of risk factors that increase the risk of developing chronic diseases.

The aim of our study was to reveal the prevalence of metabolic syndrome among adolescents with excessive body weight.

Materials and methods: The research was conducted at Ternopil Regional Children Clinical Hospital in Ternopil. 68 adolescents were examined who according to 2007 WHO adolescent growth standards had body mass index >85th and <97th percentile for age and sex. The average age of teenagers was 15.8 + 1.2 years. 44.6% of adolescents were from countryside and 55.4% from the city. Parameters that were determined included in all children: undertaking anthropometric measurements, general examinations, biochemical parameters (including lipid metabolism, fasting glycemia, oral glucose tolerance test) and daily blood pressure measurement. MS and waist circumference were defined according to the 2007 International Diabetes Federation (IDF) criteria.

Results. Body mass index >85th and <97th percentile according to anthropometric data was diagnosed in all adolescents. Abdominal obesity was determined in 40.7 % of the examined children. First criteria of the metabolic syndrome according to IDF recommendations is abdominal obesity. In 25 % of adolescents with abdominal obesity were determined impaired fasting glycemia (≥5.6 mmol/L). And 5 % of these teenagers had impaired glucose tolerance. Dyslipidemia was considered as disruption of lipid metabolism. 29.2 % of adolescents had raised triglycerides and 20.8 % of children with abdominal obesity had reduced levels of high-density lipoprotein-cholesterol. Among adolescents with abdominal obesity, 66.7 % had raised blood pressure > 130/85 mm Hg.

Conforming to IDF criteria, metabolic syndrome can be diagnosed with abdominal obesity and the presence of two or more other clinical features. The overall percentage prevalence of MS in adolescents with excessive weight was 41,67 %.

Conclusions. This study has shown an increased prevalence of MS among adolescents with excessive body weight. Active discovering and metabolic syndrome treatment in children and adolescents will significantly reduce the level of cardiovascular diseases, diabetes and obesity in adulthood.

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INDICATORS OF ENDOGENOUS INTOXICATION AND IMMUNOREACTIVITY IN HIV-INFECTED PATIENTS

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Introduction. Ukraine is one of the first countries in the European region in terms of the number of HIV-positive people (an estimated 244,000 people). During 2018, 3,448 people died from AIDS-related illnesses, up 150 from 2017.

The aim of the study – to determine changes in endogenous intoxication and immunoreactivity indices in HIV-infected persons.

Materials and methods. 72 HIV-positive patients undergoing treatment at an infectious disease clinic, Sumy, Ukraine were surveyed. Clinical blood counts of patients with HIV infection and 44 clinically anamnestic healthy blood donors were calculated. Endogenous intoxication and immunoreactivity indicators were calculated: leucocyte intoxication index (LII), hematological index of intoxication (HII), index of leukocytes shift (ISL), Krebs index (KI), immunoreactivity index (IR), lymphocytic-granulocytic index (ILG), neutrophil-monocytes ratio (NMR), lymphocyte-monocyte ratio (LMR), neutrophil reactive response (NRR), index of leukocyte and ESR ratio (ILESR), lymphocyte index (Ilymph), eosinophils-lymphocytes ratio (ELR), index of allergization (IA), nuclear index (NI), index of intoxication severity (IIS).

Research results. It was found that a decrease in the lymphocyte formula and an increase in the number of band neutrophils in HIV patients led to an increase in integrative endogenous intoxication rates: LII by 3.4 times ($p < 0.001$), ISL - 1.8 times ($p < 0.01$), HII - 7.6 times ($p < 0.001$), IIS - 36.6 times ($p < 0.001$), NRR 4.2 times ($p < 0,001$). The indexes indicate endogenous intoxication and the presence of an inflammatory process due to opportunistic infections.

Nonspecific reactivity indices have increased NMR by 1.6 times ($p < 0.05$) and NI by 4.8 times ($p < 0.001$), due to the shift of the leukocyte formula toward neutrophils and the prevalence of non-segmented forms over the segmented ones, indicating an inflammatory response.

KI in patients with HIV infection was 2.1 times higher than in relatively healthy subjects ($p < 0.001$). The index reflects the percentage of neutrophils to the number of lymphocytes, the ratio of humoral to the cellular level of immunity, indicating greater activity of the humoral level in the examined. In particular, a 4.9 times increase of ILESR ($p < 0.001$) indicates the presence of endogenous intoxication due to an autoimmune process.

Conclusions. Integrative endogenous intoxication indices are increased in HIV-infected people: LII, ISL, HII, IIS, NRR and non-specific reactivity indices - NMR, NI, KI, ILESR. These changes indicate a greater activity of humoral immunity and the presence of endogenous intoxication due to the autoimmune process.

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KYDNEY FUNCTION DISORDERS IN PATIENTS WITH ARTERIAL HYPERTENSION AND COEXISTENT HYPERURICEMIA

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Aim. The assessment of kidney function disorders in patients with arterial hypertension and coexistent hyperuricemia.

Materials and methods. We observed 40 patients with arterial hypertension (AH) and coexistent hyperuricemia (I group), 35 hypertensive persons without hyperuricemia (II group). The duration of AH was (4,3 ± 2,31) years for the I group and (4,0 ± 2,11) years for the II. Patients with AH and hyperuricemia were (52,4 ± 0,69) years old, with AH only – (54,1 ± 0,61) years old. Persons from the I group had hyperuricemia during (4,1 ± 0,35) years.

The levels of systolic blood pressure were (146,4 ± 5,38) mm. Hg and (144,7 ± 7,07) mm Hg; diastolic – (94,8 ± 6,05) mm Hg and (93,9 ± 5,93) mm Hg for patients from the I and II group.

For the I and II group respectively the uric acid level was (401,6 ± 3,93) mcmol/l and (304,5 ± 4,95) mcmol/l.

The glomerular filtration rate (GFR) was calculated by the method of Cockroft-Gault after determination of creatinine in biochemical blood analysis, body's mass and high. The level of creatinine was (0,1 ± 0,02) mmol/l in the I group and (0,08 ± 0,003) mmol/l in the II ($p = 0,3571$). The body's mass was (75,9 ± 1,79) kg in the I group and (69,9 ± 1,4) kg in the II ($p = 0,0117$).

All results were analyzed statistically with the help of GraphPad, SPSS 21.

Results. The level of GFR was (81,4 ± 2,65) ml/min for the I group and (103,5 ± 4,64) ml/min for the II group ($p < 0,0001$). The value of albuminuria was higher in the I group (91,3 ± 12,28) mg/day in comparison with the II group (34,1 ± 2,51) mg/day ($p < 0,0001$).

Conclusion. The coexistent hyperuricemia in hypertensive patients is associated with more severe kidney function disorders determined by increased albuminuria and decreased glomerular filtration rate.

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NEUROPSYCHOLOGICAL PROFILE OF COGNITIVE IMPAIRMENT IN PATIENTS WITH MODERATE COGNITIVE IMPAIRMENT AND VASCULAR DEMENTIA

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Introduction: It is known dementia disorders are today considered to be a major driver of costs in health care and social systems. Problem is one of the most urgent neurology. In 2015 it was estimated that 46.8 million people worldwide were living with dementia, and this number is expected to increase to 74.7 million in 2030 and 131.5 million in 2050. However, at the current time, diagnosis often happens at a late stage in the illness. Therefore, earlier diagnosis is contributing to quality of life patients.

Aim: The aim of our study was to conduct a comparative analysis of the profile of cognitive impairment in patients with vascular dementia and moderate cognitive impairment.

Materials and methods: The study included 60 patients who had cognitive impairment of different degrees. Out of them, there are were 26 women (43,3%) and 34 men (56,7%), average age of the examined persons was 65,3 ± 2,3 year (women – 68,5 ± 1,02; men – 62,9 ± 0,99). All participants of the study underwent neuroimaging examination of the brain, clinical laboratory studies and neuropsychological examination using the following tests and scales MMSE, MoCA and FAB. The diagnosis of "probable vascular dementia" was established on the basis of NINDS-AIREN criteria. The diagnosis of "moderate cognitive impairment" was established on the basis of diagnostic criteria (J. Touchon and R. Petersen, 2005).

Results: According to the results of the survey, the criteria for probable vascular dementia were responded to 37 patients, moderate cognitive impairment was detected in 23 patients. In the group of patients with moderate cognitive impairment, the average score on the MMSE scale was 24,5, according to the results of the MoCA test 24,3 points. In the group of patients with vascular dementia, scores on these scales were lower −MMSE 20,4±0,8, MoCA −13,2±0,7. According to the results of FAB testing, higher scores were found in patients with moderate cognitive disorders, the mean score was 16,5 points, in patients with vascular dementia 14,4 points.

Conclusions: The use of various cognitive tests and scales allowed to detect differences in cognitive impairment in patients with moderate cognitive impairment and vascular dementia, which is necessary for the choice of therapeutic tactics.

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PREVENTION OF PROGRESSION OF LEFT VENTRICULAR DIASTOLIC DYSFUNCTION IN PATIENTS WITH TYPE 2 DIABETES

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Introduction. Diabetes mellitus is one of important medical and social problems around the world. In recent years the amount of proven data had increased the amount of proven data that the important role in definition of clinical diagnosis and prognosis in patients with diabetes belong to diastolic dysfunction of heart.

Aim. The aims of the research were to improve the treatment of disorders of left ventricular diastolic function in patients with type 2 diabetes mellitus when using telmisartan; to study the mechanisms of development and course of diastolic dysfunction in patients with type 2 diabetes mellitus; to identify diagnostic markers that can be used as predictors of prognosis in heart failure in patients with diabetes mellitus; to evaluate the effectiveness of telmisartan in the treatment of left ventricular diastolic dysfunction in patients with type 2 diabetes mellitus.

Materials and methods. The study included 52 patients with type 2 diabetes in the stage of compensation and subcompensation. Methods of research included clinical examination, laboratory and instrumental studies and retrospective analysis of the histories of patients.

Results. Indicators of intracardiac hemodynamics and structural and functional state of myocardium in patients with type 2 diabetes had deviations from the standard. In 38% examined patient's dilation of LP was revealed, 62%patients had hypertrophy of the posterior wall of LV and/or interventricular septum in 16% patients a decrease in ejection fraction was showed. According to the data of the transmittal flow, only 1 patient had normal indicators, and 51 examined patients, had a violation of diastolic function, in 8 patients the disfunction was combined. Has been showed, that telmisartan has a cardioprotective effect on the heart muscle.

Conclusion. In the study of the mechanisms of development and course of diastolic dysfunction in patients with diabetes mellitus found that diastolic disfunction of the left ventricle is formed in the early stages of type 2 diabetes. Sonographic indicators allow to establish the presence of diastolic disorders in the early stages of the disease. Telmisartan has a cardioprotective effect on the heart muscle, which manifests itself in improving the diastolic function of the left ventricle.

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MYCOBACTERIUM PROMISCUITY: NOW IT'S HUMAN'S BRAIN TURN

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Introduction. Tuberculosis is an infectious disease caused by bacteria Mycobacterium Tuberculosis. Currently, one-third of the world's population is infected with TB, of which 10% develop clinical disease. TB of the nervous system can attack the meninges, brain, spinal cord, cranial and peripheral nerves. Infected meninges can result in a life-threatening condition known as meningeal tuberculosis, also called tuberculosis meningitis (TBM).

TBM is a very critical disease in terms of fatal outcome and permanent sequelae, requiring rapid diagnosis and treatment. Sometimes, after treatment, the bacteria become inactive and rest in latent phase for some time. But a sudden decrease in immunity can cause the bacteria to become active and leads to more severe condition.

Aim. 1) To investigate the effects of Mycobacterium Tuberculosis in Human Brain. 2) To diagnose the disease at an early stage.

Materials and methods. A retrospective study included a woman, who was diagnosed with TBM in the year 2008 in India.
Methods of diagnosis include; Blood culture, chest X-ray, culture of (CSF), Magnetic Resonance Imaging (MRI) and Computerized Tomography (CT) scan of the head.

Result. The infection begins in the lungs via inhalation of infectious droplets, the bacteria then travel to brain meninges and brain tissue and form small abscesses. The abscesses burst and cause tuberculosis meningitis. This infection process causes a rise in pressure within the skull and results in nerve and brain tissue damage. The diagnosis is made by a cerebrospinal fluid test where it showed increased protein, low glucose, and lymphocytic pleocytosis.

Conclusion. Due to vague and varied clinical symptomatology and poorly sensitive diagnostic laboratory parameters, early diagnosis of TBM continues to be a challenge. But if diagnosed early, drug-resistant TB Meningitis can be prevented. This disease can be prevented by the BCG vaccine. This vaccine is effective in babies and young children.

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MORPHOLOGICAL ASSESSMENT OF POST-OPERATIONAL WOUND REGENERATION IN APPLICATION OF THE TOP CLOSURE SYSTEM IN COMPARISON WITH TRADITIONAL SUTURING

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Introduction: The method of traditional suturing of post-operative wounds with simple interrupted suture is accompanied by several disadvantages: it exerts considerable pressure on the edges of the wound, which leads to microcirculational disorders, slowing regenerating processes and decreases resistance to possible infection. Slowdown of postoperative wound regeneration extends the time the patient stays disabled. One of the possible options for preventing these phenomena may be usage of the TOP CLOSURE system, which is based on the natural ability of the skin to stretch. This would reduce the pressure on the edges of the wounds and transfer it from aponeurosis to the skin.

Aim: To make a morphological evaluation of healing and compare the terms of regeneration of post-operative wounds in conditions of application TOP CLOSURE system in comparison with traditional sutures.

Materials and methods: In our study participated 60 people, which were divided into 2 experimental groups of 30 each in each: the first (main) – in which the edges of the wound were connected with the TOP CLOSURE system without suturing; The second one (control) in which – wounds were sutured according to the classical technique. Subsequently, the collection of material, the manufacture of histological preparations and the coloration with hematoxylin-eosin were carried out.

Results: There were noticed some difference in the regeneration of the post-operative wound using traditional suturing technique and TOP CLOSSURE system: Absence of marked neutrophilic infiltration (3^{rd} day), appearance of regions with angiogenesis (7^{th} day), absence of the cells of foreign bodies (21^{th} day), acceleration of the formation of connective tissue scarring (it appears on 21^{th} day, whereas traditional suturing was accompanied by the appearance of scar on 30^{th} day), what was evidenced by the rapid change of cells of the monocyte-macrophage series to fibroblasts. The advantage of using the TOP CLOSURE system in comparison with the use of suture material was the fact that there was no granulomatous (giant cellular) reaction in the post-operative wound around the remains of suture fragments, and that it was no pus there.

Conclusions: Based on the data of morphological studies it can be concluded that the use of the TOP CLOSURE system in the treatment of post-operative wounds helps to achieve rapid repair of tissues with the maximum cosmetic effect, prevents infectious complications (2 cases (6%) in applying TOP CLOSSURE system compared with 7 cases (23%) using traditional suturing), reduces the time patient stays in the hospital (accelerating formation of the scar for 9 days with the use of TOP CLOSSURE system) and is technically simple surgical manipulation.

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INFLUENCE OF INDIVIDUAL CONSULTING ON THE DYNAMICS OF THE BASIC FACTORS OF CARDIOVASCULAR RISK IN PATIENTS WITH HYPERTENSION DISEASE

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Aim. To establish the effect of individual counseling on the effectiveness of monitoring the main factors of cardiovascular risk in patients with hypertension

Materials and methods. 65 patients with hypertension were examined (24 patients - men, 41 patients - women). The average age of patients is (61,4±8,6) years. The study included patients who received drug therapy in accordance with modern standards. Patients visited the clinic once a month. There were a total of 9 consultations lasting 30 minutes each. The patients were examined by a cardiologist, nutritionist and physical therapy instructor. Patients were examined before and at the end of the consultation cycle. Body mass index (BMI), body composition (bioelectric impedance method on Body composition Monitor BF511), blood pressure, and lipid metabolism were determined.

Results. Individual counseling contributed to the correction of anthropometric indicators - decrease in BMI (by 6,8%, p = 0,010), decrease in fat content (by 9.9%, p = 0.014) and visceral fat (by 13,0%, p = 0,018). A reliable reduction of systolic and diastolic blood pressure levels is also established - by 8,4% (p = 0,022) and 6,4% (p = 0,002) respectively. Also significantly improved lipid metabolism - the level of total cholesterol decreased by 19.2% (p = 0,044), LDL cholesterol by 20,2% (p = 0,041), and HDL cholesterol increased by 11,2% (p = 0,032).

Conclusion. Individual training of patients with hypertension in addition to modern drug therapy optimizes control of cardiovascular risk factors such as BMI, blood pressure and impaired lipid metabolism.

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STRUCTURAL DISTRIBUTION OF PLASMAPHERESIS SESSIONS' AMOUNT IN THE COURSE OF TREATMENT INFECTIOUS NOSOLOGIES ON THE BASIS OF SUMY REGIONAL CLINICAL HOSPITAL OF INFECTIOUS DISEASES AFTER Z.Y. KRASOVYTSKYI

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Introduction. Nowadays curative plasmapheresis has a prominent place as an efferent therapy in the complex treatment of patients for the prolongation of remission in certain infectious nosologies (chronic hepatitis, acute hepatitis, sepsis, toxic hepatitis, herpes, leptospirosis, chronic arachnoencephalitis). According to the pathophysiological aspects, the use of apheresis promotes the normalization of protein metabolism in parallel with the hormonal state, in the form of suppression of amino acids deamination, which is important in the spectrum of plasmapheresis.

Aim. To estimate the average, maximum and minimum amount of plasmapheresis in the course of treatment of certain nosologies.

Materials and methods. The study was conducted by the based-on Sumy regional clinical hospital of infectious diseases after Z.Y. Krasovytskyi. The case histories from 2007 to 2011 were analyzed to determine the minimum, maximum and average number of plasmapheresis from the following nosological units: chronic hepatitis, acute hepatitis, sepsis, HCV, toxic hepatitis, herpes, leptospirosis, staph infection, chronic arachnoencephalitis. Patients were in a different age range from 18 to 75 years.

Results. According to the age, patients were divided into the following groups: from 18 to 25 years - 9 (12%), from 26 to 35 years - 14 (18%), from 36 to 45 years - 19 (25%), from 46 to 55 years - 21 (27%), from 56 to 65 years - 10 (13%), from 66 to 75 years - 4 (5%). The average age of patients was 43.3 years. During processing the database of acute hepatitis (30 case histories), it was determined that the maximum number of performed apheresis was 8, the minimum was 3 and the average value was 4,57. The highest proportion of total amount of plasmapheresis was for acute hepatitis, chronic hepatitis, and liver cirrhosis. The quantitative indicator for these nosologies was as follows: maximum number of procedures for acute hepatitis was 4, minimum was 2 and the average was 2.84. For chronic hepatitis, the maximum value was 6, the minimum value was 3, and the average value was 4.14. Assessing the data for liver cirrhosis was established: the maximum number of procedures was 8, the minimum was 5 and the average was 6.5.

Conclusions. In accordance with the accessibility of medical care is a key factor in its delivery, it is necessary to include plasmapheresis in the treatment protocols for those diseases where the effect is achieved with a minimum of sessions, such as acute hepatitis and chronic hepatitis.

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CLINICAL MANIFESTATIONS OF SPINAL CORD TUMORS

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Introduction. Spinal cord tumors make up about 2% of the total number of tumors, and 1,4-5,0% among the tumors of the nervous system. Important that clinical manifestations of the disease are typical, but difficult in early diagnosis, with high level of possible disability and long and complex rehabilitation of patients.

Materials and methods. Medical cards of 18 patients with spinal cord tumors were analyzed. All of them were treated and examined in Sumy Regional Clinical Hospital in 2016-2018. There were 6 men (33,3%) and 12 women (66,7%). 4 (22,2%) patients were in the age range of 35-54 years, the other 14 (77,8%) – older than 55 years. Average age is 50,5±15,5.

Magnetic resonance imaging was performed to determine the localization and features of tumors for all patients. Sixteen patients (88,9%) had extramedular localization of the tumor, and 2 patients (11,1%) intramedullary. Among of them were 11 women (61,1%) and 5 men (27,8%) – extramedullary, one person of each sex (5,5%) – intramedullary.

Results. In patients were detected pain, radicular syndromes and sensory impairment. Pain syndrome was observed in 11 (60,5%) patients, radicular – in 1 (5,5%), sensory impairment – in 6 (33,3%). Among patients with extramedullary tumors, pain was observed in 10 (55,0%) patients, radicular – in 1 (5,5%), sensory – in 5 (27,8%), and with intramedullary – with pain syndrome – 1 (5,5%) patient, sensory impairment – 1 (5,5%).

Conclusion. According of the data of analyze we can conclude that there is a prevalence of pain in the clinic of tumors of the spinal cord, which was the most symptom of the disease.

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OXIDATIVE HOMEOSTASIS AND DENTAL STATUS STATE IN PATIENTS EXPOSED TO OCCUPATIONAL VIBRATION

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The aim of the research involved determination of reduced glutathione contents in oral fluid of patients exposed to occupational vibration in relation to their dental status.

Materials and methods of research. The assessment of dental status (DS) and reduced glutathione (RG) contents in oral fluid (OF) was carried out in three groups of patients: control group (n_0=129) included the persons exposed to occupational vibration whose results of comprehensive medical examination excluded the presence of vibrational disease; the second ($^1n_1$=63 patients with the 1st stage VD) and the third group – $^2n_1$=66 patients with the 2nd stage of VD. Dental status for in-patients and control group persons (when rendering medical check-up) with the employment of the following indices: PMA, OHI-S, DMFT.

Results of the research and their discussion. Assessment of metabolic indices, characterizing the state of oxidative homeostasis enzyme chain, showed that RG contents in OF in relation to VD severity conclusively ($p<0,05$) reduced. RG contents in relation to PMA intensity in patients with VD ranged from 23,5±0,8 mg/cm^3 to 28,6±0,3 st.un/min. and was conclusively ($p<0,05$) lower in patients with 1st stage VD in comparison to control group patients (23,2±1,0 st.un./min. and 26,7±0,3 st.un./min. correspondingly – in PMA>2,1) and also conclusively lower in patients with 2nd stage VD in comparison to patients with 1st stage VD (29,9±0,9 st.un./min. and 26,2±0,4 st.un./min. correspondingly – in PMA>1,0). Comparative analysis showed that periodontal membrane enzyme protection activity can also be determined by hard tissue state, in particular by such dental status index as DFMT. RG contents in relation to vacuum pressure strength of gingival capillaries in VD patients ranged from 29,2±0,1 st.un./min. to 29,2±0,1 st.un./min. and was conclusively ($p<0,05$) lower in patients with the values of vacuum pressure strength of gingival capillaries ≤40 sec.

Conclusions. Enzyme chain antioxidative protection activation in VD patients in low oral hygiene index values and simultaneous inhibition of enzyme activity in case of high oral hygiene index values has been established. An increase in RG activity in the 1st stage VD has been compared to control group ($p<0,05$), whereas in the 2nd stage VD its conclusive reduction has been determined ($p<0,05$).

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CONTENTS SECRETORY IMMUNOGLOBULIN IN ORAL FLUID AND DENTAL STATUS OF PATIENTS EXPOSED TO OCCUPATIONAL VIBRATION

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The aim of the research involved determination of sIgA contents in the oral cavity of patients exposed to occupational vibration in relation to their dental status.

Materials and methods of research. Determination of dental status (DS) and sIgA contents in oral fluid was performed in three groups: control group (n0=129) included the persons exposed to occupational vibration whose results of comprehensive medical examination excluded the presence of vibrational disease; the second (1n1=63 patients with the 1st stage VD) and the third group – 2n1=66 patients with the 2nd stage of VD. Primary data were statistically processed with the determination of accuracy by Student test.

Results and their discussion. The rate of sIgA contents in relation to PMA intensity in patients with VD ranged from 0,73±0,01 mg/cm3 to 0,60±0,01 mg/cm3 and was conclusively ($p<0,05$) lower in patients with the 1st stage VD in comparison to control group patients (0,68±0,01 mg/cm3 and 0,75±0,02 mg/cm3 correspondingly – in PMA>2,0) and also conclusively lower in patients with the 2nd stage VD in comparison to patients with the 1st stage VD (0,71±0,01mg/cm3 and 0,60±0,01 mg/cm3 correspondingly – in PMA>1,0). The rate of sIgA contents in relation to vacuum pressure strength of gingival capillaries indices in oral fluid of patients with VD ranged from 0,60±0,02 mg/cm3 to 0,88 mg/cm3 and was conclusively ($p<0,05$) lower in patients with 1st stage VD (in vacuum pressure strength of gingival capillaries ≥40 sec) in comparison to control group patients (0,71±0,01 mg/cm3 and 0,76±0,01 mg/cm3 correspondingly) and also conclusively lower in patients with the 2nd stage VD in comparison to patients with the 1st stage VD.

Conclusions. An increase in frequency and intensity of periodontal mem-brane mucosa injuries in relation to VD development and severity along with a corresponding reduction in oral sIgA contents has been determined. A conclusively ($p<0,05$) lower sIgA contents (patients - 0,71±0,02 mg/cm3; control group - 0,78±0,02 mg/cm3) has been found even in mild periodontal mucosa injuries (PMA<1,1) in VD.

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DEPENDENCE OF THE WBC INTOXICATION INDEX ON THE VALUE OF C-REACTIVE PROTEIN IN SICK CHILDREN IN THE CONDITIONS OF INTENSIVE THERAPY

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Introduction. Leukocyte index of intoxication (LII) Ya.Ya. Calf-Caliph characterizes the reaction of the blood system and can be used as an indirect indication of the state of the immune system and its reactivity. As normal values the LII score is taken to 0,7 (± 0,07). Elevation of LII up to 3.0 testifies about formed infectious process, when the LII value is within 4.0-9.0 - bacterial component of intoxication syndrome.

Aim. The purpose of our research was to calculate LII in children with positive C-reactive protein who were treated at the department of intensive care of the Sumy City Children's Hospital.

Materials and methods. We researched 77 children. The I group consisted of 28 sick children with positive CRP, and the II group consisted of 49 children with negative CRP.

Results. In (57,1±9,52) % children of I group, the values of LII as of the first day were 1,3. Only in (14,3±6,73) % indicators of children within the limits of norms, the average value of LII in them was 0.67. The value of LII is less than 0.7 was noted in (28,6±8,68) % children in group II. In the II group of patients, only in (16,3±5,33) % children were observed an increase in LII in (34,7±687) % children, the rates of LII were within the norm, and in (49±7,22) % indicators were lower than the norm.

We identified the major groups of diseases, namely ARVI pneumonia and meningitis, and examined the mean values of LII in the first 5 days after the onset of the disease, depending on the diagnosis and CRP.

In children of group I, all of them determined significant increase in LII in ARVI and pneumonia. There were 4 children with acute respiratory viral infections, and their LII was 1.22. Pneumonia was determined in 14 children of group II, and their LII values were 2.47. Among children in group II, the highest increase in LII was observed in children with meningitis. Meningitis was diagnosed in 6 children in this group. The average indices of LII in them were 2.65. There were 5 children in the second group with ARVI and they had an LII of 0.8. Pneumonia was determined in 2 children of this group, and their LII was 1.47.

Conclusions. So, the index grows during the infectious process, and diseases that are caused by more severe intoxication and, naturally, bacterial etiology. Namely, most of the values of LII are determined in the group of children with positive C-reactive protein.

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PREDICTING OF THE DEVELOPMENT OF AIDS-INDICATING OPPORTUNISTIC INFECTIONS IN HIV-INFECTED PATIENTS ON ANTIRETROVIRAL THERAPY (RETROSPECTIVE COHORT STUDY)

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Introduction. HIV remains one of the actual problems of modern medicine. The search for predictors of the development of AIDS-associated opportunistic infections (OI) in patients on antiretroviral therapy (ART) is an urgent scientific and practical task.

Aim of the study is to investigate the predictors of progression and to create a prognostic model for the development of AIDS-related opportunistic infections in HIV-infected patients receiving ART based on the determination of clinical genetic markers.

Materials and methods. A retrospective cohort study of 181 HIV-infected patients was conducted. Logistic regression and ROC analysis were used for statistical data processing.

Results. As a result of the analysis of 27 potential predictors of the development of AIDS-associated OIs in patients on ART, 10 significant patients were identified in HIV-infected patients, on which the progression of HIV depends, namely: male sex (OR = 3.30 [95% CI 1.21 –9.0], p = 0.020), injecting drugs (OR = 2.49 [95% SO 1.02–6.07], p = 0.044), incarceration experience (OR = 2.29 [95% CI 1.07–4.91], p = 0.033), smoking (OR = 2.46 [95% CI 1.14–5.27], p = 0.021), immunological failure of ART (OR = 4 , 48 [95% CI 1.98–10.13], p = 0.000), low adherence to ART (OR = 3.03 [95% CI 1.13–8.09], p = 0.027), BMI less 18.5 (OR = 6.13 [95% CI 2.77–13.56], p = 0.000), hemoglobin level lower than 100 g/L (OR = 2.99 [95% CI 1.41–6.32], p = 0.004), the 299Gly allele of the TLR4 gene carrying (OR = 3.38 [95% CI 1.41–8, 12], p = 0.006) and the normal genotype (Gln11Gln, 11Gln/-) of the TLR7 gene (OR = 2.90 [95% CI 1.06–7.95], p = 0.038).

Conclusions. A prognostic model of 5 predictors (male sex, immunological failure of ART, hemoglobin level lower than 100 g/L, BMI below 18.5 kg/m2 and carrier of the allele 299Gly of the TLR4 gene) was created (statistically significant ($\chi^2 = 59.88$, g <0.001) with operational characteristics: sensitivity - 73.0%, specificity - 79.0% and had a high predictive efficiency (area under the ROC curve - 0.8580).

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CREATING A QUESTIONNAIRE WITH EVALUATION OF PEOPLE KNOWLEDGES ABOUT LYME DISEASE

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Introduction. Currently there is a tendency for the increasing of Lyme disease in the Sumy region. The tendency of the diseases in 2015 was 13.44 per 100 thousand people (in Ukraine - 7.96), and in 2018 it increased to 23.04 (in Ukraine - 12,78). The increase of the indicator by 1.7 times indicates that the epidemiological situation in Ukraine and Sumy region remains difficult. The increase in the incidence of the disease indicates the widespread spread of Lyme disease in the Sumy region. In order to prevent their spread, it is necessary to study all the possible causes of the disease and find ways to solve them. This was the basis for the creation of a unified anonymous questionnaire that highlights the main questions regarding the disease from the point of view of different categories of the population.

The aim of the study. Creating a questionnaire to help raise awareness of Lyme disease, prevention and consequences.

Materials and methods. Patients who have been attacked by ticks and have sought medical help at Sumy Regional Infectious Diseases Clinic conducts an anonymous survey, with the voluntary consent, according to the created questionnaire.

Results. The unified anonymous questionnaire "Questionnaire of the patient with the Lyme disease "contains 16 questions with answer options and the ability to make your own comments. The first group of questions relates to gender, age and social data of the person (age, gender, profession) who are being interviewed. The second group of questions addresses the epidemiological features of this pathology (circumstances, date, time, locality, localization of mite suction).The third group of questions is focused on knowledge of Lyme disease - methods of tick removal, prevention measures for prevention of suction, awareness of antibiotic prophylaxis. The following questions relate to the clinical features of the disease. Anonymous questionnaire is attended by patients and persons who seek treatment immediately after the mite is sucked in.

Conclusions. According to the anonymous questionnaire, the awareness of patients undergoing treatment at Sumy Regional Infectious Diseases Clinic and persons seeking help after suctioning a tick for diagnosis, clinical signs and measures of prevention of Lyme disease. An action plan will be developed to prevent the disease, in accordance with designated areas of Sumy region for the risk of infection.

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DIAGNOSTIC CRITERIA OF PROBABLE ALZHEIMER'S DISEASE (CLINICAL CASE)

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Introduction. Alzheimer's Disease (AD) is a chronic degenerative brain disorder. It mostly starts around 65 years and leads to progressive memory loss, altered thoughts, disorientation and personality and mood changes with unknown etiology. It causes 60-70 % cases of dementia. About 3 % of men and women aged 65 to 75 has AD. There is degeneration of brain neurons especially in cerebral cortex and presence of neuro fibrillary tangles and plaques containing beta-amyloid cells. Alzheimer's association have proposed diagnostic criteria i.e., Definite AD, Probable AD, Possible AD, Unlikely AD.

Aim. To evaluate research criteria for case of "Probable" Alzheimer's disease patient as per Alzheimer's association diagnostic criteria.

Materials and Methods. A woman aged 75 was admitted to Municipal non-commercial organization "Clinical Hospital No 4" of Sumy City Council by her sister due to memory failure from past two years. Her sister noticed gradual worsening of memory failure, reduced interest towards house keeping and financial affairs, tough in finding words. Her sister also noticed sleep disturbance which became prominent and was waking up from sleep self-talking. But the woman is unaware of having progressive impairment and complaints.

Results. The patient was alert and conscious. All laboratory findings were normal with tests for HIV, neurosyphilis and all other were negative. Her speech was highly anomic and has paraphasia. She couldn't tell her age and date of birth correctly, couldn't recall recent events, forgot names of family members. On neuropsychological assessment, scores were below average in most cognitive and behavioral domains. Clinical Dementia Rating-Sum of Box Score (CDR) was 5.0. Mini Mental Status Examination score was 15. Magnetic Resonance Imaging (MRI) showed grade 1 and grade 2 atrophy in cerebral and medial temporal lobe respectively.

Conclusion. After considering her cognitive status, neuropsychological tests and CDR score, she was diagnosed with "Probable" AD according to Alzheimer's association diagnostic criteria. She needs care taker for her safety. Acetylcholinesterase inhibitors (Ipigrix, Grindex Corp., Latvia) was given a dose of 20 mg, and after 14 days she was discharged. Ipigrix with increased dose was given along with N-methyl-D-aspartate antagonist (NMDA) (Memantine, TEVA Pharm. Ind. Ltd., Israel) of 20 mg after discharge to manage her decline in persistent cognitive status. Her sister was advised to bring the patient to clinic for regular visits for monitoring of her symptoms.

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AGGRESSION AND VIOLENCE AGAINST THE STAFF OF THE EMERGENCY MEDICAL SERVICE

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Introduction. Emergency workers are at particular risk because they are often forced to render assistance to mentally ill or unbalanced patients, asocial elements, and people in the state of alcohol or drug intoxication.

Aim. To study the characteristics of aggressive actions against medical workers in order to identify ways to improve the situation.

Materials and methods. An anonymous survey of 105 employees of the Sumy Regional Centre for Emergency Medical Care and Disaster Medicine had been conducted during 2018. The demographic indicators, position and work experience were determined; a survey on the frequency, causes and nature of aggressive actions in relation to a medical worker by the patient or third parties was conducted.

Results. In course of the survey, 75.24 % of the emergency medical staff reported that during the year they had been victims of aggressive and violent actions by patients, their relatives or friends, and 41 respondents noted that there were several such incidents.

According to the results of the survey, there were 128 violations, including 114 incidents in which the employees of the emergency services were insulted and threatened with physical violence; 9 physicians, or 7.03 %, were subjected to assaults and beatings.

Most often, the reasons for aggressive behaviour of a patient or third parties were the waiting time for the health worker and the dissatisfaction with the assistance provided.

Describing offenders, the respondents noted that in 57.03 % of cases the inadequate behaviour was caused by alcohol intoxication, in 8.59 % – by drug intoxication, in 24.21 % of cases there were signs of acute or chronic mental illness. In 10.16 % of cases, the patient's aggressive condition was the result of his illness (acute pain, hypoxia, etc.).

Conclusion. The authors come to the conclusion that it is necessary to solve the problem of the safety of a medical worker during an emergency call at the state level.

Special attention should be paid to the further improvement of legal assistance, the development of violence prevention measures, and the introduction of an incident reporting system.

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STUDY OF DYSLIPIDEMIA AND CYSTATIN C LEVELS AS A PREDICTIVE MARKER OF CHRONIC KIDNEY DISEASE IN TYPE 2 DIABETES

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Inroduction. Diabetic nephropathy (DN) is the most common cause of microvascular chronic complication of Type 2 diabetes mellitus (T2DM). Chronic kidney disease (CKD) results in profound dysregulation of several key enzymes and metabolic pathways that eventually contributes to disordered high-density lipoprotein (HDL) cholesterol and triglyceride-rich lipoproteins. Higher total cholesterol and lower HDL-cholesterol were significantly associated with an increased risk of developing renal dysfunction in healthy men. Cystatin C, a cysteine protease inhibitor, is freely filtered by the renal glomeruli and identified as a promising marker of renal failure. The present study was undertaken to explore the possibility of the serum cystatin C level as marker of early renal impairment in T2DM patient and also studied alter lipoprotein level in T2DM patients.

Materials and methods. The study population comprised total 128 subjects in which 58 healthy control and 70 patients of T2DM. The estimated GFR (eGFR) level was calculated using the modification of diet in renal disease (MDRD) formula. The cystatin C estimated eGFR level was calculated by eGFR (mL/min). Statistical analysis was done by using GNU PSPP. Results were expressed as mean ± standard deviation and were analyzed by unpaired Student's *t*-test. The level of significant was set as $P < 0.05$: Significant and $P > 0.05$:Nonsignificant.

Results. Blood glucose level of Group 2 was significantly increase compare to control ($P < 0.001$). In Group 2, we found total cholesterol, Triglycerides, levels were significantly increase compare than control, whereas HDL cholesterol levels were significantly lower ($P < 0.001$) compare with control group. Serum cystatin C level was significantly increase in Group 2 compared with control. However, eGFR were significantly lower ($P < 0.001$) in the Group 2 compared with control. Pearson correlation of microalbuminuria with eGFR showed significant linear relationship ($r = 0.756$, $P < 0.001$) and also showed significant linear relationship with mAlb ($r = 0.689$, $P < 0.001$).

ConclusionThe results of this study suggest that cystatin C estimation in serum is a useful, early detection marker, practical, noninvasive tool for the evaluation of renal disease in the course of diabetes patients.

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A MEDICAL-PSYCHOLOGICAL REHABILITATION SYSTEM HELPS WITH SUICIDAL BEHAVIOR IN DEMENTIA

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Introduction. About 50% of patients with dementia have various suicidal symptoms. Within biopsychosocial approach psychiatric help has an integrated influence on a patient and contains set of therapeutic, psychological and social methods of work taking into account the mechanisms of formation and predictors of suicidal behaviour (SB) in dementia.

Aim. This work aims to develop and test programmes of complex differential medical and psychological rehabilitation of suicidal behavior in patients with dementia.

Materials and methods. A total of 86 dementia patients with SB participated in the testing of the differentiated MPR programme, 49 of which were treated according to the developed rehabilitation programme (treatment group), and 37 received traditional treatment (control group).

The programme of therapy contains the complex of pharmacological, psychological and social activities that take into account the mechanisms of formation and predictors of suicidal behavior (SB) in dementia. An integrated treatment approach combines pharmacotherapy, psychotherapy (crisis psychotherapy, support group psychotherapy, art therapy, family psychotherapy), psychoeducation, training (training of cognitive, communication, social skills and self-care).

Results. Considering the data obtained in the course of clinical and psychopathological research regarding the mechanisms of SB formation, the following schemes of drug therapy are proposed:

Patients with dementia with a depressive mechanism of SB were prescribed: pathogenetic treatment with anticholinesterase drugs (Cognifen according to the 1-month scheme) + antidepressants from the class of SSRIs (citalopram 20-40 mg/day) / (trazodone 75 mg/night).

Patients with dementia with a cognitive mechanism of SB were prescribed: combination anticholinesterase drug/nootropic drug-containing GABA (Cognifen according to the 1-month scheme) + NMDA receptor inhibitor (memantine according to the scheme up to 20 mg/day for 2 months).

Patients with dementia with a psychotic mechanism of SB were prescribed: basic Cognifen therapy (according to the 1-month scheme) + Risperidone 1-2 mg/day and quetiapine 25 mg/night.

Conclusion. Performance analysis showed that in the group of patients undergoing treatment according to the developed programme there was a reduction of suicidal risk, reduction of manifestations of depressive symptoms and aggressiveness, improvement of cognitive functions of patients, as well as improvement of independence of existence of patients with dementia.

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LABORATORY FEATURES OF THE COURSE AND COMPLICATION OF CHRONIC VIRUS HEPATITIS C

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Introduction. According to the WHO data, Ukraine belongs to countries with an average prevalence of hepatitis C. By the degree of negative influence on the health of the population and the extent of the disease, viral hepatitis in Ukraine occupies a dominant place in the structure of infectious pathology.

Aim. To study the laboratory features of the course of chronic viral hepatitis C and complications of patients in 2018.

Materials and methods. We processed and analysed 46 medical cards of stationary patients with chronic hepatitis C who were treated at the Sumy Regional Infectious Clinical
Hospital named after Z. Y. Krasovitsky during the period of 2018.

Research results. Among all the examined there were 1.7 times more men (63.04%) than
women (36.96%). In the clinical analysis of blood, the average value of leukocytes was (5.63 ± 0.31) * 10 9 ; erythrocytes - (4,33 ± 0,09) * 10 12 ; hemoglobin - (132,93 ± 3,04) g / l; hematocrit - (0,35 ± 0,008) l / l; the average volume of erythrocytes - (81.35 ± 0.88); the average concentration of hemoglobin - (30,68 ± 0,37) pg; the average concentration of hemoglobin - (376.89 ± 1.24) g / l; platelets - (179.61 ± 9.78) * 10 9 ; changes in the size of platelets - (14,42 ± 0,25); Stab neutrophils - (5.69 ± 0.49) %; segmented - (44.28 ± 1.98) %; eosinophils - (1.31 ± 0.11) %; lymphocytes - (36,09 ± 1,82) %; monocytes - (8,61 ± 0,51) %; ESR - (14,93 ± 1,85) mm / h; PTI - (84,42 ± 1,04) %; in the biochemical analysis of blood, the average glucose value - (5,43 ± 0,26) mmol / l; total protein - (69,67 ± 1,47) g / l; hall bilirubin - (20,45 ± 1,57) μmol / l; direct bilirubin - (3.70 ± 0.35) μmol / l; ALT - (63,96 ± 8,05) OD / l; AST - (54.92 ± 5.04) OD / l; GGTP - (62,22 ± 8,17) OD / l; LF - (94,53 ± 5,43) OD / l; creatinine - (110.85 ± 28.32) Kmol / L; urea - (5.83 ± 0.45) mmol / liter; in the clinical analysis of urine the average protein value - (0,09 ± 0,06) g / l; cylinders - (1,12 ± 0,23) per FOV; erythrocytes - (2.78 ± 0.76) per FOV; leukocytes - (4.13 ± 0.59) per FOV.

Among the examined anemia was observed in 17.39 %; leukopenia - 23.91 %; erythropenia - 17.39%; thrombocytopenia - 32.61 %; hypoproteinemia - 16,00 %; hyperbilirubinemia - 42.86 %; hyperfermentemia (ALT) - 54,76 %, hyperfermentemia (AST) - 54,76 %.

Conclusions. Thus, in laboratory tests of patients, typical changes were observed for chronic viral hepatitis C. In the records of the patients with chronic hepatitis C, anemia,
thrombocytopenia, hypoproteinemia, and hyperfermentemia were observed. Among the complications is portal hypertension.

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POSSIBILITIES OF CONE-BEAM COMPUTER TOMOGRAPHY IN DIAGNOSIS OF FRACTURES OF MANDIBLE FRACTURES

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Introduction. According to statistical data, fractures of the mandible (MF) make up 85 to 90% of all fractures in the maxillofacial area. Among patients with fractures of the jaws, 83.7% are damaged the mandible, 8% - the upper jaw, and 8.3% - both jaws. In addition, in 67-82% of cases, MF are localized within the dentition and, accordingly, are open. The main reasons for their occurrence are domestic and road traffic accidents. Such a frequency of damages of the mandible is due to its anatomical features, more pronounced position relative to other bones of the face. It is established that fractures of the mandible are more common in people of young working age, which is a significant socio-economic problem. In this case, adequate timely screening of such patients will facilitate effective treatment and compilation of the prognosis of the course of reparative processes of traumatized bony structures of the mandible, the choice of individual treatment regimens of patients, prevention of undesirable complications

At present, the use of cone-beam computer tomography, which is a low-dose method, and having extremely software-friendly diagnostic image analysis software, has all the advantages of multispiral computed tomography, is investigated for visualization of MF However, the possibilities of its relative to MF have not yet been studied.

Aim. To explore the possibilities of a cone-beam computer tomography for traumatic damages of the mandible.

Material and methods. Cone-beam CT scan was performed for 63 patients with fractures of the mandible. Of these, 54 (85.7%) men aged 19 to 63 years old and 9 (14.3%) women aged 32 to 57 years. The research was conducted on the PAX-ZENIT 3D apparatus according to standard methods. They evaluated the localization, the nature of the fractures, the presence of rivets and the displacement of fragments.

Results. According to the performed surveys, single fractures were diagnosed in 56.7% of patients, double in 39.4% of patients, and 3.9% in multiple cases. Single fractures in most cases (68.6%) were detected in the area of the angles and jaw processes. Double fractures more often (59,3%) were determined in the zone of icons and sprouts and icons and the angle of the lower jaws. Regarding localization, 72,3% of fractures were damage to the body of the mandible. It should be noted that the fractures in the projection of the body of the mandible within the dentition are diagnosed as open, as the mucous membrane during the displacement of the fragments is broken together with the periosteum, with the fracture line combined with the oral cavity. Fractures of the branch of the mandible, detected in 17.2% are usually closed. In the case of fragmentary fractures, the CONE BEAM CT even visualized the smallest of them, clearly displaying and removing fragments.

Conclusion. Thus, cone-beam computed tomography is a highly informative low-dose method for investigating fractures of the mandible, which allows a detailed diagnosis of the degree of traumatic damage to the mandible for early diagnosis.

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MODERN STAGED TREATMENT OF PATIENTS WITH PURULO-NECROTIC LESIONS OF DIABETIC FOOT SYNDROME

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Introduction. Diabetic foot syndrome (DFS) develops in 6-11% of patients with diabetes mellitus and 40-70% of them require surgical treatment. A modern approach to the diagnosis and treatment of patients with complications of DFS includes a series of successive stages. The basis of treatment is a sparing principle whose goal is to maintain the support function of the foot.

Aim. To analyze the results of the staged treatment of patients with purulo-necrotic complications of DFS.

Materials and methods. The results of treatment of 98 patients operated on for purulent-necrotic complications of DFS are analyzed. In 46 patients phlegmon of the foot was diagnosed, in 19 – gangrene of the toes, in 11 – gangrene of the foot, in 11– trophic ulcers, in 6 – osteomyelitis, in 5 – abscesses of fingers and foot.

Stages of diagnostic and therapeutic algorithm:

1. Examination: physical, laboratory, radiation and other methods of research.
2. Preoperative preparation: correction of glycemia, water-salt metabolism, detoxification and antibacterial therapy.
3. Surgery: necrectomy, opening and draining of phlegmon and abscesses, amputations of the fingers, transmetatarsal amputations of the foot, amputations at the level of the thigh and lower leg.
4. Post-operative treatment: dressings, limiting the loading of the operated limb, analgetics, correction of glycemia, rheological properties of blood and water-salt metabolism, vasodilators, detoxification and antibacterial therapy, means for improving the metabolism.
5. Rehabilitation: a complex of physical exercises and physiotherapy procedures (diadinamoterapiya, magnetotherapy). Application of orthopedic insoles and orthoses.

Results. 6 months and a year later, a comparison was made with a similar group of patients who had not undergone rehabilitation treatment in the postoperative period. The following indicators were evaluated: foot deformity, presence of trophic ulcers and purulent complications. The results showed that the number of complications decreased from 25 to 15,8% (1,6 times) after 6 months and from 55 to 36,8% (1,5 times) in one year of rehabilitation treatment.

Conclusion. The treatment strategy of patients with purulent-necrotic complications of DFS should be complex and have organ-preserving character. Rehabilitation should include a set of measures aimed at restoring the mobility of the foot and preventing its deformation, which reduces the number of complications.

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OSTEOMYELITIS OF THE CLAVICLE AFTER A COURSE OF CHEMOTHERAPY FOR ACUTE LEUKEMIA: A CLINICAL CASE

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Introduction. Chemotherapy for treatment of acute leukemia increases the risk of developing infectious complications due to granulocytopenia. Most often there are respiratory or gastrointestinal infectious complications. Lesion of joints and bones occur in 1-2% of cases**.** In the literature review, there are cases of involvement of the mandible, pelvic and femur after chemotherapy, and no case of osteomyelitis of the clavicle has been described.

Aim. Report of a clinical case of osteomyelitis of the clavicle complicated by pleural empyema in a patient with recurrent acute myelomonoblastic leukemia after treatment with high-dose cytarabine.

Materials and methods. 36-year-old male patient was diagnosed with acute myelomonocytic leukemia (blast cells in bone marrow 71%) 2 years ago, a course of chemotherapy was performed using in induction the scheme 7 + 3 (cytarabine + idarubicin), for consolidation – high dose cytarabine. After 6 months of remission, the patient had neurological manifestations such as headache, pain in the cervical and lumbar spine, paraplegia. At hospitalization was diagnosed early recurrence (blast cells in bone marrow 20%), neuroleukemia (cytosis in a cerebrospinal fluid $1429x10^6$/l, leukocytes $80x10^9$/l, blasts 84%) is established. After induction course and intrathecal administration of cytostatic drugs, remission was established and consolidation therapy was initiated. Insulin-dependent type 2 diabetes has developed during therapy.

Results. After the second course of high-dose cytarabine, the patient develops febrile neutropenia, hemorrhagic syndrome, and complains of pain in the cervical spine, pain and limitation of movement in the shoulder joints, local swelling and pain in the clavicle. CT scan diagnoses osteomyelitis of the clavicle complicated by pleural empyema. During the diagnostic puncture of the pleura, pus with the pathogen Staphylococcus auricularis and Klebsiella pneumoniae was obtained. On the background of antibacterial therapy the patient underwent surgical treatment of clavicle osteomyelitis and pleural empyema.

Conclusion. Control of the functional state of the joints and the detection of bone pain syndrome should be considered in patients with acute leukemia receiving treatment with high-dose chemotherapy.

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THE CLINICAL FEATURES OF TUMORS OF SC AND CONNECTION BETWEEN THE DIAGNOSTIC RESULTS AND THE NATURE OF TUMORS IN THE SUMY REGION

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Introduction. Nowadays, tumors of the spinal cord (SC) occur rarely, growing from its parenchyma, vessels, roots and membranes. National Tumor Registry Program (NPCR) and Surveillance Epidemiology and Tumor Outcome (SEER) Programs in America for 2004-2007 (99,2% of the population covered), there were 2576 malignant and 9136 benign primary tumors of the SC often, they develop not from the brain substance, but from the surrounding tissue, and with the increasing in size, compress the SC.

Aim. Studying the clinical features of tumors of SC and connection between the diagnostic results and the nature of tumors in the Sumy region.

Material and methods. Analysis of medical records of patients with SC tumors, which underwent inpatient treatment at the neurosurgical and neurological departments of Sumy Regional Clinical Hospital in 2017. 18 clinical cases were reviewed, leading symptoms, blood test, MRI, histological features (HF) used. Links with other diagnostic information for descriptive statistics conducted using the licensed version of the IBM SPSS Statistics17 program.

Results. Patients aged 35 to 60 years (50,5±15,5). All of them was made MRI. According to invastigastion Th7-12 level: 8 meningiomas, 1 schwannoma, 2 no research. Th1-6 level: 4 meningiomas. L1-L3 level: 2 ependymoma, 1 chondroma. Localization: 2 – intramedullary intradural, 15 – extramedullary intradural, 1 – extraduraly; leading syndrome – 11, pain syndrome, 1 – radicular, 6 – sensitivity. ESR 16,5±13,5 mm/h. Hb 133±31 g/l; erythrocytes 4,025±0,975*10^{12}/l; leukocytes 9,95 ± 5,65*10^{9}/l glucose 4 mm/l.

Conclusion. It is not established a reliable relationship between the presence of a spinal cord tumor and the alteration of laboratory parameters.

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DIAGNOSIS OF INTESTINAL ANASTOMOTIC LEAKAGE BASED ON ULTRASOUND DATA INVESTIGATION

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Introduction. One of the problems in abdominal surgery is the problem of surgical treatment and prevention of patients with intestinal anastomotic leakage. Early diagnostics of intestinal anastomotic leakage is complicated, and the development of this complication not only complicates the grow heavy course of the early postoperative period, but also serves as the main cause of fatal cases. Finding of additional methods for early diagnostics of this complication, as well as developing effective treatments and prediction, remains a pressing issue.

Aim. To study the results of the application of ultrasound investigation of areas of intestinal anastomosis as a method of diagnostics of their leakage in the early postoperative period.

Materials and methods. A retrospective analysis of surgical treatment of 86 patients with strangulated hernias of abdomen in age from 53 to 80 years were conduct. All patients hospitalized late then 24 hours from the onset of the disease, that led to the presence of a necrotic area of the small intestine and the need for bowel resection with the imposition of enteroenteroanastomosis "side to side" or "end-to-end". Patients were divided into two groups: the main – 39 patients and the comparison – 47 patients. In the main group ultrasound investigation of the anastomosis zone and the abdominal cavity on the 3, 6 and 12 day of the postoperative period were performed. In ultrasound assessment considered the extent of infiltration (thickness) of the intestinal wall, activity of peristaltic contractions, presence of fluid and free gas. For patients of the comparison group used a standard postoperative management.

Results. The signs of anastomotic leakage were the presence of gas and free fluid near the anastomosis, along with ultrasound signs of advanced peritonitis (free fluid in the peritoneal recesses, lack of peristalsis, significant thickening of the intestinal wall). Such ultrasound signs were served as an indication for relaparotomy. In the main group in 3 (7.7%) patients on the 3-6 days succeeded in detecting leakage of enteroenteroanastomosis, whereas in the comparison group, leakage of an intestinal anastomosis was found by the clinical symptoms in 5 (10.6%) patients on the 6-9 days. Relaparotomy with resection of the anastomosis or its exteriorization together with the defect was performed to all patients, in one case an ileostoma was imposed.

Conclusion. After examining the results of the application of ultrasound investigation of the areas of intestinal anastomosis, we concluded that the use of ultrasound in the postoperative period for early detection of signs of enteroenteroanastomoses leakage is appropriate.

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ASSESSMENT OF THE QUALITY OF KNOWLEDGE OF PATIENTS AND STUDENTS ABOUT CHRONIC VIRAL HEPATITIS

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Introduction. Significant spread of chronic viral hepatitis in Ukraine and in the whole world, an increase in the incidence of medical personnel, and the lack of wariness of the population regarding the diseases of this group makes it necessary to have a statistical analysis of the etiology, diagnosis, treatment and prevention of viral hepatitis among different population groups.

Aim. To study and analyze the awareness about viral hepatitis B and C of the patients, who undergo treatment in various departments (infectious, surgical, therapeutic) and the students who didn`t take the course of infectious deseases.

Materials and methods. 80 people who were patients of the infectious, surgical and therapeutic departments, as well as the 4th- year students of the medical institute took part in the study.Each of them was given a questionnaire, which was completed anonymously.

Results. Among all the examined the number of men (55.00%) was 1.2 times higher than women (45.00%). Most of the respondents were young (51.25%),which is 2.4 times more than middle-aged (21.25%), 2.6 times more than elderly (20.00%), at 8, 2 times more compared with the aging population (6.25%). Long-lived people were only 1.25. In the group of patients undergoing treatment in the infectious department, the most correct answers were given to the question about the infectious agent (85.70%), the presence of effective therapy against viral hepatitis B (HBV) (85.00%). And the least - about the presence of an effective vaccine against HBV and HCV (50.00% and 40.00% respectively), the possibility of complete cure of chronic hepatitis C (20.00%) .

The patients of the therapeutic department showed the highest level of awareness when answering the questions about measures to prevent the onset of viral hepatitis (80.00%).

Among the patients of the surgical department, the most correct answers were given to the question of the presence of an effective HCV vaccine (70,00% answered "no") and the least - about presence of effective vaccine against HBV (20.00%).

Among the fourth-year students, the most correct answers were given to the question about the pathogen of infection (95.00%), and the least - about the possibility of a complete healing of HCV (20.00%).

Conclusions. Thus, the majority of respondents in each group gave correct answers to questions about the source, ways of transmission of the infection and the pathogen of viral hepatitis. The lowest level of knowledge in the general group was related to vaccination and treatment. The most knowledgeable group was the students of the medical institute (although they haven`t studied infectious diseases yet).

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BREAST CANCER FEATURES IN NIGERIAN AND UKRAINIAN WOMEN

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Introduction. Breast cancer (BC) is the most common malignancy in women of all races globally. A number of studies have suggested that there are differences between BC among women in Europe and Africa. In Europe, the incidence of BC is higher than in Africa, but African women tend to die more from it. Studies on the features of BC among Nigerian and Ukrainian women have not been conducted.

Aim. To study the differences in BC between white Ukrainian and black Nigerian women.

Materials and methods: were used statistical date of hospital-based studies in Nigeria and National cancer registry of Ukraine.

Result. The incidence of BC in Nigeria was – 24.5 per 100 000 of population, which is significantly lower than in Ukraine – 71.4, and in the Sumy region – 77.0. Mean age at presentation of BC varies between Nigeria and Ukraine, he is 48 years in Africa and two-thirds women are premenopausal. On the contrary, the majority of Ukrainian women present at postmenopausal age. That difference in the age of BC among races could partly be attributed to endogenous hormones. There is a significant difference in staging at the time of diagnostic of BC. More than 70 % of the Nigerians presented at the late stage III or IV, on the contrary, in Ukraine – 74,2 % (in Sumska region – 85,1 %) of women are present in early (I or II) stage. Delayed diagnostic of BC in Nigeria related to lack of acceptance of orthodox treatment, low quality of medical care, local beliefs, ignorance of the disease. This is in contrast to Ukraine, where the system of cancer care for the population is developed, regular screening is available to women of certain ages. This increases the probability of detecting BC at a very early stage. As a result, most women in Nigeria only receive palliative care because the BC is advanced and inoperable.

Conclusion. The incidence of BC is low in Nigeria compared to the incidence in Ukraine (and in particular in the Sumy region). This may be due to illegality of abortion, high parity (at least 5 children in a family) with prolonged breastfeeding. In Nigerian women BC tends to present at an earlier age, but diagnosed in advanced stages and the results of treatment are unsatisfactory.

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POSTOPERATIVE ANALGESIA BY PERMANENT EPIDURAL INTRODUCTION OF NAROPIN

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Introduction. The introduction of ERAS (Enhanced Recovery After Surgery) dictates increased requirements for postoperative analgesia. Despite the multiple negative effects, parenteral administration of opioids is currently most commonly used. An alternative to traditional methods is the use of regional methods, in particular epidural analgesia (EA).

The aim of current research was to study the effect of postoperative epidural analgesia with naropin (ropivacaine) on the degree of pain and hemodynamics and to compare its results with the results of analgesia with opioids.

Materials and methods. A research of 50 patients undergoing operations on the lower extremitieswas conducted. The patients were divided into 2 groups. The first group (n = 25) included patients who were given a narcotic analgesic promedol intramuscularly at a dose of 0.1–0.5 mg / kg every 4 hours in the postoperative period for 3 days. The second group (n = 25) included patients who received postoperative analgesia using epidural analgesia with constant administration of local anesthetic naropin for three days after surgery. The level of the pain syndrome was determined using a visual analogue scale (VAS), dynamic monitoring of mean arterial pressure (MBP), heart rate (HR) and saturation (SpO2). The study was carried out before the operation, and then on the first, third and fifth days of the postoperative period in both groups.

Results and discussion. In both groups of patients, the same trend of changes in all studied parameters was observed in the 1st postoperative day with their gradual stabilization by the 5th day. More evident pain sensations, as assessed by VAS, were in patients of group I compared with those in group II during the entire observation period, which indicates a better subjective perception by patients of the epidural anesthesia technique.The heart rate in group I was higher compared to the indicators in group II, the greatest difference was observed on the first day after surgery.

Conclusions.

1.Prolonged epidural anesthesia can be used as an alternative method of pain relief for patients after surgery on the lower limbs.

2. The use of naropin allowed to improve the psychosomatic state of patients, reduce the incidence of postoperative complications.

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EFFECTS OF SOCIAL FACTORS ON SALMONELLOSIS DISEASE IN NORTHEAST REGION OF UKRAINE

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Introduction. Intestinal infections are one of the most common diseases in the world. Changes in the nutritional structure, the development of new branches of the food industry, and significant migration of the population with their traditional methods of cooking contribute to the spread of intestinal infections.

Aim. Analyze the effect of individual social factors on intestinal infections.

Materials and methods. The work used the epidemiological and statistical method of research and analyzed the data of industry-specific statistical reporting of the Ministry of Health of Ukraine and Nigeria.

Results. In the structure of intestinal infections in Nigeria, cholera dominates. Apparently, this is due to the fact that 33% of the population does not have access to clean water, 9% suffer from chronic malnutrition, 70% do not have a decent toilet.

Salmonellosis dominates in the structure of intestinal infections in Ukraine (on the example of the Sumy region). Testing the hypothesis about the influence of the population of the region on the epidemic situation of salmonellosis, it was found that there is no direct correlation between the above indicators ($r = -0.694$). At the same time, the natural movement of the population and the migration balance play a large role in the epidemic process of salmonellosis. The correlation ratios were $r = 0.840$ and $r = 0.611$, respectively. The situation will be difficult if the prevalence of digestive diseases increases. According to the correlation analysis, it was found that there is a direct close relationship between the above factor and the incidence rates ($r = 0.646$). Examining the causal relationship between food consumption and the incidence of salmonellosis, it was found that in addition to the predicted direct average correlation between meat and meat consumption and incidence ($r = 0.526$), as well as between fruit consumption and salmonellosis ($r = 0.450$).

Conclusions. Intestinal infections today are difficult to control. Anti-epidemic work will be more effective and efficient when conducting factor analysis with an emphasis on finding measures to neutralize the impact of risk factors on the epidemic process.

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THE PREVALENCE AND RISK FACTORS ANTIBIOTIC-ASSOCIATED DIARRHEA DEVELOPMENT AMONG NEWBORNS

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Introduction. In modern medicine, the use of antibiotics is crucial for a significant number of diseases. This improves the prognosis regarding the life and health of patients of different ages, including newborns. Infectious diseases are one of the main causes of deaths in the neonatal period. In addition, the use of modern nursing technologies and intensive care of newborns increases the risk of infection. Antibiotics are an important factor in preventing the development of severe infectious lesions. In addition to an unconditional positive effect, antibiotics have some complications. These include increasing the resistance of bacterial agents, as well as the development of antibiotic associated diarrhea (AAD). The prevalence of AAD among children can be 20-60% according to various sources.

Aim. Determination of the prevalence and risk factors antibiotic-associated diarrhea development among newborns.

Material and methods. Criteria for inclusion of patients in the study were presence or absence of manifestations of AAD among newborns with antibiotic therapy. Children, who taking antibiotics were divided into groups - with manifestations of AAD and without them. Patients examination, collection of anamnestic data and hereditary anamnesis; clinical and laboratory examination were performed. The statistical method was included calculating the odds ratio (OR), reliability (p) determined by Fisher's criterion.

Results. Among the newborns who received antibiotic therapy - 61 children - half of 29 (47.5%) developed symptoms of antibiotic-associated diarrhea. Among the groups of antibiotics used, AAD most often developed with the administration of penicillins and aminoglycosides. 40.46% of children receiving penicillins developed AAD. In the appointment of aminoglycosides, the frequency of AAD was 28.56%. The study of anamnestic data showed that diseases of the mother during pregnancy increased the risk of developing AAD. The most frequent groups of diseases were kidney and vaginosis diseases. With their presence, the risk of AAD was more than 6 times. The social status of the mother also mattered in the probability of AAD. It was noted that the risk of AAD was 6 times higher for an unemployed woman. The age of the newborns at the start of antibiotic therapy increased risk AAD too (OR 2.95; $p < 0.05$).

Conclusions. Prevalence of development of AAD in newborns was 47% and main factors of the antibiotic therapy were penicillins and aminoglycosides types. Mother’s diseases during pregnancy could lead to increase risk of developing AAD. Same, the risk of AAD increases in newborns from non-working mothers.

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THE FREQUENCY OF VISCERAL AND PHENOTYPIC MARKERS IN PATIENTS WITH GASTROESOPHAGEAL REFLUX DISEASE COMORBID WITH UNDIFFERENTIATED CONNECTIVE TISSUE DISEASE

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Introduction. The digestive system is the second by the highest level of collagenization after the cardiovascular system, changes in it are particularly often observed in case of UCTD. It causes changes in the length and size of the digestive system and the esophagus first of oll, which is likely to be due to its mesenchymal origin.

The aim of the research was to study the prevalence of visceral and phenotypic markers of UCTD syndrome in patients with GERD for the purpose of early diagnosis of this comorbidity.

Materials and methods. The study included 120 patients: 75 patients (Group II) - GERD was on the background of UCTD, 45 (Group I) – the patients with GERD. The average age of the patients was 42.05 ± 6.5 years. Evaluations of UCTD's were performed accordingly to the criteria recommended by M. Moska et al., A. Doria et al., T. I. Kadurina, L. M. Abbakumova in the modification of T. Milkovskaya-Dimitrova, and the degree of their expression on the scale of T. Y. Smolnova.

Results. Among the examined patients, the specific criteria for the certain connective tissue diseases were detected in the patients with UCTD from 2.7 and 20.0% more often. Bone, joint and skin phenotypic signs of dysplasia were observed in patients with GERD associated with UCTD by 4-4.5 times more often. Various abnormalities of internal organs development were detected in the majority of patients of Group II, namely in 88.0%, and only in 6.6% of the patients of Group I. According to the data on daily pH monitoring, esophagus AET constituted 4.6% of the total monitoring period in Group I and 5.48% in the patients of Group II. The number of refluxes with pH<4 recorded in the patients of Group I constituted 57±8 episodes, and 79±6 episodes in the patients of Group II.

Conclusions. The obtained data indicated that the number of pathological GER was significantly higher in the setting of comorbidity. Our research also showed that the chances of diagnosing Reynaud's Syndrome, arthralgia, unmotivated body weight loss, dysphagia, skin rash, oral ulcers, proximal muscle weakness in the patients with GERD associated with UCTD are higher in comparison with the patients with GERD without comorbidity ($p<0.05$). This should necessarily be taken into account in the early diagnosis and when assigning a complex therapy in case of this pathology.

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ANALYSIS OF CASES OF INFECTIOUS MONONUCLEOSIS IN INFECTIOUS DEPARTMENT №1 OF THE SUMY CITY CHILDREN'S HOSPITAL IN PERIOD OF 2014-2018

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Introduction. The causative factor of infectious mononucleosis (IM) is not only Epstein-Barr virus, but the herpes simplex virus type I, cytomegalovirus, adenoviruses and others.

Aim. The aim of our research was studying of the course of IM in children at the present stage.

Materials and methods. We have been analyzed 45 history of illnesses of children with this diagnosis, who was on the treatment in Infectious Department №1 of the Sumy City Children's Hospital in 2014-2018.

Results. Disease in most patients (95.5%) begins, with high body temperature and manifestations of general intoxication. In 4.5% of patients the disease is characterized by a gradual onset. In the first three days of the disease 28.9% of patients were hospitalized, in 3-7 days - 57.8%, others - in 7 - 14 days. The age of children was from 1450 to 3 years, 58% of them were boys. In analyzing the severity of the disease, it was found that 84.4% of cases run in the average way, 11.1% - in severe form and 4.5% in the mild course. The main clinical manifestations of IM - fever, intoxication, lymphadenopathy, tonsillitis, hepato- and splenomegaly, difficulty of nasal breathing - were found in most patients. Angina was diagnosed in 95.6%. In children was noted increasing of submandibular, anterior and posterior neck lymph nodes, occipital nodes. Hepatomegaly was detected in 82.2%, hepatosplenomegaly - in 48.9% cases. Nasal congestion and shortness of breath through the nose, voice change and snoring were observed at 82.2% of patients. In a small part of the surveyed, rash was detected - 15.5%. The rash appeared on the first week of the disease, were widespread. It had finely spotty, spotty - papular nature. 37.8% of children were diagnosed with complicated course - bronchitis, pneumonia, otitis and sinusitis. Emersion of atypical mononuclear cells in the blood was detected in 91.1% of patients (from several units to 45%). Etiological diagnosis of the disease is carried out by the definition of IgM and IgG to the antigen of the viral capsid (VCA) EBV. Antibodies to EBV were detected in 60% of patients.

Conclusion. So, infectious mononucleosis has been diagnosed in young children on the basis of clinical signs that include mononucleosis syndrome, and etiological decryption was performed in half of the cases. The EBV was more often as etiological agent in all of the cases.

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INCIDENCE OF ACUTE INTESTINAL INFECTIONS AMONG CHILDREN IN SUMY FOR 10 YEARS IN A ROW

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Introduction. Acute intestinal infections (AII) keep on remaining an actual global health problem. According to WHO AII mortality is 5 million children per year.

Aim. The purpose of our research was a study of acute intestinalinfections dynamics in Sumy during 2009-2018.

Materials and methods. The epidemic analysis of materials of reporting documentation of CNE "St. Zinayida'sHospital" SCC during 2009–2018 in the case of sick children with acute intestinalinfections was carried out in research, with the use of analytical and statistical approaches.

Results. In 2009 592 children were in inpatient treatment because ofacute intestinalinfections in CNE "St.Zinayida's Hospital" SCC. In 2010 this number increased by 23,82 % and counted 733 cases. In 2011 the sickness rate increased slightly by 2,52%. 2012 was characterizedby the illness decrease by about 15% (640). In 2013 the number of sick children increased by 7,34%. The increase of sickness rate went on in 2014 and there were 779 cases, therefore it increased by 13,39%. In 2015 660 children were in inpatient treatment and it is 15,28% less than theprevious year. 2016 was characterized by 17,58% increase of patients. And in the year 2017 there was sickness rate decrease by 20,75%. Decreaseof the number of patients continued in 2018 and there were 312 cases.

Conclusion. We noticed serious decrease in number ofacute intestinalinfections in patient consulting ofchild population in Sumy. It may be explained bythe decrease of moderate and severe forms of disease, and byprevention work of primary medical serviceimproving.

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ON THE NECESSITY OF IMPLEMENTATION OF SIMULATION TRAINING IN THE EDUCATIONAL PROCESS OF THE MEDICAL INSTITUTE OF SUMY STATE UNIVERSITY

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Introduction. At the current stage of medical education development, it is relevant to use training devices and simulators in the educational process. It is impossible to demonstrate real cases of emergency conditions in a patient to students. Professional and psychological immaturity of the student hinders communication with the victim, who is in an emergency. Simulation training bridges the gap of learning mismatch, allowing participants to learn in a realistic but safe environment.

Aim. To study the effectiveness of using simulation training tools for acquiring practical skills in providing emergency care.

Materials and methods. The study involved 63 second-year students of the Medical Institute of Sumy State University. To master practical skills, modern adult man-simulators were used to assist with the BLS level using an electric defibrillator. The effectiveness of the training was determined by testing, questioning and grading.

Results. The research revealed the following: the speed of decision-making increased significantly when students performed case studies. The assessment of the victim's state started to be carried out more efficiently. The number of students, who correctly carried out Basic Life Support techniques, increased from 14.3 to 69.8 %; compliance with emergency protocols and algorithms increased by 57.1 %.

Conclusion. Simulation training allows students to study and practice techniques and methods for providing emergency care in real time.

The use of phantoms and simulators allows us to reduce the level of stress load on students.

The widespread implementation of simulation teaching methods will enhance the sense of presence and diagnostic focus.

Simulation training does not replace traditional forms of learning, but effectively complements them.

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DIAGNOSTICS OF SUBCLINICAL FORMS OF HEPATIC ENCEPHALOPATHY IN CHRONIC LIVER DISEASES

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Introdution. To date the diagnosis of early stages of hepatic encephalopathy (HE) is difficult due to the lack of objective specific clinical and laboratory features. According to the literature, hepatic encephalopathy occurs in 30 – 80% of cases of chronic liver disease with impaired portal circulation. It is very important to diagnose encephalopathy in subclinical and early stages, when neuropsychiatric disorders are potentially reversible.

Aim. Detection of latent HE in patients with chronic liver disease.

Materials and methods. 32 patients with chronic liver disease (chronic alcoholic hepatitis, non-alcoholic steatohepatitis, chronic viral hepatitis B and C, autoimmune hepatitis) who had no subjective psycho-neurological profile were examined. To detect latent HE, we used the Reitan linking number test, the line copy test, the symbol-number test, and the Mini-Mental State Examination (MMSE).

Results. The number of patients in whom deviations from the norm were registered in one of the tests – 2 (6.3%), in two – 3 (9.5%), in all – 4 (12.5%). Thus, the total number of patients with signs of PE was 9 (28.1%). Most often positive were the linking number test and line copying test – in 18.5% of all surveyed and 66.7% of patients with signs of HE.

Conclusions. Subclinical signs of HE occur in 28.1% of patients with chronic liver pathology who do not complain. The most diagnostically significant tests were the linking of numbers and the copying of the lines, which indicates the need for their use in the examination of patients with chronic liver pathology.

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SYNDROMOLOGICAL STRUCTURE OF SOMATOGENIC ASTHENIC SYNDROME IN COMBATANTS WITH INCREASED CARDIOVASCULAR RISK

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The aim of the research was to study frequency and nature of psychopathological symptoms in various forms of somatogenic asthenic syndrome in patients with high cardiovascular risk.

Materials and methods. The primary information base for the implementation of research was the result of complex clinical and anamnestic survey of young patients, the part of whom had non-psychotic mental disorders (NPMD) and who were previously stratified by the level of cardiovascular risk (CVR), defined by the «SCORE» method.

Results and their discussion. Neurotic complaints were typical for patients with high CVR and existing SAS, they happened gradually over time after diagnosis of comorbid somatic disease with high CVR, without actual stressful indirect phenomena with prevalence of physical and mental asthenia. The frequency and emphasis of SAS grew with increasing of antiquity of comorbid disease and its severity. Asthenic symptoms increased during periods of exacerbation and, conversely, moderated even to disappearance, while improving physical condition. Each variant of SAS in patients with high CVR has its features of symptomological structure. More, than in half of cases in asthenic variant of SAS in patients with high CVR, registered a headache, a feeling of heaviness in the head (63,4±12,8%), intolerance to loud sounds and bright lights (57,1±13,2%) and low mood (50,0±13,4%). Patients with high CVR and asthenic-anxious variant of SAS on the first place by the frequency of diagnosing was also weakness (87,5±11,7%), lack of vigor after a night's sleep (87,5±11,7%) and almost with the same frequency were registered fatigue (75,0±15,3%), memory impairment (62,5±17,1%), which in 1.5-3 times exceeded the average in patients with SAS by the frequency; anxiety, absentmindedness were diagnosed in 50,0±17,7% of cases in this subgroup. Prevailing (most common) psychopathological symptoms, significantly more represented than on the average in patients with high CVR and dyssomniac variant of SAS were (at 65-100%): absentmindedness, irritability, fatigue, weakness, anxiety.

Conclusions. In patients with high CVR and asthenic-anxious version of SAS on the first place by the frequency of diagnosis was also weakness (87,5±11,7%), lack of vigor after a night's sleep (87,5±11,7%) almost on the same frequency was registered fatigue (75,0±15,3%), memory impairment (62,5±17,1%), which in 1.5-3 times exceeded the average in patients with SAS by the frequency.

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NUMBER OF WHITE BLOOD CELLS AND ESR IN PATIENTS WITH TUMORS OF THE SPINAL CORD

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Introduction. Tumors of the spinal cord comprise 10–15% of all CNS tumors and occur mainly in young and middle-aged adults. This pathology requires early diagnosis for further timely treatment.

Aim. To evaluate the number of white blood cells and ESR in patients with tumors of the spinal cord and to use it as one of the axillary diagnostic methods for the detection of spinal cord tumors in the early stages of the disease, which will facilitate more successful treatment.

Materials and methods. A total of 180 patients aged 35 to 60 years were selected for the research. The average age was 50,5±15,5 years. Histological analysis and MRI scans showed that meningiomas were found in 66.6% of patients (80 women and 40 men). 22,2% of them had the tumor located at the level of T1–T6 and 44,7% – T7–T12. 11,1% of patients (10 women and 10 men) were diagnosed with ependymoma at the level of L1–L3. A schwannoma was discovered in 5,6% of patients (men) at the level of T7–T12 and 5,6% (women) had a chondroma at the L1–L3 levels.

Results. According to the results of the tests, an elevation of ESR more than 25 mm/hr was observed in 33,3% of patients, 66,6% of whom had a meningioma, 16,7% – ependymoma and 16,7% – chondroma. An increase in ESR less than 25 mm/hr was discovered in 44,5% of patients, 87,5% of whom were diagnosed with extramedullary tumors and 12,5% – intramedullary tumors. Based on histological analysis, 62,5% of patients had a meningioma, 12,5% – ependymoma, 12,5% – schwannoma and 12,5% of patients were not investigated. There are 22,2% of patients without an elevation of ESR. 75% of them were diagnosed with intramedullary tumors and 25%–with extramedullary tumors. Histological analysis showed that 75% of patients with a normal level of ESR had a meningioma and 25%–did not undergo histological examination of tissues. The ESR fluctuated from 3 to 30 mm/hr, on average 16,0±13,5 mm/hr. For women, the range was 16,5±13,5 mm/hr and for men – 23±5mm/hr. Depending on the diagnosis and the level white blood cells, the following data were obtained. 22,2% of patients with extramedullary localization of the tumor had a high white blood cell count(more than 9*10^9/L). According to histological analysis, 50% of them had a meningioma, 25% – ependymoma and 25% — schwannoma. The white blood cell count in patients ranged from 4,3 to 15,6*10^9/L, on average their level was 9,95±5,65*10^9/L.

Conclusions. the results of the study showed that a slight increase in ESR (up to 25 mm/hr and more) was observed in 77,8% of the examined patients and this method could be used as one of the axiliary diagnostic methods for the detection of spinal cord tumors. On the contrary, a white blood cell measurement was informative only in 22,2% of patients.

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ASSOCIATION OF BLOOD HOMOCYSTEINE LEVELS WITH C677T AND A1298C MTHFR GENE POLYMORPHISMS IN PATIENTS WITH NASH

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Introduction. It has been reported that increasing the level of homocysteine may affect the metabolism of lipids in the liver cells and provoke the development of fatty infiltration of hepatocytes. Frequent genetic mutations in enzymes that take part in folate metabolism can lead to increased levels of homocysteine in plasma.

Aim. The purpose of our work was to investigate the connection between the C677T and A1298C polymorphisms of the methylenetetrahydrofolate reductase (MTHFR) gene containing homocysteine plasma in patients with non-alcoholic steatohepatitis (NASH).

Materials and methods. We examined 86 patients with NASH. The control group consisted of 40 practically healthy persons. The determination of homocysteine was carried out by ELISA, the determination of allelic polymorphism was carried out by PCR with the detection of results by hybridization-fluorescence method in real-time.

Results. The frequency of the C677C, C677T and T677T genotypes of the MTHFR gene among patients with NASH and the control group was 53,5% 31,4%, 15,1% and 50%, 35%, 15% respectively. The frequency of A1298A, A1298C, C1298C genotypes of patients with NASH and the control group was 55,8%, 30,2%, 14% and 50%, 42,5%, 7,5% respectively. The plasma serum homocysteine level was higher in NASH patients as compared to control subjects (18.4±3.72 μmol/l, and 9.7±0.47 μmol/l ($p < 0.05$). The concentration of homocysteine in blood plasma in patients with C677C, C677T and T677T genotypes of the MTHFR gene was 14.8±2.27, 19.7±2.67 and 25.9±2.98 μmol/l, respectively ($p < 0.05$). The concentration of homocysteine in blood plasma in patients with A1298A, A1298C, C1298C genotypes was 18.8±2.39, 16.7±1.99 and 17.3±2.55 μmol/l, respectively ($p > 0.05$). We detected a reliable association between the frequency of genotypes for the C677T polymorphism of the MTHFR gene depending on the content of homocysteine. The T677T genotype carriers had a significantly higher homocysteine concentration compared to carriers of the C677T and C677C genotypes. We did not reveal a reliable association of plasma homocysteine with A1298C polymorphism of the MTHFR gene.

Conclusion. Patients with NASH, which were homozygous for the T677T genotype of the MTHFR gene, had a significantly higher homocysteine plasma level. The MTHFR C677T polymorphisms may be genetic risk factors for the development of NASH.

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THE INCIDENCE RATE OF TORCH INFECTIONS OF PREGNANT WOMEN IN SUMY AND SUMY REGION

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Introduction. Excessive birth rate, as well as low levels of newborn health, make dealing with perinatal loss one of the most important health and social problems. Among the factors that determine intrauterine pathology and infant mortality, infectious diseases of the fetus occupy a leading position.

Aim. To study the incidence of TORCH infection among pregnant women in Sumy region. Analyze the prevalence of CMV, HSV, VEB and toxoplasmosis in patients.

Materials and methods. Clinical and laboratory examination conducted in 610 pregnant women for the period 2017-2018 on the basis of Sumy Region Perinatal Center. Pregnant women are divided into 6 groups depending on age: <20 years, 20, 25, 30, 35, 40 respectively. The complex of clinical, laboratory and functional examination includ: clinical history, general and gynecological examination, laboratory research, ultrasound examination of pelvic organs and fetoplacental complex, microbiological and virological studies (for the diagnosis of CMV, toxoplasmosis use IFA and PCR). The material use for the study is venous blood and mucus of the cervical canal. Use the statistical method to evaluate the results.

Results. The number of positive results found in different age categories. Positive results in 2017 : <20 y.old (3 patients), 20-25 y.old (29 patients), 25-30 y.old (60 patients), 30-35 y.old (226 patients), >35 y. old (33 patients). Positive results in 2018 : <20y.old (3 patients), 20-25y.old (47 patients), 25-30 y.old (69 patients), 30-35 y.old (206 patients), >35y. old (34 patients). Total number patients in 2017 year - 351,in 2018 year - 359. The prevalence of the pathology under study in 2017 in Sumy was 60% (210) of the total, and in the Sumy region - 40% (141). The prevalence of the pathology under study in 2018 in Sumy was 40%(144), in Sumy district-60% (215). Positive results categories for TORCH-infections in 2017-2018y patients <20y.old: HSV 3 positive results, CMV 2 respectively. 20-25y.old: HSV 60 positive results CMV 4, VEB 3, Toxplasmosis 4 respectively. 25-30y.old: HSV 113 positive results, CMV 2, VEB 1, Toxplasmosis 5 respectively. 35-40y.old: HSV 374 positive results, CMV 7, VEB 8, Toxplasmosis 10 respectively. >40y. old: HSV 51 positive results, CMV 2, VEB 2, Toxplasmosis 5 respectively. Other positive results in 2017-2018y. 54 patients. HSV is most common among people between the ages of 18 and 45 over the period 2017-2018. Of the 710 patients tested for TORCH infection, 601 suffer from HSV.

Conclusion. Significant prevalence of major TORCH infections among the population, including pregnant women, has a negative impact on pregnancy, childbirth and the postpartum period. That is why we consider it advisable to develop and implement in Ukraine a system for monitoring TORCH infections among women of reproductive age.

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CONTEMPORARY VIEWS ON ETIOLOGY AND MECHANISMS OF STONE FORMATION IN KIDNEYS

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Introduction. Kidney stones is one of the most frequent pathological states in urology (25 to 45% among all urological patients). The treatment of nephrolithiasis is one of the most relevant issues in urological practice. However, the pathogenesis could considerably vary within the frames of one clinical diagnosis. This could cause difficulties when deciding on targets for treatment, which is why it is so important to understand the variety of types of stone formation in kidneys.

Aim. This study is aimed at reviewing the etiology and pathogenesis of stone formation in kidneys.

Materials and methods. For this study Science Direct and PubMed databases were reviewed for relevant articles dating to 2015 and after. The following key words were used: kidney stones formation, nephrolithiasis, crystallization pathogenesis.

Results. The pathogenesis of urolithiasis is associated with complex physico-chemical processes both endogenous (Anatomical disorders of the urinary tract, leading to urostasis; genetic predisposition (primary hyperparathyroidism, insulin resistance, gout) congenital and acquired metabolic disorders) and exogenous (climate, water intake, hypodynamia, e.t.c). As the stones have a different chemical composition, the mechanisms of lithogenesis is also different. However, there are general stages applicable to the formation of any stones (nucleation, crystallization, aggregation, clinical manifestation). This whole process is controlled by a balance of promoters (increased excretion of substances, concentration of urine) and inhibitors (citrate (reduces the aggregation and adhesion of Oxalate-Ca due to the binding of Ca 2+ ions); pyrophosphate (reduces aggregation of Phosphate- and Oxalate-Ca but does not affect adhesion)) of lithogenesis. The role of some factors (such as urine acidity and proteins) remains ambiguous depending on the type of stones. Some authors highlight on the role of nanobacteria which cause the phenomenon of "biomineralization".

Conclusions. The complexity of the pathogenetic mechanisms should encourage doctors to resort to an integrated approach and routine assessment of each patient's metabolic status in order to apply effective treatment and prevention measures.

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ZINC DEFICIENCY IN INFANTS WITH ACUTE OBSTRUCTIVE BRONCHITIS

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Introduction. The problem of trace elements deficiency in children with bronchopulmonary pathology is strikingly common today. Zinc is an essential trace element in numerous metabolic processes and plays an important role in growth, development, and the maintenance of immunity. In case of significant zinc deficiency there may be a decrease in the number of immunocompetent cells and impaired functioning non-specific and specific defense mechanisms of a macroorganism. Studies analyzing zinc levels in infants with acute obstructive bronchitis (AOB) are sparse and lead to conflicting results.

The aim of the study. To investigate serum zinc levels in in infants with AOB in different periods of the disease.

Materials and methods of research. One hundred and eight children aged 2-12 months with acute obstructive bronchitis and 32 apparently healthy matched controls were observed. A serum zinc level was determined by atomic absorption spectrophotometry before and after treatment of the basic disease.

Results. Analysis of the serum zinc levels amongst infants in the first days of hospitalization showed significantly lower mean zinc blood levels in children with acute obstructive bronchitis ((6.75 ± 0.18) μmol/l vs. (13.56 ± 0.27) μmol/L, $p < 0.001$) and were almost two times more insufficient when compared to the data of healthy children. On the 11-14 day from the beginning of standard therapy, the serum zinc level of infants with acute obstructive bronchitis increased but remained low ((7.75 ± 0.26) mmol / l) ($p < 0.001$) and was less than in the control group children ($p < 0.001$).

Conclusion. The serum zinc level did not normalize during the early recovery period after standard treatment of acute obstructive bronchitis and did not reach a concentration of relatively healthy children, probably due to a background zinc deficit. It is necessary to look for new methods of treating acute obstructive bronchitis, mindful of possible zinc deficiency in infants.

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CLINICAL - EPIDEMIOLOGICAL FEATURES OF THE COURSE OF ACUTE OBSTRUCTIVE BRONCHITES IN EARLY AGED CHILDREN. RISK FACTORS.

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Introduction. In the structure of acute respiratory pathology among children acute obstructive bronchites occupy a significant part and ranges from 25 to 30%. Unfortunately, recently, there is an increase in the disease incidence.

Aim. To study the prevalence rate of obstructive bronchites in early aged children, the features of their clinical manifestations and to identify possible significant risk factors.

Materials and methods. We have analyzed 164 medical records of early aged children with acute obstructive bronchitis who were treated at the Sumy Children's Clinical Hospital of St. Zinaida in 2017-2018. The diagnosis was made on the basis of clinical, laboratory and instrumental examination methods.

Results. Clinical manifestations of bronchial obstruction were noted in 100% of children, but the onset of the disease in 90% of children began with catarrhal signs, hyperthermia and ineffective cough, and only 10% of bronchial obstruction manifestations, the symptoms of which usually appeared on the second day of the disease.

In most cases the disease developed in children from 4 to 10 months.

The peak of the incidence was noted in Augustand the autumn-winter period, which coincided with an increase in the incidence of acute respiratory infections - viral infections.

The analysis of possible risk factors showed that 76.6% of the examined children had an unfavorable premorbid background - 44% of the children encountered the complicated gestation course and 17% had perinatal pathology. A positive allergic anamnesis was detected in 18% of children, manifestations of atopic dermatitis in 16%, and allergic reactions to drugs in 23% of the examined children. Paratrophy associated with inappropriate nursing in 38% of cases. Artificial nursing was encountered in 45% of cases.

Important risk factors in 23% of children were frequent and unreasonable use of antibiotics and inobservance of the timing between the undergone acute respiratory viral infection and vaccination (8%).

Conclusion. The retreived data can serve as the basis for more accurate planning of preventive measures for the prophylaxis of the incidence of acute obstructive bronchites in early aged children.

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THE CLINICAL FEATURES OF SEROUS ENTEROVIRAL MENINGITIS IN CHILDREN

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Introduction. Meningitis is the most common form of central nervous system damage in children and adults. In children, predominantly serous meningitis occurs. Late diagnosis, improper treatment and lack of proper follow-up lead to worsening of pathogenetic changes in the brain and, as a result, the formation of varying degrees of functional and organic disorders of the nervous system in the period of early and late recovery.

Aim: Identify clinical features and characterize the state of cerebrospinal fluid of Serous Meningitis of Enterovirus etiology.

Materials and methods. Under supervision were 35 children with serous meningitis who were treated at Children's Clinical Hospital 2018. During hospitalization spinal puncture, virological study of nasopharyngeal mucus, stool and cerebrospinal fluid analysis were carried out. Statistical processing was performed using Microsoft Excel, Statistic 6.

Result. Among the patients with serous meningitis, boys prevailed (85.7%, $p < 0.05$). The age peak of the disease being school age (88.6%). The onset of the disease was acute with headache and fever. 2/3 of the children had body temperature above 38°C. Repeated vomiting was observed in 74.3% of the children. Half of the children had mild catarrhal symptoms. Meningeal signs were detected in 94.3% of children, and only 31.4% had a full and clearly pronounced symptom complex. The rest of the children were dominated by a dissociated complex (one or two symptoms in a different combination). The severity of the disease in most children was moderate.

The clinical diagnosis of meningitis was only made after a spinal puncture. Cytosis ranged from 35 to 1500 cells, had a mixed character with a predominance of lymphocytes in 62.9% of the patients. It should be noted that in 14.3% of children, despite the presence of cerebral symptoms, there were no positive meningeal changes in the spinal fluid. However, after 3–6 days, of condition worsening, inflammatory changes of serous character appeared in the CSF. Enterovirus antigen in the cerebrospinal fluid was found in 71.4% of the children. In stool analysis, enteroviruses were detected in 11.4% of the children.

Conclusion. Enteroviral serous meningitis in children was characterized by a moderate degree of severity, the presence of a two-wave course, dissociated meningeal syndrome and a favorable outcome. Changes in the CSF in most children were represented by lymphocytic cytosis.

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DIAGNOSIS OF SEPTIC HEPATITIS (SH) IN NEWBORNS

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Introduction. Severe sepsis proceeds with SH in 57 % cases. The main criterion for liver damage is to increase the activity of alanine aminotransferase (ALT) by more than 50%. But ALT ‘s level may be increased in patients with parenteral nutrition, or influence of inflammatory mediators.

Aim: to study the etiology, clinical - laboratory, instrumental and pathomorphological features of SH in newborns.

Materials and methods. Analysis of 32 cases of SH in infants, gestational age +29-34 weeks. The diagnosis was based on "input gates", bacteremia, multiple organ failure syndrom in combination with SIRS.

Results. Bacteriological examination: based on hemoculture and / or detection of a pathogen from local loci in 41 %. In 59 % newborns sepsis was not specified etiology. Common causative agent - Staphylococcus epidermidis (19 %), II place - Enterobacter cloacae (9 %). The death rate was in cases 59 %. The lethal outcome was observed with an unspecified etiology of sepsis – 58 % among the deceased. In cases of detecting the pathogen, the lethal outcome: in gram (-) flora - 19 %, in gram (+) - 6 % died. In 100% of cases of SH, jaundice was observed, often with a greenish tinge. Hepatomegaly was detected in 78% patients. Hemorrhagic syndrome - most often pulmonary or gastrointestinal bleeding in 69% patients. Splenomegaly - 9% cases. Cytolytic syndrome were observed in patients: a decrease in the prothrombin index (PTI) - 78%, and a rise in the level of alanine aminotransferase and aspartate aminotransferase (ALT, AST) - 72%. Hypoproteinemia - 37.5%. An US pattern in 87.5% cases - changes in the liver parenchyma and its vascular system. In 37 % patients in the pathomorphological study of the liver revealed large-cell infiltration, dystrophic changes in hepatocytes and cholestasis in bile ducts. In 22 % - necrotic hepatitis. The direct cause of death in these patients was hemorrhagic syndrome. All of them had thrombosis of the lower hollow and portal vein.

Conclusions. SH in newborns may occur equally often with both gram-positive and gram-negative etiologies. Clinical symptomatology of SH is accompanied by jaundice, hepatomegaly and hemorrhagic syndrome. Laboratory criteria for SH were: conjugated hyperbilirubinemia, lowering of the PTI, and elevation of ALT and AST. Penetration of the pathogen in the liver through the umbilical vein formed necrotic hepatitis.

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GLUCOSE ADMINISTRATION FOR PROCEDURAL PAIN IN NEONATES

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Introduction. Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. The inability to communicate verbally does not negate the possibility that an individual is experiencing pain and is in need of appropriate pain-relieving treatment.

To date, there are many studies that show efficacy of non-pharmacological pain-relief agents, such as skin-to-skin contact, non-nutritive sucking, breastfeeding, positioning etc.

Aim. To evaluate the pain-relief effect of 30% glucose in response to venipuncture in newborns.

Methods. The research involved 23 neonates: 11 – "glucose" group and 12 – control group. The neonates belonging to the "glucose" group were administered 2 ml of 30% solution of oral glucose before the venipuncture. Each neonate from both groups was assessed by the Neonatal Infant Pain Scale (NIPS) before and during the venipuncture, and their oxygen saturation (SpO_2) and heart rate (HR) were recorded.

The NIPS scale is composed of 6 indicators: facial expression, cry, breathing patterns, arms and legs movement and state of arousal. Each behavioral indicator is scored with 0 or 1 except "cry" which has 3 possible descriptors. The total pain score range from 0-7.

Results. Before the procedure of venipuncture NIPS score in both groups was 0 [0; 0] points, HR and SpO_2 were within the normal range and with no significant difference between groups. During the venipuncture, the average score according to NIPS in "glucose" group increased to 2.0 [2.0; 2.0], while in control group was much higher – 5.0 [3.0; 6.0] points, p=0.002. The HR of infants with glucose administration during procedure was (150.0 [132.5; 158.0] beats/min), while in control group – 169.0 [148.0; 183.5] beats/min, so, increased in 9.0 [6.0; 25.0] beats/min and 19.5 [15.0; 40.0] beats/min respectively, but without statistical significance (p=0,072). The average SpO2 decreased in 2 [0; 4] % in case of glucose using vs in 9 [0; 14] % – without glucose (p= 0.039) and was 95 [94; 97] % and 87 [84; 94.5] % respectively.

Conclusion. Administration of glucose showed calming and analgesic effects with physiological stabilization in full-term newborns that manifested by low NIPS scores and stable parameters of $Sp0_2$. Thus, 30% solution of glucose should be used as pain-relief non-pharmacological agent for invasive procedures in newborns.

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EPIDEMIOLOGICAL FEATURES OF NON-HOSPITAL PNEUMONIA IN CHILDREN

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Introduction. Pathology of the bronchopulmonary system is one of the most common in childhood, especially in the case of non-hospital pneumonia (NP). In recent years, official statistics and the results of special studies have shown an increase in the number of children with pneumonia, especially those living in large cities. This is more true of school-age children, due to the action of a complex of both medical-biological and social factors related to the adaptation of the child to school workloads.

Aim. To analyze in detail the archival data of ND incidence in the city of Sumy for the period 2018.

Results. At the infection department of Sumy city children hospital for 2018,263 children became ill with NP accounting for 16.9% of all treated children (1552 children per year) accumulated. The highest incidence of this pathology in 2018 was observed in the fall of 94 patients (35.8%) and in winter 59 patients (22.4%), less in the summer - 56 patients (21.3%) and in the spring of 54 patients (20.5%). Focal (44.1%) and focal-drain (37.3%) pneumonia were more common in nature. Right-sided lung involvement was more common, and lower lungs were found to be affected more often, possibly due to the anatomical structure of the bronchial-pulmonary system. Complications of pneumonia were in 76 children, uncomplicated in 187 surveyed children, which was 28.9% and 71.1%, respectively. Boys (59.7%) are more likely to get sick than girls (40.3% of patients). In a timely manner, pneumonia was diagnosed in 100% of patients who were admitted to the hospital for this disease.

Conclusion. Thus, the incidence of NP in the city of Sumy remains high, as in Ukraine as a whole. Boys and girls are equally ill, the incidence is more common in autumn and winter, and the nature of pneumonia is more often focal than focal-draining, in right lower lobes. Such pneumonia rates should focus practitioners on more effective prevention, especially among children with acute respiratory viral infections.

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FEATURES OF DISPENSARY SUPERVISION OF CHILDREN WITH LOW BODY WEIGHT

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Introduction. It is necessary to direct the efforts of scientific and practical medicine to find the causes and identify the complex pathogenetic mechanisms of neonatal adaptation disorders, the incidence of newborns and young children.

Objective. to find modern preventive measures, to create new diagnostic circuits for monitoring the birth of children born with low body weight.

Methods. analysis of domestic and foreign literature to develop a recommendation for monitoring children with low birth weight.

Research. The analysis allowed to work out the following recommendations:

- to examine children on a monthly basis, with an assessment of their psychomotor development and abilities acquired during the month, parameters of physical development, somatic status, neurological status, etc., taking into account the individual type of their development;
- when detecting deviations, to assess the probable cause of ill-interest, and therapeutic efforts to focus on its correction;
- in assessing the psychoneurological development of children in the first 4 years, account should be taken of 5 main parameters reflecting the clinical equivalents of the child's brain at various stages of postnatal ontogenesis (nature and direction of adaptation, level of development and differentiation of rough motor, appearance and degree of development of fine motor skills), its connection with other motor activity, level of development of the II signaling system - before linguistic and linguistic development;
- include in the assessment program of the school for the definition of intellectual functions - the ability to apply knowledge in a particular situation, the ability to make analogies and generalizations, the ability to synthesize at the subject level, the volume of long-term memory;
- in the period of preparation for school loads, the children of this group need an integrated approach in the assessment of adaptation opportunities - to conduct a forecast of possible violations in a year before admission to school by special tables, to determine the ascending level of vegetative activity and vegetative provision of activity.

Conclusion. Observation of children after birth should be constant and complex, taking into account possible complications.

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FEATURES OF THE MYOPATHIC SYNDROME OF DERMATOMYOSITIS

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Introduction. Among idiopathic inflammatory myopathies, about 95% of the cases are dermatomyositis, polymyositis, myositis on the background of systemic connective tissue diseases, paraneoplastic myositis and myositis with intracellular inclusions. One of the most common inflammatory diseases of muscles is juvenile dermatomyositis in children.

Aim was to study the features of the course of myopathic syndrome and the clinical picture of dermatomyositis in children; to analyze the outcome of lifelong endoxan therapy for 2-7 years of admission and overdose.

Materials and methods. A clinical trial was conducted for 6 patients (4 boys and 2 girls) with an average age of 14.2 with a diagnosed juvenile idiopathic dermatomyositis, who were on inpatient treatment in the cardiorheumatological department of Ivano-Frankivsk Regional Children's Clinical Hospital.

Results. During an examination and an inquiry of patients it has been established that all children took endoxan as lifelong therapy for the purpose of cytotoxicity. Unfortunately, we detected side effects of endoxan in our patients. Blood changes were accompanied by leukopenia in 2 of 6 and by anemia in 3 of 6 patients. We also fixed cyclic change of rate of erythrocyte sedimentation in complete blood counts (CBC) for a different time spells by 1 girl. Using urinalysis, salts of uric acid were detected in urine in all patients. All patients had osteoporosis and calcinates in the muscles. However, in 5 children we also found manifestations of steatohepatitis and secondary cardiomyopathy. It should be noted that not all patients were immediately correctly diagnosed with dermatomyositis, because 2 patients didn’t have typical skin changes. That made it difficult to timely diagnose and to prevent complications and progression of the illness. Children with a long course of the disease (2 people) had deviations in the form of a delay in physical and sexual development. 1 girl had hypoplasia of the uterus and ovaries. None of the children had a genetic pathology.

Conclusions. 1.Taking of endoxan must be controlled to avoid the occurrence of side effects of this drug. 2.A child with suspected or detected dermatomyositis should be referred to the cardiorheumatologist for consultation obligatory.

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IMMUNE RESPONSE TO REHABILITATION IN CHILDREN WITH CEREBRAL PALSY (CP)

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Introduction. CP is a group of non-progressive motor disabilities caused by perinatal brain damage. Rehabilitation approach is the most effective way to reduce motor impairments in children under this condition. There is a growing body of evidence that link physical activity to immunological changes in individuals. On the other hand, little information is available on impact of rehabilitation on the immune status of children with CP.

Aim. To explore the immune response to rehabilitation.

Materials and methods. Gain in motor performance was evaluated with Gross Motor Function Measure-88 before and after rehabilitation procedures. Immune status (absolute count of T-lymphocytes (CD2CD3) and B-lymphocytes (CD19, CD22)) was obtained from blood samples collected from children with CP (N = 22) before and after combined rehabilitation (number of sessions = 30). PRISM software version 8.1.1 (330) was used to run the Wilcoxon matched-pairs signed rank (least squares) test to compute the difference between each set of matched pairs. $p < 0,05$ was considered significant.

Results. As a result of the rehabilitation, the gain in motor function was efficient ($p < 0,0001$) and it was associated with a trend towards increase in level of T-lymphocytes. Decrease in the number of B-lymphocytes has reached statistical significance ($p = 0,0156$).

Conclusions. As a result of rehabilitation, the change in levels of immune markers can be observed. The increase in motor performance can be linked to changes in levels of T- and B-lymphocytes. Still, there is quite a big impact of other factors as well.

We believe that an understanding of the impact of rehabilitation can provide a tool to help maintain and / or improve health in individuals with CP.

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LEVEL OF SECRETORY IMMUNOGLOBULIN A IN CHILDREN WITH ROTAVIRUS INFECTION

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Introduction. Rotavirus infection is one of the most common among acute intestinal infections. Every year, more than 110 million cases of rotavirus gastroenteritis are observed throughout the world, with only 25 million patients turning for medical assistance, of which 2 million children are hospitalized to the inpatient department. The peak in the incidence is between the age of 6 months and 2 years. The number of fatal cases reaches 300-600 thousand cases in the world annually.

Aim. To determine the level of secretory immunoglobulin A in children with rotavirus gastroenteritis in the acute period of the disease.

Materials and methods. The subject of the study were 55 patients with RVI from 1 month to 5 years in acute period of illness (1–2 days of hospitalization). The comparison group consisted of 30 practically healthy children. Determination of secretory immunoglobulin A was performed by the method of radial immunodiffusion in agar using the Mancini G method in coprofiltrate. The calculations were made using the computer program “Microsoft Excel”.

Results. In the acute period of the disease in patients with rotavirus infection, the level of secretory immunoglobulin A in coprofiltrate was (24.8 ± 0.66) mg / l, which is significantly lower than the similar indicator of practically healthy children (31.22 ± 0.63) mg / ($p < 0.001$).

Conclusion. Thus, in children with rotavirus gastroenteritis, the index of secretory immunoglobulin A in coprofiltrate was characterized by a significant decrease compared to almost healthy children.

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GENETIC FEATURES OF GENE POLYMORPHISM OF G308A OF THE TNF-A IN CHILDREN WITH BRONCHIAL ASTHMA

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Introduction. Bronchial asthma (BA) is one of the diseases that occurs in the human body under the influence of the interaction of environmental factors and the genes candidates of atopic nosologies. There are numerous studies on the association of the polymorphism gene with the development of allergic diseases, particulary in BA with its phenotypic features.

The purpose of the study was to determinate the replacement of G308A of TNF-α gene in according with phenotypic peculiarities of clinical course of bronchial asthma.

Materials and methods. The study included 101 patients with BA aged from 5 to 18 years. The examination was carried out using generally accepted clinical, laboratory and instrumental research methods.

Results. Among the examined persons, 28,71% patients had an intermittent BA, 71,29% children had a persistent BA. The molecular genetic tests indicated that the GG homozygous variant of the TNF-α gene (in 68,32% of cases) significantly dominated in the patients with BA. In-depth study of the diagnosed genotype at various degrees of BA severity revealed the predominance of GG (68.97%) substitution in the main allele in case of the intermittent BA and GA polymorphic replacement of G308A TNFα almost in every third child (27.59 %).

The same pattern of predominance of homozygotes in the major allele of GG was found in the patients with persistent BA. The heterozygous variant of GA TNFα was diagnosed with almost identical frequency at the intermittent and persistent BA. The results of further analysis established indicated statistically significant predominance of the genotype GG ($\chi 2$ = 4,05, OR = 8,57 95% CI (1,00-73,58), p = 0,048) in those who achieved control over the course of disease, while GA genotype ($\chi 2$ = 2.61, OR = 0.14 95% CI (0.02-1.24), p = 0.106) and AA genotype ($\chi 2$ = 0.01, p = 0.917) were met less frequently.

Conclusions. The genetic predictors of bronchial asthma were established in children with aggravated allergic and genetic anamnesis. The genotypic features of the polymorphous variants of the G308A TNFα gene have shown a significant prevalence of the genotype GG in all degrees of severity of BA and can be one of the additional criteria for adequate therapy of BA in children.

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RELATIONSHIP BETWEEN MENOPOSAL HORMONAL THERAPY AND VASCULAR DISEASES RISK

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Objective. To present a basic clinical research based on the relationship between menoposal hormonal therapy (HT) and associated risks for vascular diseases. Over years, more careful examination on clinical research for menopausal hormonal therapy have taken place helping many women(menopause) on the treatment of post menopausal symptoms relating with effects and side-effects of use.

Materials and methods. we did search of sentinel studies to fink the relationship between menoposal hormonal therapy (HT) and associated risks for vascular diseases, via PubMed finding on hormonal replacement therapy, cardiovascular disease, myocardial infarction, coronary artery disease, angina, coronary atherosclerosis, coronary heart calcification, lipids, and/or lipoproteins. Studies of both kinds, ie use of estrogen/progestogen therapy or estrogen-only therapy, were checked upon in relation with cardiovascular risk factors and its outcomes. The search was evaluated by the authors, but cannot be taken as exhausting systematic studies.

Results. There is a decreased risk of subclinical and clinical coronary heart disease with menopausal HT use in women close to the time of menopause. HT gives a significant advantage for bone health, vasomotor symptoms of menopause as well as in colorectal cancer while increasing the risk of venous thromboembolism in usage of transdermal estradiol. There are varied results on use of HT on breast cancer, showing the risk increases with use of combined therapy (estrogen/progestogen) while decreased to no effect in use of Monotherapy- estrogen only. In addition to that, long term studies shows decreased risk of both vascular diseases and breast cancer aswell.

Conclusion. With the available researches and the new clinical trial results shows that HT can be used for primary prevention of cardiovascular diseases in postmenopausal women yet, many women fear on use of HT in real clinical practice.

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EFFICIENCY OF APPLICATION OF DYDROGESTERONE IN PATIENTS WITH SUBCHORIONIC BLEEDING

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Introduction. Sub chorionic hemorrhage, also referred to as sub chorionic hematoma, is a condition in which blood accumulates behind the fetal sac in the first trimester and behind the fetal membranes in the second trimester. Before the ultrasound, these hematomas knew almost nothing, except for inclusions in the form of accumulations of blood in the placenta, which were usually found after childbirth. Data on the incidence of sub chorionic hematomas are contradictory - from 0.5 to 22% of pregnancies. The main reason for its appearance is the detachment of the ovum (chorion), but why detachment occurs is not known for certain. Presumably, the cause may be the immunological incompatibility of the mother and the fetus. This determined the fact that subchorial hematoma is significantly more common in pregnancies achieved as a result of IVF.

Aim. to evaluate the effectiveness of Dydrogesterone therapy in the prevention of miscarriage in patients with sub chorionic hemorrhage.

Materials and methods. A retrospective analysis of case histories of 50 patients in the period up to 12 weeks of gestation with the presence of bleeding and ultrasound signs of sub chorionic hematoma who received Dydrogesterone at 40 mg / day per os up to 16 weeks of gestation was carried out.

Results. None of the studied patients had any side effects associated with taking the drug. Of the 50 pregnant women who received Dydrogesterone, in 43 cases a favorable course was noted with prolongation of the pregnancy. Positive signs were obtained during the ultrasound examination (cessation of hematoma growth), as well as in the assessment of bleeding (had a shorter duration and a smaller volume).

Conclusions. The immunomodulatory effect inherent in Dydrogesterone made it possible to use it for the prevention and treatment of sub chorionic hemorrhage due to the activation of immune processes that are mediated by progesterone.

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DYSBIOTIC CHANGES IN THE FEMALE REPRODUCTIVE SYSTEM IN THE COURSE OF THE USE OF HORMONAL METHODS OF CONTRACEPTION

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Introduction. Over 200 million of women of childbearing age worldwide prefer using hormonal contraception methods. To date, however, there is no evidence base regarding association between the use of hormonal contraception methods and changes in the microbiocenosis of the vagina and pelvic organs with a further development of infectious inflammatory lesions in the course of their use.

Aim. To assess risks of the occurrence of a dysbiotic condition of the female sexual system in connection with the use of hormonal contraceptives.

Materials and methods. 67 female patients of childbearing age uniform in their obstetric and gynecological history were selected and divided into two test groups. *Group 1* – 32 female patients (47.7 %) – used combined estrogen-gestagen contraceptives. *Group 2* – 25 female patients (37.3 %) – used gestagen contraceptives. A *reference group* was formed of 10 female patients (15 %) who used barrier methods of birth control.

Results. The attack rates among the groups were as follows:
Group 1: 1 case of nonspecific vaginitis (NV) (3.2 %), no case of the development of pelvic organ inflammatory diseases (PID), bacterial vaginosis (BV), and vulvovaginal candidiasis (VVC). *Group 2:* Total 5 cases (20 %) of which: BV – 1 case (4 %), VVC – 2 cases (8 %), NV – 1 case (4 %), and PID – 1 case (4 %). *Reference group:* No case of PID, BV, VVC, and NV.

Conclusion. As can be seen, a certain association of the development of infectious inflammatory lesions with the use of the hormonal contraception methods is observed. The greatest attack rate is observed in Group 2. The use of the combined estrogen-gestagen contraceptives in Group 1 showed a smaller attack rate among the female patients involved into the study.

Thus, in view of the study results, the combined estrogen-gestagen contraceptives may be considered as optimum hormonal contraception agents due to their minimum risk of the occurrence of dysbiotic complications in the course of their use. But in the events that birth control with gestagen drugs is recommended for a woman due to contraindications for the use of estrogens, the examination algorithm of the woman is recommended to include the assessment of the condition of the microbiocenosis of the vagina and pelvic organs before contraception prescription to her, as well as an obligatory supervision over the microbiocenosis condition over time in the course of the use of contraception prescribed is recommended to be provided.

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THE ROLE OF ORAL CONTRACEPTIVES IN PROGRESSION OF UTERINE FIBROIDS IN FERTILITY WOMEN.

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Introduction. Uterine fibroids (UF) are the most common tumors found in 50-60% of female reproductive system, rising 70% by 50yrs of age. Sub-serosal fibroids had spontaneous abortions at lower rates, than women with intramural fibroids. These pelvic tumors cause abnormal uterine bleeding, pelvic pain/pressure and may have reproductive effects on fertility and adverse pregnancy outcomes.

Aim. To study role of oral contraceptives (OC) in progression of UF in fertility women.

Material and Methods. Case history and questionnaire analysis of 109 women in Sumy regional perinatal center with UF from 2017-2018. Groups of women taking OC and groups of women not taking OC during 3 years. We study results of ultrasound and physical examination analysis of these groups of women.

Results. Risk factors in groups of women with UF development were high in high body mass index (BMI) and the age between 35 and 50 years. UF was higher in women who had never used OC when compared to those who had. Other previously described risk factors did not appear of significance.

Conclusion. The prevalence of UF in women of fertility age was found to be at minimal increase. The use of OC pills use has a protective role and can be recommended for women of fertility age.

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THE RELATIONSHIP BETWEEN THE PULSE WAVE VELOCITY AND THE C-REACT PROTEIN LEVEL IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE WITH METABOLIC SYNDROME

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Aim. To determine the relationship between the pulse wave velocity (PWV) and the concentration of C-reactive protein (CRP) in patients wit chronic obstructive pulmonary disease (COPD) with metabolic syndrome (MS).

Materials and methods. 28 male COPD patients aged 40 to 78 years (mean age 58.7 ± 7.8 years) were examined. In 9 patients metabolic syndrome (MS) was defined (32.1%). The COPD diagnosis was verified on the basis of the Ministry of Health of Ukraine Order # 555 of June 27, 2013 and GOLD standards. MS diagnosis is based on criteria developed by experts at the US National Institutes of Health (AdnetTreatmentPanelIII). The control group consisted of 24 healthy age-matched men. Serum CRP concentration was determined by a highly sensitive enzyme-linked immunosorbent assay (F.HoffmanLaRoche, Austria). PWV was determined by using the SphygmoCor device (AtCor Medical, Australia).

Results. The index of PWV in patients with COPD with MS was 13.5 ± 0.3 m / s, which is 2.8 ± 0.4% ($p < 0.05$) higher than the value in control patients and 2.1 ± 0,8% ($p < 0,05$) - index in patients with COPD without signs of MS. Assessment of CRP showed an increase in its level in COPD patients with MS to 7.1 ± 0.2 mg / l which is 1.7 ± 0.3 ($p < 0.05$) times higher than in COPD patients and in - 6,7 ± 0,2 times ($p < 0,05$) - the indicator of control. Conducted correlation analysis revealed the presence of a reliable relationship between FFT and CRP level ($r = 0.62$, $p < 0.01$).

Conclusions. The presence of MS in patients with COPD is accompanied by higher levels of CRP and PWV. There is a direct correlation between the serum concentration of CRP and PWV characterizing the stiffness of the vascular bed.

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INDICATORS OF ENDOGENOUS INTOXICATION AND REACTIVITY IN VARIOUS FORMS OF ERYSIPELAS

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Introduction. The high incidence of erysipelas again and again attracts the attention of modern scientists namely its tendency to frequent relapses, a tendency to develop complications. With a frequency of 19-24 per 10 thousand people, erysipelas are detected in modern Europe.

Aim. The main goal of the study was to determine the features of the course of recurring erysipelas, its clinical and epidemiological features. Using the Android application, determine the severity of endogenous intoxication.

Materials and Methods

The study involved 90 patients. Patients were examined using clinical objective data, laboratory and instrumental methods of research, their medical records were processed, and integral indicators of endogenous intoxication and immunoreactivity were calculated. Patients were divided into three groups: the first with primary erysipelas, the second with repeated, the third with recurring erysipelas of 30 people each.

Results. The age of the patients was (57,2 ± 5,7) years. In all groups, women predominated (81,2%). The localization of inflammation in all groups was mainly on the lower extremities. There were no statistically significant differences between the studied groups in the affected limb ($p = 0,95$). The erythematous form of erysipelas predominated (72,2%).

The indicators of endogenous intoxication syndrome and immunoreactivity were distributed as follows: leukocyte index, hematological index, neutrophil reactive response, leukocyte shift index increased in the acute period of the disease in all examined patients ($p < 0,05$).

Significantly decreased indicators of nonspecific reactivity: the ratio of lymphocytes to monocytes, the ratio of eosinophils to lymphocytes, allergy index ($p < 0,05$). With recurrent erysipelas, a tendency to more pronounced changes was observed.

Conclusions. Women (81,2%) are more likely to suffer from erysipelas with a predominance of the erythematous form (72,2%), with localization that affects mainly the lower extremities.

An increase in endogenous intoxication and a decrease in non-specific reactivity in recurring erysipelas indicate activation of tissue disintegration, an active inflammatory process, and a systemic immune response.

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THE PREVALANCE OF ENDOMETRIOSIS AMONG NIGERIAN WOMEN

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Introduction. Endometriosis is a disease of adolescents and reproductive-aged women characterized by the presence of endometrial tissue outside the uterine cavity and commonly associated with chronic pelvic pain and infertility. The disease usually affects women of the reproductive age group and is most typically diagnosed in women aged between 25-30years. Some of the factors which increase the risk of disease include early menarche, shorter menstrual cycles and nulliparity. The symptoms are often non-specific making diagnosis difficult with resultant delay in initiation of appropriate therapy. However, chronic cyclical or non-cyclical pelvic pain with or without menstrual abnormality is common.

Aim. to study the consistency of endometriosis and various management options in endometriosis with emphasis on the effective medical and surgical interventions which are useful in the developing world**.**

Materials and methods. a cross-sectional analytical investigation with prospective recruitment was conducted at the gynecologic outpatient clinic at University College Hospital, Ibadan, Nigeria, l women aged between 18 and 45 years who were scheduled for their first diagnostic laparoscopy for a gynecologic indication were eligible for inclusion. Women who were postmenopausal and those with a previous diagnosis of endometriosis on laparoscopy were excluded from the study.

Results. A total of 245 women consented to participate in the study. Complete data for analysis were available for 239 women. The age of the participants ranged from 18 to 45 years, with a mean age of 32.9 ± 5.6 years. Infertility was the major presenting complaint 208 (87.0%) participants), followed by pelvic pain. Evidence of endometriosis was recorded at laparoscopy for 115 (48.1%) women. Women aged 26–35 years accounted for 77 (66.9%) cases of endometriosis and were significantly more likely to have the disorder than were women in other age groups (P = 0.006). Endometriosis was least common among women who were aged 20 years or younger.

Conclusion. In the present study, 48.1% of women undergoing laparoscopy for gynecologic indications were diagnosed with endometriosis. Women with endometriosis more commonly reported dysmenorrhea and pelvic pain. Given the wrongful assumption that endometriosis is rare among African women, the condition has received very little research attention in Africa. The consequence is a lack of awareness among women, physicians, and society at large. Thus, many women with symptoms such as dysmenorrhea are under the false impression that this is a normal accompaniment of menstruation. Women presenting with pelvic pain are likely to be misdiagnosed and are sometimes stigmatized as having a pelvic infection.

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FORMATION OF PHENOTYPES OF BRONCHIAL ASTHMA IN CHILDREN WITH DIFFERENT VITAMIN D LEVEL

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Introduction. According to literature, one of the possible factors that has influence at the formation and severity of bronchial asthma (BA) is a vitamin D deficiency that can simulate the development of phenotypes which could be associated with wheezing and the development of asthma in children in the future.

Aim. To learn the relationship between the development of asthma with different phenotypes and the content of vitamin D in children 6- 14 years old.

Materials and methods. Number of subjects: 50 patients with asthma, 6-14 years old. The severity of asthma, phenotype, and degree of control were performed according to GINA 2018. The levels of 25- (OH) D and total serum IgE in serum were determined by ELISA. An assessment of the 25- (OH) D level was conducted in accordance with the recommendations of the American Institute of Medicine. The obtained results were processed in the program Statistics 10, results with a difference p <0,05 were considered statistically reliable.

Results. An insufficient level of vitamin D was more likely to occur in the group of patients with atopic asthma phenotype compared to non-atopic phenotype patients (42% vs. 9%, p=0.007), while a sufficient level of vitamin D was more likely to be found in children with non-atopic phenotype in comparable to atopic (26% vs. 58% p=0.02). Vitamin D deficiency occurs almost identically in both phenotypes, without a significant difference between the groups (32% vs. 33%, p> 0.05). Regardless of phenotype, whistling respiratory episodes were diagnosed 4 times more often in patients with vitamin D deficiency. A correlation between the level of vitamin D and the general level of IgE was found (r = -0.092, p = 0.001). Sensitization to house dust mite is more likely to occur in patients with atopic asthma phenotype in those who have a deficiency or insufficiency of vitamin D in comparison with a sufficient level of vitamin D. Among boys, IgE levels were significantly higher (61.3% vs. 54.4%, p = 0.007), sensitization to house dust mites was more likely (53.6% vs. 34.4%, p = 0.004) and decreased lung function (10.0% vs. 5.8%, p = 0.003) compared with girls .

Conclusion. One of the risk factors for the development of the atopic asthma phenotype in children may be insufficiency and deficiency of vitamin D.

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CLINICAL AND LABORATORY FEATURES OF MODERN CHICKEN POX IN ADULTS

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Introduction. In Ukraine, about 100-130 thousand cases are registered every year. Smallpox in Ukraine ranks second in prevalence after SARS. Traditionally, chicken pox is attributed to childhood infections, but adults also suffer from this disease.

Goal. To establish the characteristics of the course of chicken pox in adults at the present stage.

Materials and methods. Medical maps of inpatients were analyzed and 65 patients with varicella who were undergoing treatment in the infectious ward of the Clinical Hospital No. 4 of the SMR in 2016-2018 were examined.

Results. Among the surveyed men and women were equal. The mean age was (26.6 ± 0.89) years. The majority of people living in the city were 46 (76.7 %).

From anamnestic data, it was found that in the past, no one had a chicken pox, and 9 (13.85 %). Were in contact with patients with this disease.

The course of the disease was moderate. Among the clinical signs of the disease were the following: general weakness in all subjects; typical vesicular rash on the skin - in 62 (95.3 %) people and oral mucous membrane - in 19 (29.2 %) people. Increased body temperature in 58 (89.2 %) subjects, which fluctuated within (38.15 ± 0.08) ^{0} C. Clinical blood test showed a tendency for leukopenia (5,19 ± 0,10)×10^9/l, erythrocyte content - (4,19 ± 0,04)×10^{12}/l and erythrocyte sedimentation rate was - (11,72 ± 0,58) mm/h.

Indicators of biochemical analysis of blood of patients: total protein - (75,38 ± 0,74) g / l, average blood sugar level was (4,52 ± 0,08) mmol / l, total bilirubin - (12 , 10 ± 0,49) mmol / l, urea - (5,44 ± 0,14) mmol / l, creatinine - (77,4 ± 1,68) mmol / l.

In the study of clinical analysis of urine of patients revealed that the specific gravity fluctuated within (1016,38 ± 0,68), leukocytes were (2,18 ± 0,23) in the field of view, the protein is (0.03 ± 0.01) g / l.

Conclusion. A windy pox men and women are ill with identical frequency. Among a clinical symptomatology characteristic were: motion of middle weight, fervescence to the febrile numbers. At laboratory research the set tendency to the acceleration of ESR, decline of content of leucocytes.

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A NON-INVASIVE HIGH-QUALITY ULTRASOUND DOPPLER SCAN METHOD FOR DETECTING ENDOTHELIAL DYSFUNCTION IN PATIENTS WITH ISCHEMIC HEART DISEASE AND CONCOMITANT GASTROESOPHAGEAL REFLUX DISEASE

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Study goals. The study is conducted to determine endothelial dysfunction in patients with ischemic heart disease (IHD) with concomitant gastroesophageal reflux disease using high-quality brachial artery ultrasound imaging.

Subjects and Methods. The study was conducted with a total of 100 patients. First group included 66 patients (46 male (69.7%), 20 female (30.3%)) aged 41 to 60 years old (mean 53.43 ± 4.9) with IHD and concomitant nonerosive form of GERD. Second group included 44 patients (33 male (75%), 11 female (25%)) aged 38 to 60 years old (mean 52.57 ± 5.6) with IHD, but with no concomitant comorbidites. Control group included 20 healthy participants of same age (mean 47 ± 6.1 years old) and gender (13 female (65%), 7 male (35%)). Measurements of endothelial dysfunction were conducted using reactive hyperemia test and nitroglycerine test. Brachial artery (BA) diameter measurement was conducted on Aloka-SSD-650 ultrasound scanner (Japan) using high-definition linear probe. Statistical treatment was performed with variation, parametric and nonparametric biomedical statistics using Excel for Windows, Statistica 6.0 and SPSS Statistics statistical software. Statistical significance was determined using Student's t-test and Wilcoxon signed-rank test. The difference in results was considered statistically significant with P-value < 0.05.

Results and discussion. Obtained results show a significant difference in BA diameter measurements between first study group patients and control group participants. At the same time, the difference in BA diameter measurements between first and second study group patients was not significant, while difference in BA diameter measurements between second study group patients and control group participants was significant. After conducting reactive hyperemia tests significantly decreased rate of BA diameter increase ($p<0.001$) was noted in patients with IHD with concomitant GERD, both compared to control group and patients with IHD without concomitant comorbidities. Results obtained after sublingual administration of nitroglycerine show significantly ($p<0.001$) increased rate of BA diameter increase after administration of nitroglycerine in all study groups, which is evidence of test's adequacy.

Conclusion. Non-invasive high-quality ultrasound Doppler scan method to determine brachial artery dilatation during occlusion test can be used to evaluate degree of endothelial dysfunction both in people with cardiovascular diseases and people with other pathologies with underlying abnormal endothelial function.

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PATHOLOGICAL ANATOMY SESSION

CORNEA INJURY BY CHRONIC EXPOSURE TO LIGHT-EMITTING DIODES WITH DIFFERENTCOLOR TEMPERATURE IN RAT MODEL

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Introduction. Retinal damage by chronic exposure to light-emitting diodes (LED) was found in numerous of rodent models.

Aim. The aim of this study was to analyze cornea changes of rats' eyes by chronic exposure to light generated by LED.

Materials and methods. Weused an experimental device consisting of 9 boxes (1900 × 600 × 500 mm each one) with the same illumination (200 lux at a height of 70 mm from the bottom inside of each box) but with different correlated color temperature (CCT) of LED: 2700K; 4000K and 5700K. The control group exposed to natural light. Rats were removed from the experiment after 90 days. Morphological studies of rodents' eyes included hematoxylin and eosin staining and morphometric analysis of the cornea thickness in the pupil center.

Results. The cornea of rats' eyes of the control group (n=7) was lined with stratified squamous epithelium. Corneal stroma was represented by connective tissue with scattered fibroblasts. The cornea thickness varied from 139.3 to 205.0 μm, the average value was 170.5±4.52 μm. After chronic exposure to LED with CCT 2700K (n=7) we noted swelling of connective tissue with proliferation of fibroblasts and single lymphocytes in the cornea, signs of stratum corneum formation were found in epithelium. The cornea thickness ranged from 360.5 to 406.1 μm, the average value was 381.7±3.2 μm. After chronic exposure to LED with CCT 4000K (n=7) a homogeneous edema of fibrous tissue, increased cellularity in the surface zones and neovascularization were detected in cornea. The cornea thickness varied from 365.5 to 466.0 μm, the average value was 416.8±6.2 μm. After chronic exposure to LED with CCT 5700K (n=7) the fibrous tissue edema of cornea was observed. Thinning of the epithelium, desquamation of its surface layers and pericellular edema of its basal layer was revealed. The cornea thickness ranged from 408.9 to 601.6 μm, the average value was 474.5±16.1 μm. The cornea thickening increased in LED-groups in comparison with the control group ($p<0.001$). Also, it changed in LED-groups according to CCT.

Conclusion. We found that cornea damage (from mild to moderate degree) in LED-groups depends on the CCT. The results indicate adverse effects on the cornea from chronic exposure to LED light compared with natural light.

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THE EXPRESSION OF ESTROGEN AND PROGESTERONE RECEPTORS IN THE BREAST CANCER DOES NOT DEPEND ON THE PRESENCE OF CALCIFICATIONS

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Introduction. Breast microcalcifications are associated with the presence of an early breast cancer. Microcalcifications can be observed at 86% of mammograms of women aged 76–79 years. It has been shown that surveillance rate of these patients is significantly lower.

Aim. To determine the effect of breast cancer microcalcifications on the expression of estrogen and progesterone receptors.

Materials and methods. 468 breast cancer tissue samples were analyzed. Microcalcifications were present in the tissue of 55 samples. In 413 biopsies microcalcifications were not revealed. All samples were analyzed by immunohistochemistry (expression of estrogen and progesterone receptors). All results were statistically analyzed.

Results. 52.45 ± 5.3% and 27.36 ± 4.08% of cells of breast cancer with microcalcifications were positive for expression of estrogen and progesterone receptors respectively. The immunohistochemistry of breast cancer without calcification revealed 58.63 ± 4.25% ($p>0.05$) estrogen-positive and 34.57 ± 4.74% progesterone-positive cells.

Conclusion. We showed that the presence of microcalcifications in breast cancer tissue does not affect the expression of estrogen and progesterone receptors.

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ASSESSMENT OF T-LYMPHOCYTES SUBPOPULATION IN WOMEN WITH HYPERPLASTIC PROCESSES OF ENDOMETRIUM

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Introduction. Hyperplastic processes of endometrium represent an extremely important, complex and multi-faceted problem of practical gynecology. A number of scientific studies have established a close relationship between reproductive and immune systems. However, studies in this area have great discrepancies.

The aim of the study was to establish changes in the relative content of subpopulations of peripheral blood T lymphocytes in patients with different forms of endometrial hyperplasia, compared with the control group.

Materials and methods. We evaluated the biopsy material and analyzed the indices of general immunity in 33 women of pre-menopausal age. According to the pathomorphological conclusion, the I-st group consisted of 11 women with simple hyperplasia without atypia (33.3%); group II - 2 women with atypical hyperplasia (6.1%); group III - 20 women with complex hyperplasia without atypia (60.6%). The control group consist of 12 women without endometrial disease.

The T-lymphocyte subpopulations in the blood were examined by the flow cytofluorometry method.

Results. Studies have shown that the average level of relative number of CD3-lymphocytes was significantly reduced in all patients and did not depend on the histological variant of hyperplasia - in group I it was (51.96±3.28)%, in group II - (44.65±1.15%), while in group III - (48±1.34)%, which is significantly lower than the in control group - (70.5±2.16)% ($p < 0.001$). Relative content of CD4-lymphocytes in women with simple hyperplasia without atypia was (31.66±2.19)%, and with complex hyperplasia without atypia - (31.46±0.47)% versus (38.5±1.33)% in healthy ($p<0.05$ and $p<0.001$, respectively). The content of CD8-lymphocytes was also significantly lower in all groups of patients: (20.8±0.81)% in the 1st group, (18.1±2.3)% in the 2nd group and (19.3±0.51)% in the third group, comparing to control (29.43±0.84)% ($p<0,05$).

Conclusions. In hyperplastic processes of endometrium, changes in immunological homeostasis were manifested by changes in the subpopulation of T- cells. The cellular imbalance was most pronounced in the complex hyperplasia of the endometrium: the level of T-helper cells was 25.8% lower than that of healthy women, and T-suppressors was 34.4% lower in relation to the control group.

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THE LOCAL IMMUNE REACTIONS IN THE KIDNEYS, URETERS AND BLADDER OF THE FETUSES AND NEWBORNS FROM MOTHERS WITH COMPLICATED PREGNANCY

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Introduction. The immune system performs control and direct impact on the differentiation and maturation of the urinary system organs cells of fetuses and newborns that developed in physiological conditions. To date, the features of local immune reactions in the urinary system organs of the fetuses and newborns from mothers with complicated pregnancy are not known.

Aim. Determination of the features of local immune reactions in the kidneys, ureters, bladder of fetuses and newborns from mothers whose pregnancy was complicated by preeclampsia and iron deficiency anemia.

Materials and methods. The material of the study was the tissue of the kidneys, ureters and bladder of fetuses and newborns. The material was divided into three groups: I – fetuses and newborns from mothers with physiological pregnancy (n=28); II – fetuses and newborns from mothers, whose pregnancy was complicated by preeclampsia (n=78); III – fetuses and newborns from mothers, whose pregnancy was complicated by iron deficiency anemia (n=85). Histological, immunohistochemical, morphometrical and statistical methods were used in the study.

Results. Complications of pregnancy led to the changes of local immune reactions in the kidneys, ureters and bladder in fetuses and newborns, which were manifested by the changes of absolute number of CD 3, CD 4, CD 8, CD 20, CD 68 cells. Mild iron deficiency anaemia did not affect T-cell and B-cell immunity and at the same time stimulated the macrophage system, but the moderate and severe degrees of the above maternal pathology inhibited T-cell and B-cell immunity with activation of the macrophage system. All degrees of severity of maternal preeclampsia resulted in an extreme activation of the macrophage system, T-cell and B-cell immunity.

Conclusion. Identified abnormal deviations of local immune reactions in the kidneys, ureters and bladder of fetuses and newborns from mothers with complicated pregnancy by preeclampsia and iron deficiency anemia can be one of the damaging factors that lead to the changes of morphological and functional state of the above organs.

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RAT'S SKIN MINIMAL ERYTHEMA DOSE AS RESPONSE TO UVB EXPOSURE

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Introduction. Therapeutic ultraviolet radiation is used widely; especially UVB (ultraviolet radiation with wave length 311 nm) is intensively used for psoriasis treatment. There are two ways to determine exposure duration: fixed in seconds or MED – minimal erythema dose. Second way is considered to be not as certain but in the same time more flexible, individual option.

Aim. To make self-sure, if rats have typical erythematic skin response, as humans have; to define minimal erythema dose of laboratory rats and way to predict approximate exposure duration for rats with different coat color, find any dependence between phenotype signs and MED duration.

Materials and methods. For achievement the purposes following equipments were used: UVB lamp, laboratory rats, stopwatch, photocontrol. There were two groups of rats to perform MED definition. Skin on the back was used as the experimental pole. There were also rats with different coat color – from total white to total black. Average rat age was about 9 months with gap between youngest and oldest ones in 4 months. There were no rats with MED in 1:00, and this exposure was used as an origin point for exposure increasing. Exposures were done with frequency one time in two days.

Results. The defined diapason of MED variety was located between 1:30 and 4:00 minutes. Demonstrative case is that there were two rats with highest MED – 4:00, these two rats had total white coat for one and grey for another, while two rats with shortest MED in 1:30 both had black coat. Other rats between extreme points had different MED, with average value 2:25 had different coating color, white, black, spotted, etc.

Conclusion. Rat's skin has same typical biological response on UV radiation, but results of research were surprisingly different. There was no dependence between rat's coat color and MED duration, as we assumed before starting. Moreover, there were reverse effect. These facts make us to conclude two options: probably, it's necessary to use rather larger number of rats to find any dependence, or, there are other significant biological mechanisms to protect skin against UV radiation apart of melanin.

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MORPHOLOGICAL CHANGES IN THE ORGANS OF RATS ABDOMEN AFTER STRESS INFLUENCE

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Introducion: The existence of a modern person constantly accompanies the stressful reactions associated with the rapid rhythm of life, complex relationships in society, difficult social factors, etc. Adaptation reactions occurring in the body against the background of excessive stress can contribute to the emergence and development of a number of pathological processes.

Aim: Study the effects of acute immobilization stress on the structure of internal organs of white rats in the Wistar lines.

Materials and methods: Taking into account international standarts of bioethics, the study was performed on 10 white male rats, the body weight of which was 240-260 grams and the age was 8-10 months. The experimental model of the stress was recreated by fixing the rats in the position lying on the back for 6 hours. Slaughter of animal was carried out by decapitation under thiopental-sodium anesthesia. Morphological changes in the liver and kidneys were determined by studying prepared micropreparations stained with hematoxylin and eosin.

Results: Studies show that the most extensive changes are found in the liver, stomach and kidneys. The research showed that in the liver and in the kidneys of the experimental rats significant structural lesions are observed two hours after the impact of acute immobilization stress. The hemomicrocirculation disorders are on the foreground: in the liver there was a plethora of sinusoidal capillaries and distinct perivascular edema, perisinusoidal spaces were expanded, in the majority of sinusoidal capillaries the phenomena of blood stagnation and sludging were observed. After a macroscopic study, it was found that small intestinal bleeding was observed in the stomach cavity. During the histological examination of the stomach, it was found that there is a violation of the hemomycocirculatory system, namely, small vessels damage and their ruptures. In the kidneys of the rat significant microcirculatory vessels narrowing was observed, as well as vessels walls thickening and spasmation of arterioles.

Conclusions: Thus, 6-hour fixation of rats in the position of lying on the back causes significant morphological changes in the liver and kidneys of experimental animals, which are primarily manifested by hemomicrocirculation disorders. Changes in other organs need more studying.

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PROLIFERATIVE ACTIVITY OF CERVICAL SQUAMOUS CANCER IN HIV INFECTION

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Introduction. Mucosal surfaces are the primary sites of most human immunodeficiency virus (HIV) transmission, and thus these tissues are a focus of attention for efforts to prevent HIV infection that is important for future consequences of HIV with neoplastic processes including.

Aim. The aim of our work was detection of proliferative activity in cervical epithelium in women with cervical cancer and HIV infection.

Materials and methods. Materials for the study have been selected with histologically confirmed cervical cancer in patients with HIV (investigated group) and patients without HIV infection (group of comparison). Age of women in two groups ranged from 27 to 63 years and averaged 36.5 years. Histological and immunohistochemical examination (IHC) with ki67 was performed. Evaluation of expression was performed using a quantitative scale.

Results. As a result of IHC it was detected that positive Ki67 expression have been revealed in 100%, but percentage of cell with positive staining was uneven in investigated groups. So, percentage of cell with positive staining Ki67 was ranged from 11.32 to 85.4 % (averaging 48.8%) in group without HIV. But it was ranged from 27.41 to 93.4 (averaging 62.5%) in HIV group. It should be noted that dysplastic cells have been revealed with positively responding nuclei to Ki-67 in all cases, mostly outside, layers of the epithelium, the intensity of the reaction was moderate and high in peritumoral tissue. In some cases of group without HIV, the cells of the basal layer were Ki-67-negative. At the same time, as we move into the tumor, cells with positive nuclear reaction for Ki-67 detected as primarily high intensity in all layers of the cervical epithelial layer. Almost all cell nuclei were Ki-67-positive reactions with high intensity in areas that are suspicious as microinvasion in both groups.

Conclusion. Proliferative activity in cervical squamous cancer in women with HIV infection is characterized higher level of Ki-67 with averaging level for all histological types of squamous cell carcinoma 62.5±5.6% that one and half more than in group without HIV. Depend of histological type, expression of Ki-67 increased from 4.7±3.8% in well-differentiated squamous cell carcinoma till 89.2±5.1% in poor differentiated squamous cell carcinoma for group with HIV (21.3±2.4% till 79.4±3.7 in group without HIV accordingly).

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AGE FEATURES OF BONE TISSUE DENSITY IN THE SUPERIOR AND INFERIOR WALLS OF THE MAXILLARY SINUS

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Introduction. Chronic rhinosinusitis is a significant social, medical and economical problem. Elderly patients are unique among all groups of patients. The **purpose** of our study was to determine physiological variability of maxillary sinus in the superior and inferior walls and to compare it with variability in purulent-polypous rhinosinusitis.

Materials and methods: The study involved SCT examination of male patients with different age: patients aged 30-40 and 10 patients aged 75-85. The tomograms of patients without ENT diseases were used for the control group. The study group included tomograms of patients aged 30-40 and 75-85 with chronic rhinosinusitis.

Results.An average bone density of the posterior and inferior walls of the frontal sinuses was calculated. The bone density of the group aged 30-40 was 179.5±12.6Hu in the superior wall, 156.6±11.9Hu in the posterior and 159.1±12.8Hu and 144±21.9Hu in the group aged 75-85 according to the above order. The study showed pronounced changes in the bone density in purulent-polypous frontal sinusitis. In the group aged 30-40 it was as follows: 138.1±8.2Hu, 121.1±9.1Hu in the inferior wall and 101.4±6.95Hu, 127.4.8 ±15.4Hu in the posterior wall

Conclusions: It can be assumed that the decrease in the bone density is associated with age and it is more severe in case of chronic maxillary sinusitis.

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BIOMATIRIALS FOR MEDICINE

POSSIBILITIES OF DIGITAL MAMMOGRAPHY IN DETECTION OF CALCIFIED FOCI IN THE MAMMARY GLANDS WITH INTERPRETATION OF DATA ACCORDING TO THE BI-RADS SYSTEM

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Introduction. At present, every tenth woman in Europe is diagnosed with breast cancer (BC). At the same time, the mortality rate from BC is more than 17%. The latest data show 55.4% of preclinical forms are diagnosed solely in the presence of calcified foci (CF), and a significant proportion of invasive carcinomas includes CF. The overwhelming majority of CF are not visualized by ultrasound examination, that is why there is a problem for diagnostics. Digital mammography (DM) allows to visualize CF from 0.1 mm and to describe their morphological structure and distribution in the tissues of the mammary glands (MG).

The aim of the research is to study the possibility of detecting CF in DM and assess their morphology according to the BI-RADS system.

Materials and methods. The study included mammography results (MGR) in 94 women aged 32-76 years, examined at «Medion» Medical Center (Poltava). MGP was performed on the Simens digital device "Mammomat 3000 Nova" in standard projections. Further interpretation of the data was performed in accordance with the BI-RADS terminology (the 5th edition of the BI-RADS Radiological Atlas with updated recommendations for the evaluation of MG CF was published in 2013). According to the same terminology, the appropriate category was determined: CF were evaluated in terms of their shape, number, size and distribution in the MG.

Results and discussion. The conducted study revealed that benign changes in the presence of CF were detected in 72 (76.6%) patients, who were subsequently attributed to the category of BI-RADS 2, that is, the probability of BC is 0%. In 28.9% of cases, petrified cysts were detected, in 15.4% – involutive fibroadenomas, and 3.8% after operative treatment. At the same time, in 44.3% of women we found CF in mastopathy, 5.7% – in granulomatous mastitis, and 1.9% – in posttraumatic states. CF with the signs of malignancy were found in 22 (23.4%) women. Invasive carcinomas were visualized as volumetric neoplasm with 0.1 to 1.0 mm with pleomorphic CF in 72.7% of women. According to the revealed radiation signs, they were attributed the category of BI-RADS 4 – suspected pathology (the probability of BC from 2 to 90%) and BI-RADS 5 – high suspicion of malignancy (the probability of BC is 90%).

Conclusions. Thus, digital mammography is an informative and reliable method for detecting MG BC. At the same time, the assessment of their distribution and morphology according to the BI-RADS system allows us to differentiate benign and malignant processes and to attribute the optimal category with appropriate recommendations for patients.

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MODIFICATION OF MAGNESIUM ALLOYS USING PLASMA ELECTROLYTIC OXIDATION IN SILICATE SOLUTIONS

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Introduction. Magnesium based implants are widely used in medicine as orthopedics implants due to their biocompatibility. However, there is a problem of their corrosion instability under the influence of physiological fluids of the body. Rapid degradation is a source of mismatch between the processes of tissue-specific structure formation and material destruction. The formation of protective coating on the Mg materials is one of possible way to avoid early degradation. Plasma electrolytic oxidation allows the formation of an oxide layer on the surface that can provide other properties such as biocompatibility and antibacterial features additionally to corrosion resistance.

Aim. Therefore, the object of our study is to create a protective coating on Mg-alloy and assess their structural properties.

Materials and methods. During investigation were used polished magnesium samples of 1 cm^3. The coatings provided by plasma electrolytic oxidation. The electrolyte was composed of Na_2SiO_3, NaOH, NaF, 200V and 250V modes were applied at current of 100 mA/sm^2. SEM, contact angle and roughness were used for surface analysis.

Results. During investigation we got a coating with oxide layer in both modes, but it is worth noting that the average pore size at 200 V is 1 μm and at 250 V 0.87 μm. The contact angle indicators had no significant difference and showed hydrophilic properties and were in the range of 26.22^0 in 200 V mode and 22.71^0 250 V. The surface roughness estimate did not have a significant difference of 200 V 0.43 ± 0.03 θ 250V 0.39 ± 0.01θ.

Conclusion. The electrolyte of this composition can be used to create an oxide coating for magnesium implants with hydrophilic properties and moderate roughness. By changing the voltage mode, you can adjust the pore size for specific purposes for implantation.

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EFFECT OF KOH FOR CELL TOXICITY AND ANTIBACTERIAL PROPERTIES OF METAL ALLOYS AFTER PEO

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Introduction. Metallic biomaterials as the materials of choice for orthopedic implants improved the quality of life. Titanium has been one of the most popular materials in medical fields for many decades as a dynamic metal, that are non-toxic, lightweight, strong, and resistant to corrosion. Dental implants that are constructed with titanium have an impressive lifespan. Plasma electrolytic oxidation (PEO) is one of new method to improve dental implant surface quality, but it is still under consideration the optimal solution for PEO process.

Aim. The aim of our study was to investigate influence of KOH to formation of ceramic layer on TiZr alloy after PEO in Ca/P solution.

Materials and methods. TiZr samples were polished and rinsed with distilled water before treatment. PEO process was performed in a Ca/P solution with the addition KOH in a water-cooled electrolysis cell with a titanium cathode and magnetic stirrer. A DC power supply (PWR 800H, Kikusui, Japan) was used throughout these treatments. The surface of the samples was characterized by SEM investigation, contact angle (CA) measurement. S. aureus and osteoblast culture were used to study the adhesion properties of the oxide coatings.

Results. PEO led the formation of a heterogeneous oxide layer on TiZr alloy. Oval pores and craters of different sizes were presented on the coatings of the samples.
The oval pores varies from 0,5 ± 0,2 to 0,7 ± 0,5 μm were formed under regimes 500 V. There are also a large number of longitudinal furrows, the transverse size of which is 2.0 ± 1.5 μm at voltage regimes 350, 400 and 450 V.
CA parameters of the coatings at the mode 56 mA 350V were 26.1 ± 2.0 and at the mode 56 mA 450 V after PEO were 18.4 ± 3.1, that significantly lower compared to the untreated surface (62.1 ± 5.50). All surfaces were favorable for osteoblast adhesion. Bacteriological investigation confirmed S. aureus adhesion and proliferation during the 24-hour experiment. But bacteria adhesion was low at regimes 400 V and 500 V.
This indicates that the hydrophilic surface should provide a favorable environment for protein adsorption in the first minutes after implantation.

Conclusion. PEO of TiZr alloy in Ca/P based solution with KOH provides formation of oxide layer that support osteoblast cell adhesion and proliferation. Additionally, obtained surface at regimes 400 V and 500 V decrease bacteria adhesion in first hours after co-cultivation.

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PLASMA ELECROLYTIC OXIDATION FOR SURFACE MODIFICATION OF PURE MAGNESIUM

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Introduction. Magnesium (Mg) implants are widely used in biomedical application due to their highly reactive and unstable in aqueous solution but biocompatibility of a metallic Mg-based implants is compromised. Plasma electrolytic oxidation (PEO) is a promising surface treatment method is used to add a protective oxide layer. The chemical composition of the electrolyte and regimes exerts significant influence on ceramic-like coatings. Modification of voltage, current density, electrolyte solution composition and discharge time help to achieve the various type of morphology, thickness, composition, physiochemical properties and increase biocompatibility of the surface.

Aim. The aim of this study was to find electrolytic solutions and regimes for controlling biocompatible properties and anticorrosion performance.

Materials and methods. Commercially pure Mg (99.9 %) samples were polished with increasing size (up to 800 grade) silicon carbide paper. The anodization setup consisted of a stainless-steel beaker with the was used as cathode and the immersed Mg in electrolytic solution sample was used as anode and connected to Kikusui PWR400H DC Power Supplies. The base electrolytic solution consisted of 10 g/L Na_2SiO_3., 5 g/L NaF, 10 g/L NaOH at a constant current density of 100 mA cm^2, voltage value – 200 V and 250 V. The chemical composition of the surface layer was determined by EDS.

Results. The main crystalline phase of the ceramic coatings was Mg oxide in both voltage regimes. The EDS analysis also included signals of Si and F. The value of fluoride from the base solution evidenced a similar incorporation for two type anodizing and were 3.41±0.36 %. However, the high amounts of silicon weight of the coatings as observed by increasing of voltage characteristic. The weight percentage of Si for the samples with 200 V were 8.3±0.08 % and for samples with 250 V - 15.16±0.09 %.

Conclusions. Plasma electrolytic oxidation deposits an oxide surface coating in a controlled fashion and reproducible. The qualitative and quantitative characteristics of electrolyte, type of regimes effect on chemical composition of coatings.

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POLYPYRROLE FILMS WITH MICROSTRUCTURES FOR pH-INDUCED DRUG DELIVERY

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Introduction. Different types of materials, including polymers and nanoparticles can play role of drug carriers for targeted drug delivery systems. Polypyrrole (Ppy) belongs to the family of intrinsically conducting polymers (ICPs) and can incorporate and release specific molecules while being switched between oxidized and reduced states.

Aim. In this study we aimed to create Ppy films with defined microstructures and evaluate drug doping and pH-induced drug release in them.

Materials and methods. Ppy films were prepared by cyclic voltammetric scanning (CV) from the solution containing pyrrole monomer and camphorsulfonic acid. Microstructures on the surface of Ppy films were created by soft-template directed electropolymerization. The morphology of the resulted films was studied by optical and scanning electronic microscopy. Cyclic voltammetry test was performed in order to evaluate the electrochemical performance. Ppy films were doped with Fluorescein sodium salt (FL) and Rhodamine 6G (R6G) and immersed in solutions of different pH. The amount of fluorescence compound released from featureless films and films with microstructures was detected and recorded by UV-vis spectrometry.

Results. Microstructures of different shapes and sizes can be created on the surface of Ppy films by changing the conditions of electropolymerization. Cyclic voltammorgams of Ppy film with microstructures showed better electrochemical response compare to the flat featureless film. pH-induced drug release was successful in both types of films. FL as a negatively-charged compound is released better in high pH medium, while R6G is positively-charged and is released in low pH medium.

Conclusion. Ppy films deposited with microstructures demonstrated increased ion-doping capability, what is important for loading sufficient quantity of drug into the polymer matrix. Changing pH values activate drug release from Ppy materials, showing that they can be applied in drug delivery systems in vivo where inflammation process with low pH is present.

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ANTIBACTERIAL PROPERTIES OF THREE-DIMENSIONAL CHITOSAN AEROGELS AGAINST E. COLI

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Introduction. Chitosan, a hydrophilic polysaccharide derived from chitin, possesses many favorable properties like biodegradability, cytocompatibility, antimicrobial and hemostasis activity, wound healing properties. Solutions, films, hydrogels, membranes, nanofibers, beads, scaffolds, sponges, composites, implants and other polysaccharide biomaterials for medical application can be created from chitosan.

Aim. The objective of the study was examination of time-depending antibacterial properties of three-dimensional chemically cross-linked chitosan aerogels against E. coli.

Materials and methods. Three-dimensional chitosan aerogels (90% and 95% deacetylation degree) were prepared by chemical crosslinking reaction under microwave-assisted conditions with the subsequent lyophilization (L-aspartic and L-glutamic acids were used as crosslinking agents): 90Ch-Glu, 95Ch-Glu, 95Ch-1Asp:5Glu, 90Ch-1Asp:1Glu, 95Ch-1Asp:1Glu, 95Ch-2Asp:1Glu, 95Ch-5Asp:1Glu in various combinations. The study of antimicrobial activity of chitosan aerogels was conducted on Gram-negative (Escherichia coli) bacteria. 2 ml of microbial suspension (overnight culture in final concentration 4 log10 CFU) were added to 4 mg chitosan samples and incubated for 2, 4, 6 and 24 h at 37 °C. Assessment the rate of killing of bacteria was determined using streak plate technique.

Results. All aerogels formulation precluded E. coli growth within 2, 4, 6 hours of incubation. The most effective samples against E. coli were 95Ch-Glu, 95Ch-2Asp:1Glu and 95Ch-5Asp:1Glu aerogels caused total media decontamination in 2 hours. After 24 h of incubation all samples completely prevented bacterial growth.

Conclusion. Investigated samples demonstrated antibacterial activity against Gram-negative bacteria strain. Chitosan aerogels with 95% deacetylation degree chitosan and various ratio of L-aspartic and L-glutamic acids were more forceful compared to another formulation. To sum up, proposed biomaterials can be used for preparation the biomaterials with bacteriostatic properties.

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Ag + LOADED HYDROXYAPATITE-CHITOSAN BIOACTIVE COATINGS ON MODEL TITANIUM IMPLANTS: STRUCTURE, ANTIBACTERIAL PROPERTIES, DRUG RELEASE ABILITIES

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Introduction. Functional medical implants are aimed at improving the process of biointegration in surgical restrictions of broken bones. To improve the biocompatibility of metal implants, their surfaces are modified by functional coatings, among which Hydroxyapatite (HA) is mainly usable because of its biological properties that are close to natural apatite bone. Natural Chitosan (CS) polymer with antibacterial properties and preserving effect in coatings, is the best option for combining it with inorganic HA. In this paper, the titanium implant model was coated by the Thermal Substrate Deposition (TSD) method, which gives the ability to obtain biomimetic coatings.

Aim. Obtain HA/CS coatings with content of Ag+ ions and Chlorhexidine (CHX) on anodize Ti6Al4V substrates. Investigate coatings structure, morphological features, antibacterial properties, CHX release ability by HPLC method.

Materials and methods. For synthesis were used: biomedical grade CS (M.M.100-300kDa, USA); CaCl2, 85% H3PO4 were supplied by “Merck”; commercially available pharmaceutical 0.05% CHX. RFA, XRD, SEM, HPLC methods were used for analytical investigation.

Results. The TSD method is based on HA properties to reduce its solubility with increasing temperature. Application of low temperatures (about 100o C) in this method brings the structure of HA to biological apatite. CS during deposition acts as a surfactant, which improves the adhesion of the material to the surface and makes possibilities for obtaining a porous coating of greater thickness (up to 1 mm) in comparing with CS-free coating. The above factors allow adsorption and prolonged CHX release from coating material.

Conclusion. By the TSD method were obtained coatings on titanium substrates that contain HA, CS, as well as Ag+ ions and CHX as antimicrobial agents. XRD proves the formation of HA with a Ca/P ratio of about 2. Morphological studies show the formation of a plate like HA crystallites. Ag+ ions and CHX containing coatings have antimicrobial properties. The content of CS prolongs drug release from the coating materials.

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VITAMINS B1 AND B12 STATUS IN NEWLY DIAGNOSED PULMONARY TUBERCULOSIS PATIENTS

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Introduction Peripheral neuropathy is a pathological condition in which the affected nerves, compromising the relay of information from different parts of the body. About 500 million people worldwide suffer from this pathology. It is also common in tuberculosis (TB) patients. Among the reasons that can lead to damage of the peripheral nerves in TB patients is tuberculosis itself and medications used to treat the disease. Drug-induced peripheral neuropathy is associated with numerous anti-TB drugs such as isoniazid, cycloserine, linezolid. But it is also known about the relation of neuropathy and B vitamin family deficiency.

The aim Present study was performed to assess the baseline level of vitamins B1 and B12 in newly diagnosed pulmonary tuberculosis patients.

Materials and methods. We examined 55 newly diagnosed pulmonary TB patients who were treated at the Kharkiv Regional Antituberculosis Dispensary in 2016-2017. Control group consisted of 20 healthy individuals who had not been previously diagnosed or received antituberculosis medication. We excluded from the study patients who had extrapulmonary TB and co-morbid conditions. All subjects gave their informed consent prior to participation in the study.

Results TB patients were aged between 19 and 50 years with an average age of 35.27 ± 11.29 and included 29 men (80.55%) and 26 women (19.44%). The control group consisted of 15 men (75.00%) and 5 women (25.00%). The age of the control group was between 20 and 49 years with an average of 34.70 ± 10.38. There were no significant differences in age ($p=0.063$) between the two groups.

We found significantly lower median levels ($p<0.005$) of vitamin B1 (27.48 nmol/l vs 55.12 nmol/l) in pulmonary TB patients prior to treatment as compared to control group. The median of vitamin B12 level was also significantly lower ($p<0.005$) in pulmonary TB patients compared to normal subjects (0.18 nmol/l vs 0.28 nmol/l).

Conclusions according to our results, newly diagnosed pulmonary tuberculosis patients have deficiency of vitamins B1 and B12 prior to treatment, that is a great risk-factor of peripheral neuropathy development in future, especially considering the neurotoxicity of some anti-tubercular drugs.

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POST-GRADUATE STUDENTS AND YOUNG SCIENTISTS SESSION

PECULIARITIES OF MORPHOMETRIC CHANGES IN RAT'S LUNGS WITHIN AGE DIMENSIONS

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Introduction. Respiration process provides the permanent supply of oxygen to all tissues and organs. Conducting of the air flow is proceeding through the respiratory tract (conductive section) to the respiratory section (lungs' alveoli), where the gas exchange occurs between air and blood. Each stage of maturation is characterized by specific changes in lungs.

Aim. To distinguish the peculiarities of morphometric changes in rat's lungs within age dimensions.

Materials and methods. The study was carried out on 18 white lab rats of both sexes. The animals were divided into 3 groups according to the age: young (3 months, the weight was 151.5 ±0.3 g), mature (9 months, the weight was 193.2 ± 0.13 g) and old (21 months, the weight was 220.2 ± 0.19 g). The histological method was applied along with morphometry in dynamic regime and with the usage of universal certified programs "SEO Scan Lab 2.0" and "SEO Image Lab 2.0". The depth of the alveoli and the width of the entrance to the alveoli were measured.

Results. The significant difference in the structure of the lungs of rats of different age groups could not be visually distinguished. Although while conducting the morphometry of the pulmonary structures of rats of different age groups, certain patterns were revealed, which, of course, were referred to the processes of growth and aging.

The microscopic dimensions of the main indicators of the respiratory part of the young animals' lungs were as follows: depth of alveolus (DA) – 52.4 ± 0.07 μm, width of the entrance to the alveolus (WEA) – 31.05 ± 0.1 μm.

The DA rate of young rats was 53.9 ± 0.73 μm, indicating that it increased by 2.9% ($p < 0.05$), compared to young animals, WEA reached 22.9% ($p < 0.05$), which in absolute numbers was 38.7 ± 0.14 μm.

Changes in morphometric parameters of mature animals occurred as such: DA increased to 55.2 ± 1.36 μm, which is 2.4% ($p < 0.05$) more than the DA index of mature animals, SWA – to 51.2 ± 0.06 μm (32.3% increase ($p < 0.05$)).

Conclusion. The analysis of GA and WEA changes within the processes of maturation and aging attests the development of emphysematous changes which began with mature rats and progressively developed with the old ones.

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MORBIDITY DYNAMICS FOR COMMUNITY-ACQUIRED PNEUMONIA IN CHILDREN TREATED AT MNO "CHILDREN'S CLINICAL HOSPITAL NAMED AFTER ST. ZINAIDA" OF THE SUMY CITY COUNCIL BETWEEN 2016 AND 2018

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Introduction. Respiratory diseases are the most common pathology among the general population of children in Ukraine. They occupy the first place in the morbidity structure and prevalence with a share of 54.78% and 51.28% respectively. According to WHO, acute respiratory infections, namely pneumonia, account for 19% of all incidents of child mortality. Pneumonia ranks third in the structure of child mortality in Ukraine.

The aim of the research was to study the incidence of community-acquired pneumonia in children during the period from 2016 through 2018 according to the official statistics of infectious disease wards of Sumy City Hospital for the said period.

Material and methods. The morbidity of community-acquired pneumonia in children has been analyzed and aspects of the dynamics of respiratory pathology in different years of children's hospital stay in the first and second infectious disease wards of Sumy City Hospital for the period 2016-2018 were discovered.

Results and discussion. The analysis has shown that in the first infectious disease ward, where infants, toddlers and preschoolers were treated, there has been a decrease in community-acquired pneumonia incidence by 111 children in 2017 and by 103 children in 2018 compared to 2016. In general, if we compare 2017 and 2018, the indicators have somewhat increased by 8 people. The situation in the second infectious disease ward, where children aged 3-18 were treated, is such that in 2016 353 people received community-acquired pneumonia treatment, in 2017 - 286 people, and in 2018 - 329 people. In general, there is also a trend towards a decrease in morbidity compared to 2016, by 67 people in 2017 and by 24 people in 2018.

It is worth noting that in 2016, a total of 615 children diagnosed with "community-acquired pneumonia" were treated, in 2017 - 437 children, and in 2018 - 488 children. This can also be considered to be a decrease in the incidence of community-acquired pneumonia among children.

Conclusion. Thus, the Sumy City Clinical Hospital named after St. Zinaida has seen a decrease in the incidence of community-acquired pneumonia in the period from 2016 to 2018. However, in general, pneumonia incidence rates remain high, both in Ukraine and among the child population of Sumy. This makes it possible to draw a conclusion about the need for further work on conducting educational activities among the population, highlighting the importance of parents' timely healthcare-seeking measures, improvement of the work of the polyclinic service.

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THE LINK BETWEEN rs3200401 *MALAT1* GENE POLYMORPHISM AND PROSTATE CANCER DEVELOPMENT

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Introduction. MALAT1 (metastatic associated lung adenocarcinoma transcript 1) is one of the most well-known and most conserved long non-coding RNA (lncRNA). This lncRNA is considered to be the biomarker of prostate cancer (PC) increased risk, and high expression of its gene correlates with the worst survival rate in patients with PC.

Aim. The aim of the study was to find the possible association between rs3200401 SNP of lncRNA *MALAT1* gene and prostate adenocarcinoma (PA) development.

Materials and methods. Venous blood of 184 patients with PA and 66 men without malignant tumors was used for case-control study. MALAT1 rs3200401 polymorphism genotyping was performed by real-time PCR method using 7500 Fast Real-Time PCR System (Applied Biosystems, Foster City, USA) and Taq-Man Assays (TaqMan®SNP Assay C_3246069_10). The statistical analysis was performed using SPSS (version 17.0). $P < 0.05$ was considered significant.

Results. The mathematical analysis revealed the statistically significant difference in genotypes distribution between comparison groups ($P = 0.005$). Before adjustment for non-genetic risk factors the link between rs3200401 site and AP development was revealed for recessive and additive models. It was found that minor T-alleles homozygotes had significantly lower risk of PC development compared to C-allele carriers (OR = 0.161; $P = 0.004$) and C-allele homozygotes (OR = 0.168; $P = 0.005$). After adjusting for age, smoking status and BMI the overall picture of the results did not change: OR = 0.164; a = 0.005 – for recessive model; OR = 0.170; Pa = 0.006 – for additive model).

Conclusion. Our results revealed that *MALAT1* rs3200401 SNP is associated with prostate adenocarcinoma onset in Ukrainian men. TT-genotype carriers have the lower risk of prostate adenocarcinoma development compared to C-alleles carriers**.**

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FEATURES OF THE METABOLIC SYNDROME PARAMETERS IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE

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Introduction. Non-alcoholic fatty liver disease (NAFLD) includes a spectrum of diseases like steatosis, non-alcoholic steatohepatitis (NASH) advanced fibrosis and rarely progresses to cirrhosis. NAFLD is expected to become an even more serious public health issue because of increasing prevalence of obesity and aging. Metabolic syndrome (MS) is a group of disorders which includes insulin resistance, low glucose tolerance, dyslipidemia, hypertension and obesity. The relationship between NAFLD and MS is complex and may be bidirectionally associated.

Aim. To analyze the features of MS parameters in patients with NAFLD.

Materials and methods. To examine the association between MS and NAFLD we conducted a randomized study: 63 patients were enrolled in the Department of Internal Medicine and Gastroenterology of Sumy City Hospital №5. Among those patients 33 had comorbidity of MS and NAFLD (Group A), 30 – MS without signs of NAFLD (Group B). Our patients have been subjected to a collection of anamneses, physical examination, blood tests (glucose level, HbA1C, Lipid profile, Liver panel), ultrasonography (USG) and plain CT-scan (including detection of the Liver-to-spleen ratio). The authors had full access to and take full responsibility for the integrity of the data.

Results. It was not found a significant difference in the prevalence of hypertension between groups A and B, whilst there was a significant difference in prevalence between the two groups in relation to other variables as Body Mass Index, hypertriglyceridemia, low HDL-C, hyperglycemia, elevated HbA1C ($p<0.05$). It was detected that NAFLD severity could be controlled by treatment of metabolic syndrome, including lifestyle modification (reducing weight by the correction of eating habits and physical activity), metformin 1000 mg/day and atorvastatin 80 mg/day ($p<0.05$).

Conclusion. Components of metabolic syndrome i.e. hyperglycemia, dyslipidemia and obesity have an association with NAFLD. Correction of metabolic disorders can help to control the severity of NAFLD.

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CHARACTERISTIC CLINICAL AND DIAGNOSTIC FEATURES OF LIVER CIRRHOSIS ASSOCIATED WITH VIRAL HEPATITIS

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Introduction. Ukraine ranks first in Europe in the rate of spread of viral hepatitis C, there are about 3.5 million patients with viral hepatitis, of which 1.2 million - hepatitis C. In 80% of patients already detect the virus in the chronic stage, in 15% of them detect cirrhosis.

Aim. To study clinical and diagnostic features of liver cirrhosis associated with viral hepatitis.

Materials and methods. 38 patients were examined who received treatment at the Krasovytsky Sumy Regional Infectious Diseases Clinic in 2018.

Results. Among the surveyed, 24 (63.2%) men and 14 (36.8%) women, whose average age is (43.3 ± 9.7) years. 28 (73.7%) surveyed live in the city, 10 (26.3%) live in the countryside. Possible route of infection: during medical interventions 6 (15.8%); injecting drug use, donation and visit to the dentist - 4 (10.5%) patients; blood transfusion, or its components - 2 (5.3%); medical workers - 1 (2.6%); not established -in 17 (44.8%). Of the surveyed, 25 (65.8%) have minimal activity; 8 (21%) moderate, 5 (13,2%) - expressed. Cirrhosis (according to Child-Pugh classification) is decompensate, register in 2 (5.3%) persons, subcompensate and compensate equally - in 10 (26.3%) cases not establish - 16 (42.1%). The most prominent clinical symptoms: hepatomegaly - in 30 (78.9%); icteric sclera - in 22 (57.8%), splenomegaly - in 18 (47.3%), telangiectasia - in 14 (36.8%), yellowing of the skin - in 13 (34.2%), ascites - in 10 (26.3%). Ultrasound revealed the following: increased echogenicity - in 30 (78.9%), increased portal vein - in 10 (26.3%), condensation of liver vessels - in 13 (34.2%), enlargement of the splenic vein - in 29 (76.3%), gallbladder wall compaction - in 20 (52.6%) patients.

Conclusion. Among the surveyed are predominantly middle-aged men who live in city. The most common likely route of infection during medical procedures. The minimal activity and expressiveness of cirrhosis (by Child-Pugh) A and B. Prevails most often are astheno-vegetative syndrome, hepatomegaly, sub- icteric sclera.

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ANALYSIS OF THE PREVALENCE OF BRONCHIAL ASTHMA IN CHILDREN OF SCHOOL AGE IN THE SUMY REGION DURING 2017-2018

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Introduction. Respiratory diseases occupy a leading place in the structure of child morbidity worldwide. Bronchial asthma (BA) has an important place in this structure. This disease significantly affects the quality of life of sick children and is accompanied by economic losses, so it is considered one of the main medical and social problems of pediatrics. Despite the considerable amount of scientific research, the use of the modern medicines, the prevalence of asthma continues to grow. The Sumy region is no exception to this trend.

Aim. To analyze the prevalence of bronchial asthma in school-age children (7-17 years) in Sumy region during 2017-2018.

Materials and methods: a retrospective analysis of the prevalence of asthma in school children in the Sumy region for the period 2017-2018.

Results. The prevalence is one of the important indicators that reflect the health of children. After a retrospective study of medical records, it can be noted that the prevalence of BA among school children in Sumy region in 2017-2018 is at the average level in Ukraine, but tends to increase: the indicator increased by 10.86% (from 313 to 347 cases). Prevalence increased significantly in such areas as: Burynskyy - by 75.0% (from 1.68 to 2.94 per 1000 children), Glukhivskyi - by 522.22% (from 0.18 to 1.12 per 1000 children), Putivsky - by 266.39% (from 1.19 to 4.36 per 1000 children), Sumy - by 44.64% (from 2.8 to 4.05 per 1000 children).

The highest prevalence rate of BA per 1000 children is observed in the Shostka district (in 2017 - 5.62, in 2018 - 5.51 per 1000 children), Konotop district (in 2017 - 4.67, in 2018 - 4.95 per 1000 children) and Trostyanets district (in 2017 - 4.24, in 2018 - 4.77).

Conclusion. There is a significant increase of the prevalence of BA among school-age children in 2017-2018 (by 10.86%). The highest prevalence per 1,000 children is observed in Shostka, Konotop, and Trostyanets districts. The studied indicator in these regions continues to grow, except for Shostka district, where it decreased slightly by 1.96%. It is necessary to study the environmental factors that contribute to the manifestation of this multifactorial disease in order to improve early diagnosis of asthma and to find effective methods for its prevention.

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DYNAMICS OF PERINATAL AND NEONATAL MORTALITY INDICATORS IN THE SUMI REGION FOR THE LAST YEARS

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Introduction. The demographic situation in Sumy Oblast remains quite complex. In recent years, the birth rate has not increased, in general, in the Sumy region, there has been a decline in population both in urban and rural areas. In this regard, there is a need to preserve the health and quality of life of children born. There are a number of reasons for fertility: economic, social, psychological, and biological.

Aim. To carry out the analysis of perinatal and neonatal mortality in Sumy region for 2015 - 2017.

Materials and methods. To analyze quantitative indicators of perinatal and neonatal mortality in Sumy region for 2015 - 2017.

Results. Perinatal mortality rates in Sumy region: 2015 - 9.8 ‰; 2016 - 9.1 ‰; 2017 - 9.3 ‰. There is a downward trend in this indicator. At the same time in Ukraine in 2016 this figure was 8.6 ‰. The number of stillbirths was the lowest in 2017 - 4.2 ‰, compared to 2016 - 5.7 ‰, 2015 - 5.9 ‰. On the other hand, the rate of early neonatal mortality increased by 5.1 ‰ in 2017; in 2016 it was 3.5 ‰; in 2015 - 4 ‰. Infant mortality in 2017 was 6.7 ‰, which is more than in 2016 – 6,2 ‰, but less than in 2015 – 7,5 ‰.

From 01.01.2007 Ukraine switched to the criteria for the registration of the perinatal period in accordance with WHO recommendations, which is regulated by the order of the Ministry of Health of Ukraine dated 23.03.06 # 179 (childbirth is registered from the full 22 weeks of pregnancy, 500 g. body weight of the child at birth), which causes an objectively high level of neonatal morbidity and mortality.

In economically developed countries, perinatal mortality does not exceed 5%, while in developing countries this rate is approximately 10 times higher.

Conclusions. Infant mortality rates in Sumy Oblast remain relatively stable during 2015-2017. The high rate of early neonatal mortality indicates a low level of reproductive health of the population, an inadequate level of diagnosis of the fetal condition, the birth of a child in the stage of decompensation due to hypoxia and severe asphyxia, the birth of children with multiple birth defects, including life. In this regard, the care and treatment of infants requires the attention of neonatologists.

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PERSPECTIVES OF BIOMEDICAL TECHNOLOGIE'S INTEGRATION USING IN UKRAINIAN ATHLETES TRAINING PROGRAMS

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Introduction*:* Training of Ukrainian high-level athletes during preparation for the Olympic Games in Tokyo-2020 requires systematic involving of integrated biomedical technologies in their training programs. As our research and practical experience in Ukrainian Athletics Team has showed, there are no systematic stable medical monitoring of current athlete's condition during the training process.

Aim*.* To explore the necessity of the integrated using of modern biomedical technologies in Ukrainian high-level athletes training programs.

Methods*:* literary and documentary sources analysis, survey, autoexperiment, mathematical methods of statistics.

Results*:* 39 athletes, members of Ukrainian National Athletics team, were questioned, whether innovation biomedical training methods are involved in their training process. Among of these methods are innovation recovery methods, regular blood-testing, pharmacological agents, medical and biochemical management systems.

The research showed, that only 41.86% of the respondents use such innovation method, as a regular blood testing. Complex inspection of organs and body systems takes place only one or two times a year, and the medical management system doesn't meets the requirements of individual training process.

The main group's sportsmen, who have used integrated modern biomedical technologies, have been able to improve their results during two seasons by an average of 431.25 points according to the IAAF scoring table. Regarding to control group, athletes who haven't used integrated modern biomedical technologies in their training process, worsened their results during two seasons by an 191.1 points according to the IAAF scoring table.

Conclusions*:* the integrated using of modern biomedical technologies is necessary for building up more effective training programs for Ukrainian athletes during preparation for the Olympic Games in Tokio-2020, that, in turn, could improve results of Ukrainian National Athletics National team.

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THE INFLUENCE OF LITHIUM SALTS ON THE MACROELEMENTAL COMPOSITION OF THE WHITE ADULT RATS' BRAIN & BLOOD SERUM

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Introduction. Currently, lithium drugs are widely used in the pharmacological treatment and prevention of psychiatric disorders (Francisco López-Muñoz, Winston W. Shen et al., 2018). Lithium content in the blood exceeding 1.5 mmol/l has a toxic effect and concentrations exceeding 3.5 mmol/l are potentially fatal (Thomas, L., Xue, J., Dominguez Rieg, J. A., & Rieg, T. 2018). The essence of lithium toxicity lies in the inhibition of a number of glycolysis enzymes (M. Alsady & T. de Groot et al., 2018). Lithium is involved in a wide range of biochemical processes, is an active competitor of the main electrolytes of the body: potassium, sodium, calcium, magnesium, affects their content, replaces them in biochemical processes (E. Jakobsson et al. 2017). Lithium homeostasis mechanisms are absent in humans and animals, so its content in the body should be controlled (Małgorzata Kiełczykowska, 2017).

Aim. To investigate the effect of lithium salts on the content of potassium, sodium and lithium in the brain and blood serum of white adult laboratory rats compared with the intact group.

Materials and methods. The studies were conducted on white laboratory male adult rats' experimental and intact groups, with 6 individuals each. Nutrition and drinking regimens for both groups were standard. To the standard drinking water of the experimental group was added a solution of lithium citrate, to a content of lithium ions of 10 mg/l. After 30 days the animals were removed for the experiment by an overdose of anesthesia. Necropsy was performed and brain and blood samples were taken to determine potassium, sodium, calcium, magnesium and lithium. Whole blood was centrifuged to obtain serum. Brain and serum samples were weighed on the electronic precision scales of OHAUS Pioneer PA213c (USA). The acid mineralization of the samples with nitric acid was carried out in high-pressure autoclaves at a temperature of 150-160 ºC for two hours.

Results. Thus, the content of sodium in the brain of animals of the experimental group increased by 26.3% ($p = 0.004$), and the potassium content decreased by 40.5% ($p = 0.006$). The concentration of lithium in the brain of the experimental group was higher by 27.3% ($p = 0.004$) in comparison with the intact group. The content of sodium in the blood serum of animals of the experimental group decreased by 42.9% ($p = 0.004$). The situation with lithium in serum was expected: the concentration increased by 40.6% ($p = 0.002$). The level of potassium in the blood serum of the experimental and intact groups was approximately at the same level.

Conclusions. Hence, lithium has a strong effect on the content and balance in the brain and blood serum of the main electrolytes of the body: potassium and sodium.

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RISK FACTORS, NEUROPSYCHOLOGICAL AND GENDER FEATURES OF MULTIPLE SCLEROSIS IN SUMY REGION

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Introduction. In the last few years, the department of neurosurgery and neurology has continued to monitor of epidemiological indicators relating to multiple sclerosis (MS). In addition to studying the prevalence and morbidity in the Sumy region, it is of interest to analyze the most common risk factors for the disease and clarify a number of gender differences.

Aim. To study risk factors and gender characteristics of MS in Sumy region.

Material and methods. Taking account of the fact of the relatively low population, we examined patients admitted to hospital for planned treatment and patients hospitalized due to exacerbation of the disease.

Results. One of the risk factors of the MS is a young age. By collecting an anamnesis, we have identified a number of conditions and situations. Under certain conditions, they can be considered as possible risk factors. Looking at the data obtained, we can conclude that one of the most influential problems for the emergence of MS is frequent (5 and more once a year) acute respiratory viral infections. The occurrence second condition is a cold working condition, in which patients worked by kind of profession five to ten years old, and the third one – postinfectious diseases. In the fourth position are possible vaccinations (according to patients), on the fifth – bad habits (the studied patients suffered from tobacco or alcohol dependence), and in the sixth – migration. The lowest percentage in the following possible risk factors: chronic respiratory diseases, frequent herpetic infections, rheumatism and viral meningitis. After comparing the groups of males and females, it turned out that both women and men are equally affected by PC with remitting-recurrent type of desease course, and only women suffer from benign type of MS. According to the results of the study, 17 (54,9±0,16%) of patients registered signs of depression of varying degrees of severity, in 14 (45,2±0,17%) patients showed varying degrees of dementia.

Conclusions. There is no doubt the relevance of such monitoring studies for diseases that have a certain endemicity. This makes it possible to search for specific approaches to treatment and prevention among residents of select regions.

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CORRELATION BETWEEN SERUM URIC ACID AND BLOOD PRESSURE LEVELS IN NORMOTENSIVE PATIENTS

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Introduction. Hyperuricemia (HU) prevalence is 28% in female and 23% in male. Risk of arterial hypertension in patients with HU is 3,6 times higher. Early detection and correction of HU before increasing blood pressure (BP) can prevent arterial hypertension.

Aim. Establish correlation between levels of serum uric acid (SUA) and arterial blood pressure in normotensive patients.

Materials and Methods. Total of the 60 normotensive persons, 31 with uric acid level (SUA) <400 μmol/l (1st group) and 29 with SUA >400 μmol/l (2nd group), were included in study. The groups were comparable in age and sex. A 24-hour ambulatory blood pressure monitoring was performed by using of a 24-hour blood pressure monitor ABMP-50 HEACO. SUA level was measured on a biochemical analyzer RT-9800.

Results. Analysis of baseline levels of daily average BP shows significant differences between groups: for 1st group: DaySBP 120 mmHg, DayDBP 74 mmHg, for 2nd group – DaySBP 132 mmHg ($p<0,001$), DayDBP 82 mmHg ($p<0,05$) respectively. The average SUA level in the 1st group was 326±28 μmol/l; in the 2nd group - 466±32 μmol/l. Patients with higher levels of SUA have higher levels of day blood pressure within reference values. The correlation between the level of SUA and BP in the 1st group was for systolic blood pressure (SBP) r =+0,34 and for diastolic blood pressure (DBP) r =+0,29 ($p<0.05$). In 2nd group for SDP r =+0,49 and for DBP r =+0,35 ($p<0.05$).

Conclusions. Correlation between serum uric acid and blood pressure were discovered in normotensive patients. Higher level of SUA has a stronger effect on BP in normotensive patients when the level of SUA >400 μmol/l.

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THE CLINICAL EFFECT OF THE DIFFERENT TREATMENT OF PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND ANEMIA OF CHRONIC DISEASE

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Introduction. According to the latest scientific results anemia of chronic disease (ACD) occurs in 17 – 24 % cases of chronic obstructive pulmonary disease (COPD) patients. Recent studies have shown a more severe COPD in patients with anemia, therefore there is reason to believe that the correction of anemia will improve the functional state of these patients.

Aim. Our study aimed to investigate the clinical efficacy of different treatment of COPD and ACD.

Materials and methods. Our study included 73 patients with COPD, stage II – IV stages with ACD, > 40 years old, and 62 practically healthy patients who made up the control group. ACD was verified according to the WHO recommendations. For the purpose of studying the effect of different type of treatment, patients were randomized into 3 groups: I (24 patients), II (24 patients) and III (25 patients). All patients received basic treatment for COPD. Patients from I group continued to receive basic treatment. Patients from II group in addition to basic therapy received 80 mg of iron 2 times per day for 21 days; III group - 500 mcg of roflumilast 1 time per day for 3 months. Assessment of the quality of life and the level of dyspnea (questionnaires CAT and mMRC) was performed on the first day and after 3 months of treatment.

Results. As a result of the treatment, we found a statistically significant difference in the results of the CAT survey among all patients groups, namely: patients from I group had the CAT result before treatment 14.04 ± 2.05, after treatment 13.04 ± 1.74 ($p = 0.019$), II group – 14.33 ± 1.71 and 13.00 ± 1.41 ($p = 0.003$), III group – 14.68 ± 1.79 and 9.24 ± 0.95 ($p < 0.001$). Significant changes in the results of mMRC were found only in patients of group III, patients of I group had the result of mMRC before treatment 1.58 ± 0.24, after treatment 1.46 ± 0.17 ($p = 0.083$), of II group – 1.50 ± 0.20 and 1.42 ± 0.18 ($p = 0.491$), of III group – 1.56 ± 0.17 and 1.24 ± 0.18 ($p = 0.008$), respectively.

Conclusions. A simultaneous improvement of the quality of life and a decrease of the level of dyspnea among patients with COPD and ACD occurs only if roflumilast is included to the basic treatment.

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ULTRAMORPHOMETRIC CHARACTERISTICS OF THE VESSELS OF MICROCIRCULATORY BLOODSTREAM OF THE PANCREAS UNDER CONDITIONS OF GENERAL DEHYDRATION OF THE BODY

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Introduction. According to WHO, more than 80 % of all human diseases are associated with the quality of drinking water. Disease of pancreas is one of the urgent problems. The balance of the osmotic pressure of blood, interstitial and intracellular fluids is ensured by microelements, which supplied with water, and are one of the main conditions for the normal cells' activities.

The aim of our work was to investigate ultramorphometric changes in the microcirculatory bloodstream of white rats under conditions of general dehydration of the body.

Materials and research methods. The experiment was conducted on 35 sexually mature white rats. The control series consisted of 5 rats, which during the experiment were on a normal drinking diet. The experimental series consisted of 30 rats, which was divided depending on the severity of dehydration into 3 groups with 10 rats in each group. The animals were released from the experiment under anesthesia on the 3^{th} day with mild dehydration, on the 7^{th} day with moderate dehydration and on the 10^{th} day severe dehydration. After fixation by glutaraldehyde, the obtained preparations of pancreas were stained with 2% uranyl acetate and lead citrate according to Reynolds.

Results and its discussion. On the 3^{rd} day of studies the microvessels clearance were preserved, but slightly narrowed, the diameter of arterioles decreased by 4.75% ($p < 0.001$), the diameter of capillaries by 10.89% ($p < 0.001$), and the diameter of venules by 9.98% ($p < 0.001$) compared with the control group. On the 7^{th} day of the study, the diameter of the arterioles decreased by 11.32% ($p < 0.001$), venules – by 18.12% ($p < 0.001$), the capillary received an irregular shape, and become reliably by 22.34% ($p = 0.0001$) compared with the control group.On the 10^{th} day of the study, the microvessel suffered the most significant changes, the internal diameter of the arterioles decreased by 25.86% ($p < 0.001$), capillaries by 35.57% ($p < 0.001$), and venules by 37.68% ($p < 0.001$) compared with the control group.

Conclusions. Ultramorphometric analysis proved that under the influence of general dehydration, the clearance of the vessels of the microcirculatory bloodstream of the pancreatic parenchyma was significantly decreases. These changes have a progressive tendency according to the increasing severity of dehydration. The most severe changes were observed in conditions of severe (sublethal) dehydration.

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CORRELATION BETWEEN THE RESULTS OF CALCULATING DIFFERENT TYPES OF FIBROTEST USING THE MOBILE APPLICATION FOR ANDROID

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Introduction. Chronic infection with hepatotropic viruses causes a long-term inflammatory process, necrosis, fibrosis, and may lead to the development of liver cirrhosis and hepatocellular carcinoma. It is the degree of severity of liver fibrosis that shows the state of functional capacity of this organ. Lately, non-invasive liver diagnostic methods are gaining in importance. This is due to the minimal financial cost and the ability to quickly get an indicative result for any patient.

The aim of the study. To establish correlations between the results of various noninvasive screening methods (Fibrotest METAVIR, APRI-test and FIB-4) that were calculated using the Android mobile app.

Materials and methods. 72 people who had a diagnosis of chronic viral hepatitis C took part in the study. They had a clinical and biochemical blood test, as well as a blood test for Fibrotest METAVIR. Fibrotest METAVIR, APRI-test and FIB-4 were calculated using the Android application.

The statistical processing was done using the Microsoft® Office program package and the SPSS Statistics program 23. Correlation relations were studied using the Spirman correlation coefficient.

Research results. In the group of examined patients, the majority were men (70.83%) compared to females (29, 17%). According to the results of calculation the degree of fibrosis by the Fibrotest METAVIR method, the majority of patients had F2 (36.11%); fibroz F4 and F0 twice less frequently (by 18.06%); 2,6 times less often - F1 (13,89%) and 3,25 less often - F3 (11,11%). In calculating of the APRI-test and FIB-4, the majority of patients showed low probability of significant fibrosis.

In calculating the Spirman correlation coefficient, it was found that the APRI-test and FIB-4 had direct correlations with Fibrotest METATVIR ($p < 0.01$; $r = 0.358$ and $r = 0.473$, respectively), but the binding force was higher when calculating the value using FIB-4. In both versions of the Chaddock scale, the binding force was moderate.

Conclusions. Thus, among the examined, the highest number were men with an average degree of fibrosis. The obtained direct proportional relationships indicate that the higher the value of the APRI test and FIB-4, the higher the degree of fibrosis by the method of Fibrotest in METAVIR. Therefore these indices provide information not only about the probability of significant fibrosis, but also directly on the degree fibrosis.

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DIAGNOSTIC DIFFICULTIES OF GULLIAN BARRE SYNDROME (CLINICAL CASE)

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Introduction. Gullian Barre Syndrome (GBS) is acute, frequently severe, fulminant polyradiculoneuropathy. It is an idiopathic disorder. Usually this immune dysfunction is triggered by an infection or, less commonly by surgery and rarely by vaccination. It's a monophasic disorder and an acute inflammatory demyelinating polyradiculoneuropathy (AIDP) in peripheral nervous system. AIDP, acute motor and sensory axonal neuropathy, acute motor axonal neuropathy (AMAN), Miller Fisher syndrome are subtypes of GBS. Around 2-10 % people expire because of GBS fallowed by paralysis of respiratory muscles. 70 % cases are post infectious.

Aim. To analyze a case of GBS and to find out suitable subtype for case of acute motor neuropathy.

Materials and methods. Patient Z. 18 years old complains of dull pain in calf of right leg, followed by weakness of lower limbs the next morning was treated in Municipal non-commercial organization "Clinical hospital № 4" of Sumy city council. His bowel and bladder are intact. Able to feel sensation of clothes over his lower limb. After admitting to hospital, he noticed weakness of upper limbs.

Results. Patient's state of consciousness was in coherence. There was no paleness of skin, icterus, watch glass nails, lymphadenopathy and edema. BP 110 / 70 mm Hg, PR 82 / min. Motor system showed hypertonia of all four limbs. Hyporeflexia was present. Babinsky reflex was negative and abdominal was positive. Sensory intact. Steppage (neuropathic) gait and rapid progressive ascending paralysis were seen. Acute onset. Motor paralysis is a key symptom. Grandmother of maternal side also had same symptoms. Based on clinical features, familial history, and conditions of nerves. Considered it as polyradiculoneuropathy. With consideration of clinical symptoms and correlating it clinically with progressive weakness, AMAN subtype of GBS was concluded.

Conclusions. AMAN type is an unusual type in GBS that leads to fatality. In treatment of GBS, immunoglobulins (14 days after the first motor symptoms is no longer effective) and plasmapheresis (40-50 ml / kg four times a week) are proven to have effectiveness in treatment. Glucocorticoids not effective in GBS. Patient was given steroid therapy and physiotherapy together with diet and nutrients. Later he had a complete regression of neurological symptoms.

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MICROBIOLOGICAL EVALUATION THE EFFECTIVENESS OF THE PURULENT WOUNDS HEALING WITH SILVER NANOPARTICLES AND LOW-FREQUENCY ULTRASOUND

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Introduction. Surgical infection is an important problem in modern surgery. Complications caused by resistant microorganisms (MO) increase treatment time and often cause the deaths of the patients. Unfortunately, traditional antiseptics, in this case, do not lead to positive results. Our previous studies in vitro have shown that low-frequency ultrasound (US) significantly improves the antibacterial properties of silver nanoparticles (AgNPs), which has prospects for further researches.

Aim. To evaluate the effectiveness of experimental purulent wounds healing with AgNPs and low-frequency US base on microbiological assessment.

Materials and methods. We used 24 laboratory rats with simulated purulent wounds, which were provoked by a mixture of MO *S. aureus*, *E. coli* and *P. aeruginosa* with a concentration of each strain of 5×10^9 CFU/ml. Low-frequency US (URSK 7N–22) with AgNPs (size 25-60 nm) were used as treatment agents (12 rats). In the control group (12 rats), a standard type of Chlorhexidine treatment was used. To examine the bioburden of the wounds the wound exudates were investigated on special culture media on the 3rd, 5th, 7th, 10th and 14th day.

Results. On the 3rd day, the number of MO in the main group was half of the control group amount (3.12 lg CFU/ml). MO in the main group was distributed as follows: *E. coli* – 1.4 lg CFU/ml, *P. aeruginosa* – 1.02 Lg CFU/ml, and *S. aureus* – 0.68 Lg CFU/ml, while in the control group the ratio of MO was approximately equal. On the 5th day, the number of MO was 1.2 lg CFU/ml in the group of AgNPs/US, and 5.14 lg CFU/ml in the Chlorhexidine's group. On the 5th day, *S. aureus* was not isolated in the main group, but the number of *E. coli* was 0.92 lg CFU/ml (76% of the total number of MO). In the control group the rate of gram-negative MO was higher than gram-positive MO. It was respectively for *E. coli* – 2.05 lg CFU/ml, *P. aeruginosa* – 2.1 lg CFU/ml, and *S. aureus* – 0.99 lg CFU/ml. MO in the main group almost were not detected on day 7 (0.05 Lg CFU/ml), while in the control group they persisted until 14 days (0.5 Lg CFU/ml).

Conclusion. The use of AgNPs with low-frequency US ameliorates the effectiveness of the purulent wounds healing. The AgNPs/US combination was more effective against gram-positive microflora.

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MORPHOLOGICAL CHANGES IN GRAM-POSITIVE MICROORGANISMS TREATED WITH SILVER NANOPARTICLES

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Introduction. *Staphylococcus aureus* is a prominent Gram-positive bacterium cause a wide spectrum of infectious diseases. In addition, methicillin resistant *S. aureus* (MRSA) is a predominant cause of bacteremia, increasing duration of infection. Nowadays silver nanoparticles (Ag NPs) are an alternative agent for elimination of antibiotic-resistant bacteria due to their physic-chemical properties. Despite a lot of research in these fields there is no clear understanding of Ag NPs mechanism of action to bacteria.

Aim. Assessment of the morphological changes in MRSA after Ag NPs treatment.

Materials and methods. Ag NPs were synthesized from raw materials via chemical reduction method with polyvinylpyrrolidone. Ag NPs were characterized using X-ray diffraction, transmission electron microscopy, infrared spectroscopy, and spectrophotometric measurements. The influence of Ag NPs on MRSA isolated from patients was evaluated after determination of minimum inhibitory concentration. The tubes with bacteria suspension and mixture of microorganisms and Ag NPs were cultivated overnight in nutrient broth at 37 ºC. Then control and treated isolates were prepared for cell morphology investigation using scanning electron microscopy (SEM).

Results. SEM investigation of *S. aureus* in control group have shown spherical-shaped bacterial cells with smooth and intact cell wall. They had similar size and typical staphylococcal arrangement as opposed to treated microorganisms that have different size and rough surface. The study revealed the presence of cytoplasm leakages that can be conditioned the destruction of bacterial cell wall.

Conclusion. Ag NPs demonstrate antibacterial influence on MRSA and cause changing of its shape, size, as well as disruption of the bacterial cell membrane and irregularity of the surface.

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ASSOCIATION OF THE C+70G POLYMORPHIC SITE OF THE EDNRA GENE WITH LARGE ARTERY STROKE DEVELOPMENT IN SMOKERS AND NON-SMOKERS

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Introduction. It is known that endothelial dysfunction plays a leading role in the pathogenesis of vascular brain disorders. One of the driving factors that contributes to the development of endothelial dysfunction is a potent endogenous vasoconstrictor – endothelin-1, which exerts its effects through interaction with a specific type A receptor. Given that smoking is an important risk factor for endothelial disorders and stroke, the relevance of its study is undeniable.

Aim. To study the association of the C+70G polymorphic site of the endothelin type A receptor gene (EDNRA) with large artery stroke (LAS) development in smokers and non-smokers.

Materials and Methods. For analysis, the venous blood of 170 LAS patients was used (42.4% women and 57.6% men), aged 40 to 85 years (mean age 64.7 ± 0.73 years). The control group consisted of 124 apparently healthy donors (36.3% women and 63.7% men), with an average age of 76.7 ± 0.93 years. The groups did not differ in the ratio of two sexes ($P = 0.294$ for the χ^2 test), but the mean age of the control group (76.7 ± 0.93 years) was significantly higher than for the second group ($P < 0.001$). C+70G (rs5335) polymorphism of the EDNRA gene was determined by polymerase chain reaction, followed by restriction fragment length analysis. Statistical analysis was performed using SPSS-17 software package. The value of $P < 0.05$ was considered as significant.

Results. During genotyping, it was detected that correlation of homozygote by major allele (C/C), heterozygote (C/G) and homozygotes by minor allele (G/G) while analyzing C+70G polymorphism of EDNRA gene among non-smokers in control group was 30.1 %, 48.4 % and 21.5 %, and among LAS patients – 26.7 %, 55.0 %, 18.3 % correspondingly ($P = 0.629$ by χ^2-test). In the group of smokers genotype distribution according to studied polymorphism also didn't significantly differ (25.8 %, 54.8 %, 19.4 % in the control in comparison with 18.0 %, 64.0 %, 18.0 % for LAS patients; $P = 0.657$ by χ^2-test).

Conclusion. Investigated C+70G polymorphic site of EDNRA gene was not associated with development of LAS neither among smokers nor in the group of non-smokers.

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EPIDEMIOLOGICAL FEATURES OF PEDIATRIC DIABETES MELLITUS IN SUMY REGION DURING 2014-2018

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Introduction. Pediatric diabetes mellitus (PDM) is a chronic disease caused by inherited and/or acquired deficiency in production of insulin by the pancreas, or by the ineffectiveness of the insulin produced. PDM is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of different body's systems and organs, especially the eyes, kidneys, nerves, heart, and blood vessels.

Aim. The aim of this study was to assess the epidemiological features of PDM in the Sumy Region (SR) of Ukraine.

Materials and methods. We conducted a retrospective cohort study using the data of the Medical Statistics Center of the MoH Ukraine. All cases of DM in children age 0–17 years from 2016-2018 in SR were included.

The data is presented for Ukraine with the exception of the occupied territories (without the Crimea and occupied territories of Donetsk and Luhansk regions). The resultant trends were described by the annual percentage change (APC) and average annual growth rate (AAGR).

Results. Between 2014 and 2018, 155 new cases of PDM were reported in SR. The sex ratio (boys/girls) was 1.4. The age-standardized incidence of PDM was 0.14 in 2014, 0.13 in 2015, 0.15 in 2016, 0.14 in 2017, 0.33 in 2018 (cases per 1000 children 0 to 17 years old). We identified that the age-standardized incidence of PDM dramatically increase in 2018. APC in 2018 was 135,7%. Overall incidence rates slightly increased throughout the study period (AAGR: 21,4%, 95% CI: 21,03 to 22,9).

In contrast, slightly increase in incidence was observed in summary Ukrainian data. Over the 2014-2017 period, AAGR for age-standardized incidence of PDM was 3,93% in Ukraine. We had not possibilities to calculate AAGR for 2014-2018 as we made that in SR population, because the MoH Ukraine didn’t provide the statistical information about incidence of PDM for 2018.

In SR the PDM prevalence increases linearly from the last 5 years. The age-standardized prevalence of PDM was 0.92 in 2014, 0.96 in 2015, 1.06 in 2016, 1.18 in 2017, 1.49 in 2018 (cases per 1000 children 0 to 17 years old). Overall prevalence slightly increased throughout the study period (AAGR: 12,1%, 95% CI: 11,9 to 12,5).

Conclusion. From 2014 to 2018, in the SR the age-standardized incidence of PDM increased (AAGR: 21,4%), the most dramatic change is noted in 2018 (APC: 135,7%). Prevalence of PDM has increased over this period (AAGR: 12,1%).

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INVESTIGATION OF PIK3CA AND TP53 GENE MUTATIONS IN PATIENTS WITH BREAST CANCER

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Introduction. Breast cancer is a malignant disease characterized by a high incidence rate that tends to increase. More than 1.5 million women worldwide are diagnosed with breast cancer each year. Carcinogenesis is thought to be a multi-stage genetically controlled process, and the tumor is polymorphic and heterogeneous, which may affect the clinical course and response to treatment. These facts determine the relevance of scientific research in this field.

Aim. The aim of the research is to determine the frequency of PIK3CA and TP53 gene mutations and investigate their role in the diagnosis and prognosis of breast cancer.

Materials and methods. The study includes patients with histologically and immunohistochemically verified breast cancer. Quantitative determination of PIK3CA and TP53 gene mutations is performed using the digital PCR method on a QuantStudio 3D Digital PCR System device (Thermo Fisher Scientific). On screening step, formalin-fixed and paraffin-embedded tumor tissue samples are used for analysis. Next, for patients with detected mutations in the tissue samples, such mutations are determined in circulating tumor DNA from the plasma samples. Blood samples collection for digital PCR is performed throughout the treatment period. The results of the quantitative determination of gene mutations are compared with clinical and CT data.

Results. Quantitative determination of PIK3CA and TP53 gene mutations was performed for 13 patients with locally advanced breast cancer. The following mutation frequency was detected: PIK3CA gene - 23% (3/13), TP53 gene - 31% (4/13). Investigation of serial plasma samples showed changes in circulating tumor DNA amount of various degrees throughout all cycles of neoadjuvant chemotherapy, reflecting the dynamics of the tumor process on CT scans.

Conclusion. At this stage, it can be concluded that quantitative determination of PIK3CA and TP53 gene mutations reflects the tumor burden and the dynamics of the disease during neoadjuvant treatment in patients with locally advanced breast cancer. The data obtained are comparable with the results of computed tomography. Further samples collection and inclusion of more patients in the study is planned.

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PECULIARITY OF ND:YAG FOTONA 1064 TREATMENT IN COMORBIDITY OF ACNE VULGARIS COMBINED WITH DEMODICOSIS

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Introduction. Acne is a common chronic dermatosis that occurs in 80–90% of adolescents. Demodex mite is a conditionally pathogenic parasite, which according to modern authors found in 65 - 95% in the age group of 12-25 years and aggravates the course of chronic dermatoses. The aim of the study is optimization of the treatment of acne vulgaris combined with demodicosis.

Aim: improving the quality of acne treatment with using Nd:YAG Fotona 1064 laser therapy.

Materials and methods: the study included 60 patients with a diagnosis of moderate acne severity and the presence of a tick of the genus Demodex during an epithelial adhesive tape test. The patients were divided into 2 groups of 30 people, comparable in age and severity of the disease.

Laser system Nd:YAG Fotona 1064, with fractional mode FRAC3 (a spot diameter of 6 mm and a pulse duration of 0.6 ms), was used in the both of groups: in the 1st group – target point treatment, in the 2nd – diffuse surface treatment. Procedures were performed in a course of 4 procedures with an interval of 7 days. For home care patients of both groups were offered the same treatment. Assessment of the dynamics of the condition was carried out using the GAGS scale on the 14th and 28th day of treatment.

Results: At the baseline in the 1st group sum number of GAGS balls was 26 points, in the 2nd - 28 points. Evaluation on day 14 demonstrates improving clinical status: the number of points in 1st group decreases to 24, in the 2nd group - to 23 points; on day 28 – to 21 and 19 points, respectively.

Conclusions: The diffuse surface treatment by Nd:YAG laser treatment allows to reduce the number of inflammatory elements by 32% and decrease degree of severity up to 28 days, while targeted treatment leads to reduction of inflammatory elements only by 19%.

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EPIDEMIOLOGICAL FEATURES OF LUNG CANCER IN SUMY REGION

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Introduction. Lung cancer (LC) is important and complex problem of modern oncology, being one of the most common malignancy, that caused the biggest number of deaths from cancer all over the world.

Aim was to analyze features of LC among population of Sumy region (SR) in the period of 2013–2018 years.

Materials and methods. Retrospective analysis.

Results. Analysis of epidemiological data of LC among population of SR during the period 2013–2018 showed reduction of incidence rate from 48.8 to 40.4 per 100 000, that coincides with Ukrainian nationwide data, where number of incidents was lower, decreasing during this period from 36.1 to 32.5 per 100 000. The average value of prevalence of LC among men was higher than women (73.3 vs 16.4 per 100,000, respectively) that is common to Ukrainian nationwide data. During this period prevalence of LC among women of SR was higher than Ukrainian nationwide indicators (16.4 vs 12.2 per 100,000, respectively). In SR level of early diagnostic was growing during 2013-2018 while diagnostic of IV stage was decreasing, this tendency was opposite to Ukrainian nationwide. High level of early diagnostic (I-II stages) of LC among population of SR was observed, being the highest in Ukraine 40.3% vs 23.3 %. IV stage was found only in 22.3% of cases, which is lower than Ukrainian nationwide indicator – 33.4%. Coverage level of specialized treatment in SR was higher than Ukrainian nationwide (49.6% vs 41.8%), but level of morphological verification was lower 52.3% vs 59.6%. Number of patients that died during the first year after verification of diagnosis was 50.6%, that was lower than Ukrainian nationwide - 62.2%. Level of findings of LC during preventive examination in SR was one of the highest in Ukraine – 21.8% vs 18.5% and increasing during this period whereas in Ukraine this index was decreasing.

Conclusion. On the one hand incidence of LC in Sumy region was higher than Ukrainian nationwide for the last years, thus level of death during first year after verification of diagnosis was lower. This situation could be caused by such reasons as high level of early diagnostic and high detection level during preventive examination on the one hand and high coverage level of specialized treatment on the other.

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PSYCHOLOGICAL COMPONENT OF QUALITY OF LIFE IN DENTAL DISEASES

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Introduction. Assessment of the quality of life of dental patients includes physical, social and psychological components of health. To this end, a number of indices are proposed to evaluate the impact of dental health on quality of life: Oral Health Impact Profile (OHIP), Dental Impact on Daily Living (DIDL), Oral Health-related Quality of Life (OHQoL), Oral Health Impact Profile (OHIP-14). With their help, patients are characterized with problems at eating (functional), at communication (psychological aspect), and problems in everyday life (social component). However, they do not provide detailed information about the psychological status of patients with oral problems.

The aim was to identify among students the psychological components of self-esteem in quality of life amid problems with teeth and oral cavity.

Materials and methods. Surveys were conducted among 67 dental students (26 boys, 41 girls). They answered 10 questions and rated their condition on the criteria in points: 1 – never, 2 – very rare, 3 – often, 4 – very often, 5 – always. Statistical processing of the material was conducted.

Results. It was found that 94% of the respondents had problems with their teeth or oral cavity. 61% of respondents had problems communicating with others: felt shy of their pronunciation of sounds (27%), felt tense (36%), found it difficult to relax in the company of familiar people (18%), felt embarrassed (40%), felt irritation (13%). Due to dental health problems, symptoms of “mouth screening” from the interlocutor have been indicated. Thus, during the conversation, 33% of respondents turned their heads away, 31% covered their mouths, 40% laughed with their mouths closed with lips, 67% used oral deodorants.

Conclusions. Thus, the results of a self-assessment of a person’s psychological state in the presence of a problem with dental health can be regarded as a psychological discomfort. Obviously, such a condition occurs not only in aesthetic defects of the dentofacial system (tooth size, color, position in the dental arch, type of occlusion), but also in physical ones (halitosis, bleeding gums).

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THE EFFICIENCY OF COMPLEX TREATMENT OF PAIN SYNDROME WITH THE USE OF SODIUM DICLOFENAC AND LORNOXICAM IN COMBINATION WITH PSYCHOTHERAPY IN PATIENTS WITH VERTEBROGENIC PAIN SYNDROME OF THE LUMBOSACRAL SPINE

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Introduction. Pain syndrome is one of the main neurological manifestations of osteochondrosis of the lumbosacral spine. Acute back pain is common. 80% of people experience back pain during their lifetime and as many as 50% of the population will have an episode of back pain in any one year, 15-20% it is transformed into chronic pain (up to 2 months), and 8-10% – with long-term disability. Presence in patients of a certain premorbid psycho-emotional background contributes to chronic pain and seriously affects the treatment.

Aim.The aim of the study was to compare the effectiveness of pharmacotherapy with Diclofenac sodium 75 mg and Lornoxicam 4 mg. The 1st group received Diclofenac and the 2nd – Lornoxicam for 10 days in combination with muscle relaxants (Midazolam 2 ml, №10) in the treatment of discogenous pain syndromes of the lumbar-sacral spine.

Material and methods. It was performed the survey of 40 patients (22 men and 18 women) in the ages 28-60 years with pain syndromes with osteochondrosis of the lumbosacral spine. Each group consisted of 20 people with severe pain syndrome and increased reactive anxiety. The visual analog scale of pain was used to visualize the evaluation of pain syndrome. The Spielberg-Hanin's questionnaire was used to assess the psycho-emotional state. The estimation of the clinical-neurological and psycho-emotional state of patients was performed every day for 10 days. The analysis of the results was carried out before and after treatment. According to the data of the survey using the visual analog scale of pain, the patients in both groups evaluated the pain before treatment as strong pain.

Results. It was founded that the intensity of pain decreased to the level of light level pain in 50% of patients after the treatment in the 1st group, to the middle level of pain – in 50% of patients. In the 2d group, the intensity of pain decreased to the light level pain in 70% of patients, to the middle level of pain – in 30% of patients. Reactive anxiety decreased in patients of the 1st group in 1,5 times and in patients of the 2d group – in 2,5 times according to the indexes of psychological testing with using Spielberg-Hanin's questionnaire. Indexes of personal anxiety were remained without significant changes.

Conclusion. To sum up, the study has shown that pharmacotherapy with the use of Lornoxicam for patients with pain syndrome of the lumbosacral spine with increased reactive anxiety contributes to a more pronounced reduction of pain and reactive anxiety, which contributes to improvement in livelihoods.

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DENTAL CARIES AND OVERWEIGHT IN A SAMPLE OF JUNIOR SHOOL (6-12) AGE UKRAINIAN CHILDREN

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Introduction. Overweight and obesity among children are a major public health concern, especially in developing countries. Dental caries is described as a multifactorial infectious disease caused by cariogenic microbiota; carbohydraterich diets and a susceptible host are responsible for the disease. In populations with a high prevalence of malnutrition, local dietary actions may be more harmful because they act on individuals who have compromised tooth structures, along with deficiencies in the salivary glands. Hence, such populations may be more susceptible to dental caries because of the association between systemic and local factors. Some studies have shown a positive relation between obesity and dental caries.

Aim. The objective of the present study was to investigate the possible correlation between the body mass index (BMI) and dental caries among of junior school (6-12) age Ukrainian children.

Materials and methods. The clinical study was performed on 81 junior school age children at the Department of Pediatric Dentistry, Ukrainian Medical Stomatological Academy, Poltava, Ukraine, to determine their dental caries and malnutrition status. To assess the nutritional status, the weight for age, height for age, and BMI were determined. Anthropometric measurements were taken prior to the dental examination by pediatrics. A standard protocol for performing the measurements was followed. The weight was assessed using a single scale. The height without shoes was measured with a stadiometer. The BMI was calculated as the weight divided by the square of the height (kg/m2). The BMI was categorized into groups normal weight (BMI-1), overweight (BMI-2) daccording to the International Obesity Task Force cutoff values. The occurrence of dental caries was determined using the decayed, missing, and filled teeth (DMFT) index.

Results. Respective mean DMFT+df values for BMI-1and BMI-2 were 2,75 and 3,26 respectively.

Conclusion. The BMI status and oral heals was different into two groups: 1 (normal weight) and 2 (overweight). Pediatrics should consider the relationship between patients' body composition and oral health, in order to provide the best service for pediatric patients, and should advice parents on oral-health promotion.

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THE DEPENDENCE OF THE PARAMETERS OF DAILY BLOOD PRESSURE MONITORING ON BODY MASS INDEX IN PATIENTS WITH ARTERIAL HYPERTENSION

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Introduction. In the XXI century, the problem of overweight and obesity affects the formation of cardiovascular risk becomes increasingly relevant. Arterial hypertension (AH) combined with common risk factors such as dyslipidemia, obesity, hypodynamia, smoking, diabetes mellitus (DM) causes at least 70-75% of stroke, 80-90% of myocardial infarctions, leading to premature disability and mortality of patients.

The aim of the study was to study the relationship between the daily profile of blood pressure with BMI in patients with hypertension in stage 2.

Materials and methods. 120 persons with AH stage II were from age 26 to 75, screened and divided into 2 groups according to BMI. All patients with AH had 24-hour BP monitoring by of standard protocol.

Results and discussion. Patients from both groups were identified: "dippers" - 43 people (35.8%), "non-dippers" - 71 people (59.2%), "over-dippers" - 2 people (1.7 %), "night-packers" - 4 people (3.3%). In the group with normal BMI 53.3% of patients had a preserved physiological daily profile of BP, 43.3% of patients had the phenomenon of "non-dippers", while among 80% of patients in the group with obesity had a unfavorable profile of "non-dippers" (73.3%) and 6.7% registered night hypertension. Also in patients with obesity were increased 1.3 times the values of the time index of hypertension and the rate of morning increase DBP (41,4 ± 2,23) mm Hg. against (46.2 ± 0.87) mmHg. respectively compared with the group with normal BMI ($p < 0.05$).

Conclusion. In patients with stage II hypertension, 73.3% of non-dippers and 6.7% of "night-peakers" were found, significantly higher than patients with stage II hypertension with normal BMI. Patients with stage II hypertension and obesity had significantly higher values of SBP and DBP, time index of BP, morning BP elevation compared with patients without obesity.

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ADIPONECTIN AS AN EARLY BIOMARKER OF DIABETIC NEPHROPATHY IN CHILDREN WITH TYPE 1 DIABETES MELLITUS

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Introduction. Diabetic nephropathy is one of the most common complications of diabetes. Hyperglycemia leads to the formation of advanced glycation end products. These products promote cell proliferation and hypertrophy in the kidney. The gold standard for diagnosis diabetic nephropathy consists of measurement of albumin in urine and estimated glomerular filtration rate. But recent studies highlighted the quite often patients with diabetic nephropathy don't have any traces of albumin in urine fore long time. And the time for treatment correction is lost. Adiponectin reduces inflammation and insulin resistance. Also biomarker performs angioprotective and anti-fibrotic function.

Aim. To investigate the features of adiponectin level in urine of children depending on the diabetes duration.

Materials and methods. We analyzed 3 groups of children with type 1 diabetes mellitus and comparison group of children without diabetes from Regional Children's Clinical Hospital in Sumy. Adiponectin was measured by ELISA using a Proteome Profiler Human Kidney Biomarker Antibody Array, RnD Systems. Results were detected with BioRad ChemiDoc Touch. The arrays were analyzed semi-quantitatively using BioRad Image Lab Software.

Results. Adiponectin in urine increased by 50 percent in children with duration of diabetes less than one year compared to the control group. Adiponectin levels elevated by 81 percent in children with lasting of diabetes from one to five years. Marker increased fourfold in children with diabetes for more than five years.

Conclusion. Increase urinary adiponectin was observed in the first year of diabetes in children. Measuring the level of adiponectin in urine may be useful for the diagnosis of diabetic nephropathy.

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QUANTIFICATION OF AGE-RELATED PERIODONTAL TOOTH FIBROBLASTS

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Introduction. In the periodontal ligament, fibroblasts are a major cellular element. Tthey are directly involved in the formation of fibers and intercellular substance. It is known that their quantitative density depends on the specific volume of dense fibrous connective tissue at the places of the greatest stretching of periodontium. The processes of stretching and compression of periodontal fibers can take place at traumatic occlusion. However, in the initial period of biomechanical overload on the tooth there are compensatory reactions in the periodontal complex, which result in decompensation with age.

The purpose of the research was to study the quantitative density of periodontal fibroblasts in rats at normal age.

Materials and methods. In 18 rats aged from 4 to 22 months, 36 lateral mandibular segments of the mandible have been removed. The histomorphometric study of the medial root periodontal ligament medial area of the second molar of the mandible in serial sections of decalcified segments has been carried out.

Results. It was found out that the average number of fibroblasts in the study area of the periodontium was decreasing with age. Thus, in rats aged 4 months their quantitative density was 51.5 ± 2.4 in 1 mm^2. In rats aged 22 months, the density decreased by almost half - 24.6 ± 1.8 in 1 mm^2 ($p < 0.05$). This indicates a statistically significant decrease in the number of fibroblasts in the periodontium with age. Obtained data relate to the state of the periodontal teeth in physiological conditions. With increased or insufficient functional load on the teeth and the periodontal complex, the quantitative density of fibroblasts may vary.

Conclusions. The quantitative density of periodontal rat fibroblasts normally decreases with age. When experimental modeling of a pathological process connected with disordered functional loading of the teeth or studying the morphological state of periodontal tissues in traumatic occlusion, age-specific features should be taken into account.

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MULTICHANNEL ELECTROPHYSIOLOGY SYSTEM WITH ELECTROPHORETIC DEVICE FOR DRUG DELIVERY

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Introduction. Today's scientific world has many different techniques for brain imaging and investigation, however the measuring of electrical activity is essential part to understand the principles of brain functioning. For better understanding how brain forms behavior scientists use many simultaneous recording of neuronal activity with ontogenetic manipulations, electrical stimulations, drug intervention, etc. We propose to use precise system of drug delivery into specific brain area with simultaneous extracellular neural recordings.

Objectives. Development and validation of 8-channel system for extracellular electrophysiological recordings with electrophoretic drug delivery system.

Results. 8-channels electrode (8 tungsten wires with d~40 □m for separate channel) was equipped with system for electrophoretic drug delivery, which is organized as additional glass microtube filled with solution of investigated compound. This option expands ability of our system to record neural activity and investigate the changing under influence of specific substances. Constructed miniature backpack-type system based on Intan Technology RHD2132 chip. The system is powered up with small Li-ion battery. Signals from electrode array is amplified and digitalized with Intan RHD 2132 core chip (bandwidth can be adjusted from 0.5-500 Hz for lower cutoff frequency and 100 Hz – 20kHz for upper cutoff frequency), which is operated by STM32 Arm Cortex microcontroller.

Conclusions. Designed low-cost system for multichannel electrophysiology can record neural signals with high accuracy and can be used with drug delivery system for particular experimental requirements in specific brain regions.

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MORBIDITY DYNAMICS FOR ACUTE BRONCHITIS IN CHILDREN TREATED AT MNO SCC CCH NAMED AFTER ST. ZINAIDA BETWEEN 2016 AND 2018

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Introduction. Acute bronchitis is one of the leading diseases of the respiratory system in children due to the high prevalence of bronchopulmonary pathologies in the overall illness pattern, and is often severe and accompanied by complications. At the moment, the prevalence of acute bronchitis is one of the first places in the structure of child morbidity. It should be noted that the risk of acute bronchitis increases (up to 50-90%) among children who often have acute respiratory infections, as well as among those living in environmentally unfavorable areas, in poor social and living conditions and those exposed to secondhand smoke.

In Ukraine, the number of bronchopulmonary diseases in children has increased 3.6 times in the last ten years, mainly due to acute and recurrent inflammatory processes in the upper and lower respiratory tract.

Aim. To analyze and estimate morbidity dynamics of acute bronchitis in children

according to data from the 1st and 2nd infectious disease wards of the Sumy City Council Children's Clinical Hospital named after St. Zinaida between 2016 and 2018.

Results. The analysis has shown that:

- During the period from 2016 to 2018 there has been a decrease in the disease incidence in the 1st infectious disease ward, where infants, toddlers and preschoolers were being treated: in 2016 - 267 people, in 2017 - 194 people. Thus, in 2017, 73 fewer children fell ill with acute bronchitis than in 2016.

In 2018, 7 more children fell ill than in 2017, at the expense of school-aged children.

- During the period from 2016 to 2018 there has been an increase in the disease incidence in the 2nd infectious disease ward, where school-aged children were being treated.In 2016 - 356 people, in 2017 - 320 people, in 2018 – 500 people. Accordingly, there were 36 fewer incidences in 2017 than in 2016, and 180 more incidences in 2018 than in 2017.

Conclusions. Thus, over the last 3 years there has been an increase in the incidence of acute bronchitis among children living in Sumy, mainly in school-aged children. This situation may be related to untimely access to medical care, self-treatment at home, inadequate treatment, and failure to comply with appropriate preventive measures.

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ASSESSMENT OF THE WOUND HEALING DYNAMICS OF PATIENTS WITH DIABETIC FOOT SYNDROME IN COMBINED TREATMENT WITH PLASMATHERAPY

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Aim. Comparative evaluation of the dynamics of wound healing in patients with diabetic foot syndrome when using autologous plasma.

Materials and methods. The study involved 61 patients with diabetes mellitus type 2, moderate severity, compensation stage with diabetic foot syndrome II stage according to Wagner's classification. Inclusion criteria: surface area of the wound ≤ 3 cm^2, granulation phase of the wound process. Patients were randomly randomized in the 1st (n=30) and the 2nd (n=31) groups. Patients of the 1st group received treatment with wet-drying dressings with ointment compositions according to the phase of the wound process; 2nd group – topical treatment was combined with plasmatherapy. Plasmatherapy used 18 ml of blood from the cubital vein, after centrifugation received 12 - 14 ml enriched with autologous plasma growth factors. The technique involved intradermal injections of 5 mm increments at the periphery of the wound defect and retrograde from the periphery to the center of the area. The course consisted of 4 procedures 1 per week.
The dynamic changes in planimetric parameters of the use of plasmatherapy was assessed according to the electronic program LesionMeter, which allows you to determine the area of the wound surface.
Clinical status was assessed at baseline, at 4 weeks and at 8 weeks of treatment.

Results. After 4 weeks' trophic ulcers were closed in 7 (23.3%) cases in the 1st group and in 14 (45.2%) patients in the 2nd group ($p<0,05$). After 8 weeks' epithelization was achieved in 16 (53.3%) and 27 (87,1%) patients, respectively. The time of complete epithelization in patients of the 1st and the 2nd groups was 89,4±2,6 and 69,5,2±1,6 days ($p<0,05$).

Conclusions. The conclusion is made that plasmatherapy is an effective and pathogenetically grounded for the treatment of patients with diabetic foot syndrome.

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CLINICAL AND LABORATORY PECULIARITIES OF MODERN MEASLES IN ADULTS

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Introduction. Ukraine is ranked first in the list of countries where measles has the fastest spreading rate. The first measles outbreak in Ukraine sickened more people than in the whole Europe. The number of cases is growing despite the fact that 90% of children receive timely vaccinations against measles. The course of measles in adults is much heavier than in children, and can be accompanied by occutence of sequelae.

Aim. To establish the features of modern course of measles in adults.

Materials and Method. 60 patients that were on a medical treatment were checked up in the infectious diseases ward of Sumy clinical hospital No. 4 in 2018. Patients were examined using generally accepted clinical, laboratory and instrumental methods.

Results. The patients were (32,33 ± 1,18) years old. Among the surveyed men and women were equally. The most of the surveyed lived in the city (76,7 %). The main complaints that patients had, were: weakness (common for every surveyed), dry, barking cough in 50% of cases, typical spot-papular eruptions – 82,3%, Belsky-Filatov-Koplik spots – 21,6%. 6,6% of the surveyed had symptoms of bronchitis, 8,3% had symptoms of conjunctivitis. Blood pressure was within the normal range (systolic–(118,16 ± 1,41) mm Hg, diastolic (77,08 ± 1,29) mm Hg). 83,3% of the surveyed had the increase of the body temperature up to $(37,53 \pm 0,09)^0$ C. Clinical blood test showed a tendency to leukopenia – (4,40 ± 0,21) × 109 / l, although erythrocyte and hemoglobin content were normal (respectively (4,33 ± 0,06) × 1012 / l and (137,85 ± 1,89 g / l), the erythrocyte sedimentation rate was (15,95 ± 1,29) mm / h.

Conclusions. Measles affects both: men and women with the same frequency, but it mainly affects young people. The main complaints include weakness, fever up to sub febrile values, typical lesions and the presence of Belsky-Filatova-Koplik spots. There is a tendency to leukopenia.

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DENTISTRY

THE FREQUENCY OF DETECTION OF INCREASED TEETH ABRASION AMONG THE POPULATION

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Introduction. Nowadays, pathological teeth abrasion is a very common pathology among people of all ages. The diagnosis which is made in time, naturally, early-stage treatment of the disease makes it possible to prevent complications. Generalized form of mixed type of pathological abrasion of the third level of severity can lead to dysfunctions of aesthetic and speech aspects of the chewing apparatus of patients.

The aim of the work is to investigate the frequency of pathological abrasion of teeth, its degree, type, shape of different gender and age group people that applied for dental care.

Materials and methods. In clinical investigation there are 150 participants who applied for dental care (among them: men - 75, women - 75, from the age of 35 to 60 years). During the objective examination, the degree, type, form of increased teeth abrasion was registrated. The diagnosis was made according to the code MKK-10 K03.0.

Results. According to the results of the survey, it was found out that among 150 people, 70 (46.7%) had an increased teeth abrasion (men - 26.7%, women - 20.09%). Among them 12 (17.1%) participants had generalized form of increased abrasion, 58 (82.9%) had localized form of increased abrasion. Among patients with generalized form, 6 (50%) had horizontal type of abrasion, 2 (16.7%) had vertical type, and 4 (33.3%) had mixed type. Patients with localized form of increased abrasion, in 82.8% cases showed horizontal type, in 12.1% vertical and in 5.2% mixed type.

Conclusions. Thus, the clinical examination revealed a high frequency of detection of increased teeth abrasion. Particular attention is paid to the prevalence rate among the surveyed of generalized form, which further leads to irreversible complications in the functioning of the chewing apparatus. Therefore, the study of etiology, pathogenesis and treatment of this pathology requires further investigations.

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THE FEATURES TREATMENT OF PERMANENT TEETH ERUPTION DUE TO POLIDENTIA IN A CHILD WITH INCOMPLETE ORAL AND MAXILLOFACIAL DISOSTOSIS SYNDROM

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Introduction. The developmental disorders of the maxillofacial area are one of the difficult problems of dentistry Maxillofacial dysostosis belongs to this group of diseases. The patient's appearance is characterized by abnormalities of the head and craniofacial area. Often patients have a complains of a delay in the eruption of permanent teeth because of hyperdontia and retention. The type of inheritance of this pathology is autosomal dominant trait.

Aim. The study of the features of treatment for delayed permanent teeth in children with incomplete maxillofacial disostosis syndrome.

Materials and methods. Child K., 11 y.o. had complains on absence of permanent teeth in upper and lower jaws. Physical examination showed a 131 cm height where as an average height of 11-years-old girls is 138-148 cm (centile table of girls under 17 years' height according to WHO). Disproportion of face due to upper third enlargement (broad forehead with distinct protuberances) and slight shortness of middle third (up to 1,5 cm). Palpebral fissures are big with widely-spaced eyes, antimongoloid type is presented. Micrognatia of maxilla. Mandible growth is normal. Girl complains on absence of permanent teeth on upper and lower jaws with presence of deciduous 53,54,63,6473,74,75,83,84,85. Child is sent to further orthodontic treatment.

Results. The hight of patient is 131was revealed at examination. The disproportion of a face due to increasing it's upper third (wide forehead with pronounced frontal tubercles) and reducing middle one. The father has a a similar external sign. The girl's lower jaw has s normal size on a orthopantomogram. The size of maxillary sinuses, orbits and upper jaws are reduced. The patient was diagnosed with congenital maxillofacial dysostosis incomplete type hyperodontia of the both jaws, delayed of permanent teeth. The supernumerary teeth were revealed during the estimation of orthopantomogram. But this method of examination didn't information about relationship inbetween mentioned teeth in the jaws relatively to the location of the mandibular canal and maxillary sinus. The 11 supernumerary teeth were reveled on magnified segments of cone-bean tomogram. The phased surgical and orthodontic treatment helped to made a right positing of teeth in the dental arch.

Conclusion. Our clinical case of multiple hyperidentity and delayed eruption of permanent teeth with an incomplete type of maxillofacial dysostosis. The features of diagnosis, surgical and orthodontic treatment are described to reduce psychological and operative trauma of the child. This made it possible to correct of positioning of permanent teeth in the dental arch during the eruption stages.

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DENTAL STATUS STUDY OF THE FOREIGN STUDENTS CORRESPONDING WITH THE COURSE OF DENTAL DISEASES PREVENTION CONDUCTED THEM IN CHILDHOOD

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Introduction. Prevention of dental diseases is one of the most important factors in maintaining the health of the whole organism. Experience shows that prophylaxis problems in many countries are solved with some peculiarities. As a result of that the following study was conducted.

Aim. Establish what methods of caries prophylaxis were applied to the studied group of foreign students in childhood and estimate the status of their dental status today.

Materials and methods. 74 foreign students of the dental faculty 3rd course who are at the stage of studying the course of main dental diseases prophylaxis, were questioned and the oral cavities were examined. Of these there were 52 men (70.3%), women - 22 (29.7%). The average age was 22.5 years. They found out students whose parents related to general medicine and dentistry in particular; how often they visited the dentist in childhood; what hygiene items they were trained to use and at what age; did they seal the fissures or cover with a fluoride varnish. When examining the oral cavity, the number of carious/filled cavities on the contact, as well as chewing and cervical surfaces of the teeth, the presence of extracted teeth was determined.

Results. An analysis of the questionnaires revealed that 23 (31.1%) students lived in a family of doctors, 5 of them (6.8%) lived in a family of dentists. 37 (50.0%) respondents regularly visited the dentist in childhood and adolescence. Most of the students were trained in oral hygiene before the age of 5 - 65 (87.8%). 63 students (85.1%) brush their teeth twice a day. The main subjects of hygiene are a toothbrush and toothpaste - 74 (100%), 23 people (31.1%) use interdental hygiene products. 3 students had sealed fissures (4.1%). On examination, the dentition of 6 students (8.1%) revealed the absence of the first permanent molars. Caries was found: on chewing and cervical surfaces (1,5 class) - 21 teeth, damage of the contact surfaces (2,3,4 class) - 43 teeth. There were fillings: on the chewing and cervical surfaces (1.5 class) -182 teeth, fillings on the contact surfaces (2,3,4 class) - 94 teeth.

39 (52.7%) of the surveyed students changed their approach to the hygiene of their own oral cavity after studying the course of dental diseases prevention, 35 (47.3%) did not change. 18 (24.3%) students conducted conversations about the hygiene and prevention of dental diseases with relatives and acquaintances. 12 (16.2%) students, during the summer internship at home, performed fissure sealing to children.

Conclusions. Prevention of dental diseases should include the introduction of a system of public and individual comprehensive preventive measures aimed at creating conditions that exclude risk factors for the occurrence of dental diseases.

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THE USE OF HYALURONIC ACID IN SURGICAL PRACTICE

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Introduction. In modern reconstructive and reconstructive surgery, methods of organ-specific restoration using biocompatible materials have been developed and are widely used. Today, among the methods used to rejuvenate the skin in aesthetic medicine and maxillofacial dentistry, injection methods for correcting involutional skin changes are of particular interest. In addition, in recent years there has been a trend towards a constant increase in the use of injection methods of therapy. A number of studies have shown that the use of hyaluronic acid (HA) (a natural proteoglycan of amorphous intercellular substance of tissues) in surgical practice opens up great prospects for the development of new methods of organ-specific regeneration. In connection with the foregoing, the goal and objectives of the study were formulated.

Aim. To visually and using ultrasound diagnostics to study the nature of intradermal administration of HA on the morphofunctional state of the skin. Objectives: to conduct a clinical assessment of the effectiveness and tolerability of HA by individuals with involutional skin changes.

Materials and methods. The study involved 20 individuals with age-related involution, starting from 40-45 years old, female. External signs of aging (wrinkles, dryness, skin atrophy) were clinically evaluated. The main factors causing accelerated skin aging are noted: excessive insolation, smoking, cardiovascular and pulmonary diseases, increased body mass index. The clinical section is made in the form of a comparative randomized open study (clinical, instrumental, morphological, statistical methods).

Results. It is proved for the first time that intradermal administration of HA-based preparations creates a physiologically favorable environment for enhancing the metabolic activity of skin cells, which causes activation of the synthesis of the main components of the intercellular matrix of the dermis, promotes skin rejuvenation, and reduces the severity of its involutional changes. Reducing the depth of wrinkles in 85%, improving the skin texture in 65%, increasing the hydration of the skin in 85%, improving the oval of the face in 65%.

Conclusion. A clinical assessment of the efficacy and tolerability of HA by persons with involutional skin changes was made, which will make it possible to use such drugs in the complex treatment of involutional skin changes. The stabilization of the achieved effect over the next 6 months and the long-term follow-up within 12 months after administration is proved.

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PUBLIC HEALTH

CLINICAL MANIFESTATIONS OF DIABETIC AUTONOMIC NEUROPATHY IN SUMY REGION

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Aim: to estimate the prevalence of autonomic neuropathy of the gastrointestinal tract in diabetic patients and evaluate the efficacy of treatment in diabetic gastroparesis.

Methods. There was a 4-month study of 80 participants: 44 patients with type 1 diabetes and 36 patients with type 2 diabetes were on stable antihyperglycemic treatment. Patients with gastroparesis were randomized on two groups: 7 patients (I^{st} group) received 10 mg of domperidone taken orally 30 min before meals and at bedtime for 16 weeks, the II^{nd} group of 7 patients continued antihyperglycemic treatment with diet modification.

Symptoms of autonomic neuropathy and symptoms of gastroparesis had been estimated before and after 4-month period using gastroparesis cardinal symptom index (GCSI). An upper endoscopy was accomplished to exclude the presence of stricture, mass or ulcer.

Inclusion criteria: diabetes patients with HbA1c $\geq$ 7%; body mass index not more than 30 kg/m^2. Exclusion criteria were collagenosis and neurological disorders.

Quantitative data are expressed as the mean ± SD. The correlation between variables was assessed using the Pearson correlation coefficient. P value <0.05 was considered statistically significant. All information was processed with SPSS 21.0.

Results. The mean age of the participants was (36±8,8) years, duration of diabetes from 5 till 15 years. The mean HbA1c in diabetes patients – (8,9±0,85) %.

Cardiovascular autonomic neuropathy (sinus tachycardia or bradycardia and/or postural tachycardia and/or orthostatic hypotension with supine hypertension) has been revealed in 52 (65%) patients. Signs of gastrointestinal autonomic neuropathy (gastroparesis or diabetic enteropathies or constipation) have been detected in 23 (28.8%) of patients. Genitourinary autonomic neuropathy (neurogenic bladder and cystopathy) had been detected in 9 (11.3%) of patients. All of these patients had HbA1c $\geq$ 8 % for the last year. Among 14 patients with gastroparesis nausea was present in 12 (85.7%), vomiting in 3 (21.4%), abdominal bloating in 10 (71.4%), upper abdominal pain in 4 (28.6%) and early satiety in 9 (64.3%) patients, GCSI scored more than 10. Gastroparesis symptoms were associated with severe retinopathy and/or nephropathy ($p \leq 0.05$). All symptoms of gastroparesis were reduced over the 4-month study period in the 1st group till (10±4,3) by GCSI score compared with (14±5,2) in the 2nd group ($p \geq 0.05$).

Conclusion. Clinical manifestations of autonomic neuropathy associated with poor glycemic control and diabetic complications. Domperidone has been shown to reduce gastroparesis symptoms but patients should be managed with additional attention to early glycemic control.

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PHYSICAL REHABILITATION AND SPORTS MEDICINE

PHYSICAL THERAPY FOR DIABETES OF 2 TYPE DIFFICULT BY OBESITY

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Introduction. Type 2 diabetes mellitus is pathogenetically associated with obesity. In a "health report in Europe, 2018," they said that overweight and obesity adversely affect life expectancy.

Objective: to develop a comprehensive program of physical therapy using methods of hydrokinesiotherapy (HK) for 2 type diabetes complicated by obesity.

Research methods: anthropometry, body mass index (BMI), functional tests, rapid method for determining blood glucose.

Results. The study involved 10 people of the main group (OG) and 10 people of the control group (CG). The CG was engaged in a conservative scheme of physical rehabilitation. For the OG, a special integrated program of physical therapy was developed using HK methods. The integrated program included work in 3 stages:

Stage 1 sparing motor mode: HK (aqua-gymnastics 45 min 3 times a week); massage 30-45 min, 15 sessions every other day; diet therapy; physiotherapy (magnetic therapy 10).

Stage 2 sparingly-training motor mode: HK (aqua-gymnastics/aqua aerobics 45 min 3 times a week, diet therapy; physical therapy (underwater shower-massage – 15); yoga therapy (3 times a week, breathing exercises every day).

Stage 3 training motor mode: HK aqua-gymnastics/aqua aerobics and swimming elements 45 min 3 times a week; diet therapy; yoga therapy (3 times a week).

HK consisted of: aqua-gymnastics breathing exercises in water, relaxation, stretching and resistance exercises, various types of underwater walking and running, exercises with objects (noodles, water dumbbells, dostochkami, balls, weights); aquaerobics elements of walking and running to music and dance movements; swimming therapeutic swimming with control of the length of the distance and speed of movement.

During the initial examination of fasting glucose values in capillary blood in patients with OG-8.86 mmol/l, KG-8.60 mmol/l. After practicing HK, glucose indicators in capillary blood in patients with exhaust gases amounted to 5.97 mmol/l, in KG 6.95 mmol/l. In patients with OG at the end of the experiment, there was a positive trend in reducing BMI, which averaged 11%.

Conclusions. The use of a comprehensive rehabilitation program using HK for 2 type diabetes complicated by obesity contributed to a decrease in body weight, a decrease in blood glucose. Patients activate metabolic processes, increase energy consumption, improves overall health.

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THE MEANS OF PHYSICAL REHABILITATION IN DEPRESSION

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Introduction: Mental health assessment and correction of the patient's personal response to depression are an integral part of physical rehabilitation**.** According to WHO, depression ranges from 5 to 10% in prevalence, and is projected to come out on top by 2020. Depression increases the risk of mortality.

Aim: consider physical rehabilitation programs for depression.

Methods: the analysis of scientific and methodological literature

Results: The algorithm of the physician in the care of patients with depression includes both medication and recommendations regarding adherence to labor and recreation, an active lifestyle, walking on sunny days, physical exercise, music therapy, art therapy, nutrition, enriched with vitamins and trace elements. The authors have proved that physical exercise reduces the level of depressive symptoms, is the basis of relapse prevention of depression.

Exercise is a part of body-oriented psychotherapy, which according to N.D Abramyan researches - is an effective means of overcoming clients' depressed states. In her research, much attention is paid to breathing exercises, dance and motor practice, fine motor coordination, tension and relaxation.

L.Kraft for the treatment of depression proposes the use of cognitive - behavioral therapy, namely 20 - 40 minutes. Walking 3 times a week for 6 weeks or Kraft also proved that the use of a circular ergo meter 30 min. 4 times a week, for 6 weeks with sound. In the researches of N.A. Belikova proved the effectiveness of the author's program of physical rehabilitation, which had an emphasis on performing special exercises of a dynamic nature.

In the A.Martinsena study added strength training, relaxation, coordination and flexibility exercises to program. The author focuses on the frequency of the exercises. The program lasted for 8 weeks and the participants worked 60 minutes 3 times a week. Videman T.H.-offered kinesitherapy exercises. Classes were held 3 times a week for 12 weeks.

Conclusion: The use of physical therapy in depressive states is a topical and effective tool that is able to identify and correct psycho-emotional disorders in patients. The obtained results allow us to recommend a program of physical rehabilitation for people with depressive states, with an emphasis on performing specific exercises of both aerobic and anaerobic nature.

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THE USE OF MODIFIED TESTS IN THE DIAGNOSIS OF KNEE RECOVERY AFTER LIGAMENT RUPTURE

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Introduction. Injury the knee joint occupies the first place among injuries of the locomotor apparatus and make up from 50 to 75% of all injuries in the area of the knee joint, and damage to the anterior cruciate ligament is 33-92% of injury to the knee joint. There are many tests is used to help in diagnosing knee injuries. In my project, I will review safe diagnostic aid tests the degree functional recovery of the knee joint after injuries, these are modified Excursion Balance tests and hop tests.

Aim. To analyze the need for modified tests during the process of rehabilitation of patients after rupture of the knee joint.

Materials and methods. The research methods used to assess the degree functional recovery of the injured lower limb function are modified Star Excursion Balance tests and hop tests. Hop tests are used to evaluate the condition of the lower limb after trauma and reconstruction of the anterior cruciate ligament. They can measure the power and strength of the lower limbs. The Star Excursion Balance test is a dynamic test that requires muscle strength, knee range of motion and proprioception. This is an indicator of dynamic equilibrium. The test detects knee instability.

Results. As a result of our analysis, we can conclude that modified tests and their role in the process of patient recovery are important. They help the physical therapist and the patient to see the results of the work, and in the absence of the results correct the plan of rehabilitation. There are several different tests that will test different components of the patient's mental and physical health.

Conclusion. Analysis of the literature indicates that the problem of rehabilitation of patients with knee pathology remains relevant. Modification tests have a positive effect on the rehabilitation of patients. These methods are inexpensive, quick to follow and give accurate indication of the degree of limb recovery. It is very important for the person to enjoy the pleasure of the selected classes and see the result of their training.

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THE PROGRAM OF PHYSICAL THERAPY FOR ATHEROSCLEROTIC CARDIOVASCULAR DISEASE AT RECOVERY STAGE

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Introduction. Stressful situations are part of everyone's life, poor ecological status and unbalanced lifestyle are the causes of cardiovascular disease. The pace of life causes people to ignore the signals given by the body. Exercise deficiency, nutrients, rest, unstable emotional state and genetic factors are direct factors for the development of pathologies. Risk factors that provoke coronary heart disease include hypertension, high cholesterol, triglycerides, low-density lipoproteins, low-density lipoproteins, type 2 diabetes, stress, abdominal obesity.

Aim. Develop a comprehensive program for the physical rehabilitation of patients with coronary heart disease.

Materials and methods. Based on the analysis of the scientific and methodological literature, a physiotherapy program was developed for people with coronary heart disease in the recovery period.

Results. A program of physical therapy for people with ischemic heart disease in the rehabilitation stage, aimed at improving the psychological state and functional status of the oxygen-transport system. The program consisted of moderate aerobic exercise and relaxation exercises, coordination, art therapy and music therapy classes. The program combined the means of kinesitherapy, hydro-kinesitherapy, diet therapy and psychosomatotherapy. The peculiarity of the program was its stage - gentle, sparingly-training (toning), training. The transition to the next stage is carried out under the condition of normotonic reaction to physical activity. The normotonic reaction is characterized by an increase in heart rate by 60-80% of the maximum, an increase in systolic blood pressure by 15-30%, a decrease in diastolic by 10-15% and the recovery of these indicators after loading for 5 minutes. Classes are held daily - 5 times a week. Kinesitherapy and hydro-kinesitherapy (the active component of the program) are applied 3 times a week, and psychosomatotherapy (the creative component of the program) 2 times a week.

Conclusions. We believe that the proposed program of physical therapy with training and creativity component will have a positive effect, which will manifest in the resultant shifts of physiological parameters, especially the functional state of the oxygen-transport system and improvement of the psychological state. We see further research prospects in implementing a physical therapy program for people with coronary heart disease at a restorative stage and evaluating its effectiveness.

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VIRTUAL SPACE IS IN PROGRAMS OF PHYSICAL REHABILITATION

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Introductioun. The important problem of modern society is humane attitude toward persons with functional problems. Society must help adaptation of persons with disability to their comfortable existence in the conditions of society. Because of this, many researchers (Lewis G. N., Rosie J. A., 2012, Wang Q., 2017, Papadych Y., 2018) use a significant arsenal of effective methods for physical, psychological and social rehabilitation. Characteristic of this stage of development is the widespread introduction of computer technology into the rehabilitation process for people with functional disabilities. It is computer technologies that open up new opportunities for creating rehabilitation programs. They have gained recognition and distribution in the developed world, but they are unfortunately hardly used by domestic rehabilitation specialists.

Aim. The aim of our work consists in the selection of facilities of physical rehabilitation of patients with violation of functions of locomotorium with the use of virtual reality.

Methods. Analysis of scientific literature

Results. In the process of researches we are consider computer technologies that are been using in the rehabilitation of people with limitations of motive functions. The use of increases possibilities of specialists in different rehabilitation establishments, and realizes the use of innovative methodologies of treatment. It in turn increases the amount of services that is given by establishments, that considerably improves and satisfies the level of necessities of patients. The use of virtual environment technologies provides quality conditions for rehabilitation of locomotor function in patients with impaired locomotor system. A haptic feed-back gives an opportunity to proceed in sensory functions. Virtual games considerably improve motivation of sick children to implementation of motive tasks. The process of selecting a virtual environment for each patient is very important. The virtual programs must be adapted to individual physical possibilities of patient, type and character of disease. It is necessary to take personal account of the compensatory capacity of the body, because each patient has a different level of preparedness and adequacy of mental reactions in the treatment.

Conclusion. Visualization of graphic and animation elements in three-dimensional space enables imitation of visual, auditory and tactile images at the same time. This makes it possible to restore hearing, partially vision and speech. Virtual reality, as well as any other hi-tech method, has the advantages and defects in comparing to the traditional methods of physical rehabilitation. The high cost of equipment behaves to the obvious defects. However, introduction of virtual technologies in rehabilitation activity gives the considerable range of possible decisions questions of rehabilitation by means of bringing in of various types of employments: playing, communicative and labour. The use of virtual technologies gives possibility to extend professional possibilities of physiatrists.

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DEVELOPMENTAL DYSPLASIA OF THE HIP IN CHILDREN UNDER SIX MONTH OF AGE

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Introduction. Developmental dysplasia of the hip occurs on 1000 children in 25 cases. In unfavorable terrain, this number is increasing. Early diagnosis of congenital dislocation of the hip will increase the chances of getting good results by 97%. If you find a violation, after three months, it will reduce the chances of improvement by 30-40%. If you start physical therapy at the age of three to six months, you can get a better result in 82%. If detection, treatment and rehabilitation are initiated later than six months of age, the positive result will decrease by 30%. How long treatment and rehabilitation will take depends on the age at which these measures are taken. If started at the age of three months. The treatment can take 2-3 months. If you start in the second half of the year life, then 2.5 years. If the intervention begins after the first year of life, rehabilitation can take 20 years or more. Violation of the formation of the hip joints can be complicated by neurological diseases, namely, a decrease in muscle tone. Congenital hip dislocation affects may also be accompanied by prearthrosis and arthrosis deformities. In some cases, it can be complicated by dystrophic processes in the proximal section femur. In developmental dysplasia of the hip there are three methods: conservative, operative and prophylaxis. Physical therapy methods for musculoskeletal disorders are taken as a basis. Among them: hydrokinesiotherapy, therapeutic physical training, massage.

Aim. To investigate statistics and problems of developmental dysplasia of the hip. To determine the role of physical therapy in this disease.

Materials and methods. Newborn infants under six months of age with developmental dysplasia of the hip.

Analysis of the literature on the principles of rehabilitation in congenital dislocation of the hip.

Results. After inadequate conservative treatment, up to 15-70% of children have residual developmental defects, and in 21-80% of cases have deforming arthrosis or dysplastic coxarthrosis is forming.

If treated within three months of a child's life, 97%, according to statistics, have excellent and good results.

Conclusion. Among hereditary diseases on the skeletal deformity up to 70-80% of cases are pathologies for developmental dysplasia of the hip. With early diagnosis and the provision of a systematic, differentiated and complexe approach to the treatment and conduct of physical therapy, in many cases, full recovery can be expected.

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НАУКОВЕ ВИДАННЯ

«BIOMEDICAL PERSPECTIVES»

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