

SUMY STATE UNIVERSITY MEDICAL INSTITUTE



TOPICAL ISSUES OF THEORETICAL AND CLINICAL MEDICINE

ABSTRACT BOOK

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

(Sumy, October 17-19, 2018)

Sumy
Sumy State University
2018

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY STATE UNIVERSITY
MEDICAL INSTITUTE



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FUNDAMENTAL MEDICAL SCIENCES

REFERENCE INTERVALS OF PLATELET INDICES OF CAPILLARY BLOOD
IN THE SUMY CITY ADULT POPULATION

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Introduction: One of the most important tasks of laboratory hematology is establishment of reference intervals (RIs) for capillary blood. The defining of the RIs for the platelet indices is especially complicated, since the use of capillary blood samples involves considerable difficulties of the standardization of the pre-analytical and analytical stages. There are no RIs of thrombocyte indices of capillary blood for the Sumy city population, and reference literature data do not reflect the real image in the population.

Aim: The aim of research is to determine the reference intervals for the platelet indices of capillary blood in the Sumy city adult population.

Materials and methods: RIs were defined according to the recommendations of the Clinical and Laboratory Standards Institute (CLSI EP28-A3c, 2010). The hemograms of 1553 men and 1169 women, practically healthy blood donors, were analyzed. The hemograms were divided into 4 age groups: 20-29 years, 30-39 years, 40-49 years, 50-59 years. Sampling of capillary blood was performed in accordance with the requirements of the CLSI standard. Clinical analyzes were performed on the hematological analyzer Sysmex XP-300 (Japan). The RIs were calculated as $X_{avg} \pm 1,96SD$ for the following indices: platelet count (PLT, $\times 10^9/L$), platelet distribution width (PDW, fL), mean platelet volume (MPV, fL), plateletcrit (PCT, %). Differences in the values of capillary blood parameters in men and women, as well as in different age groups, were assessed by the Student's test using a two-sample t-test with the same variances.

Results: The data distribution close to "normal" were established for all the studied indices. Comparative analysis of the data of descriptive statistics did not reveal significant differences in the mean values of the indices in persons of different age groups. Statistically significant sex differences of the average values of the PLT and PCT indicators were defined, which were less by 9 and 0.1 units, respectively, in men. Calculations of the values of X_{avg} , SD and PI were performed separately for men and for women. RI values were very similar for both sexes and were for men: PLT=119,45–262,69 $\times 10^9/L$, PDW=9,54–16,64 fL, MPV=9,04–11,86 fL, PCT=0,133–0,263 %; for women: PLT=119,60–279,38 $\times 10^9/L$, PDW=9,54–16,52 fL, MPV=9,09–11,87 fL, PCT=0,136–0,278 %.

Conclusions: The RIs we determined can be used in the work of the blood service center in Sumy city to assess the state of thrombocytopoiesis and platelet step of hemostasis in donors, as well as in other medical laboratories that use the hematology analyzers Sysmex.

LACK OF ASSOCIATION BETWEEN HINDIII BGLAP GENE POLYMORPHISM AND TYPE 2 DIABETES MELLITUS DEVELOPMENT IN UKRAINIAN POPULATION

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Introduction: Type 2 diabetes mellitus (T2DM) belongs to a large group of multifactorial diseases, which are caused by combine interaction between different genes and environmental factors. Nowadays it is known a myriad of proteins participate in diabetes pathogenesis. One of them is the vitamin K-dependent protein osteocalcin (also known as Bone Gla-protein), considered as a bone regulator of systemic glucose metabolism. 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.

Aim: To analyze the possible association between BGLAP T298C single nucleotide polymorphism (SNP) and T2DM development among Ukrainians.

Materials and methods: Venous blood of 153 patients with T2DM and 116 control subjects was used for the study. DNA isolation was performed using DiatomTM DNA Prep 200. Polymerase chain reaction with following restriction fragment length polymorphism analysis (PCR-RFLP) was used to establish thymine (T) to cytosine (C) transition at nucleotide 298 in the osteocalcin BGLAP gene promotor region (rs1800247 SNP, also known as HindIII). Statistical analysis was carried out by SPSS 17.0 program.

Results: There was no significant difference from Hardy-Weinberg equilibrium expectations in control group ($p > 0.05$ by χ^2 -test). The distribution of homozygous carriers of major allelic variant (T/T), heterozygous (T/C) and homozygous minor allele (C/C) variants in type 2 diabetic patients was 66,0%, 26,1% and 7,9% respectively. The above-mentioned distribution of genotypes in control group was 59,5%, 33,6% and 6,9%. No statistically significant differences were found between HindIII BGLAP gene genotype frequencies in diabetic patients and control subjects ($P = 0.411$ by χ^2 -test).

Conclusions: There is no association between HindIII SNP of the BGLAP gene and T2DM development in Ukrainian population.

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EXPRESSION PECULARITIES OF ANTIAPOPTOTIC PROTEIN BCL-2 IN TISSUE OF PRIMARY CANCER OF FALLOPIAN TUBES IN DEPENDENCE OF HORMONAL STATE OF A TUMOUR

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Introduction: Reasons of appearance of primary cancer of fallopian tubes, its frequency, possibilities of diagnostics, prophylaxis and treatment are not only problematic and of current interest but also not well covered in modern medical literature. The inherent prognostic factors of this neoplasia are not totally clear. Data concerning the level of expression of protein bcl-2 and possibility of using it as a prognostic factor is controversial.

Aim: The aim of the investigation is immunohistochemical investigation of antapoptotic protein bcl-2 in tissue of primary cancer of fallopian tubes in dependence of hormonal state of a neoplasia.

Materials and methods: The research is fulfilled on 66 samples of tumor tissue of fallopian tubes. To study antapoptotic protein mice's monoclonal antibodies to receptor bcl-2 (clone 100/D5) were used. Reaction with more than 10% of cytoplasmic tinction of tumor cells was considered to be positive. To determine expression of steroid hormones (ER, PR) rabbits' monoclonal antibodies to estrogen (clone SP1) and progesterone (clone YR85) were used. They were valued according to the recommendations of D.C Allred taking into account the part of tinted nucleuses and the intensity of their tinction. Mathematical calculations were made with the help of Microsoft Excel 2010 with application AtteStat 12.0.5.

Results: During the research of bcl-2 in 12 (18.2%) cases negative reaction to antiapoptotic receptors was determined. Accordingly in 54 cases (81.8%) tumor tissue was bcl-2 positive. 96.3% bcl-2-positive cases of carcinoma of fallopian tubes are accompanied by presence of ER and 71,4% cases – by PR. That is, there's a strong positive correlational connection between expression ER and bcl-2 ($r=0.84$, $p<0.001$), medium positive correlational connection between expression PR and bcl-2 ($r=0.69$, $p<0.001$) in malignant tumors of fallopian tubes. Besides, if there were metastases or it was advanced stage of neoplastic process expression of protein bcl-2 went down which points to reduction of antiapoptotic influence of that protein during the progress of neoplastic process.

Conclusions: On the base of the data mentioned above (interconnection with positive status of receptors of steroid hormones, absence of lymphatic cancer spread, early stages of neoplastic process) it is possible to make a conclusion about correlation of bcl-2 positive status and favorable way of tumor course in fallopian tubes.

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STATISTICAL ANALYSIS OF MORBIDITY RATE AND PREVALENCE OF SALIVARY GLANDS TUMORS

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Introduction: Salivary glands tumours are the part of clinical oncology where there are still many unsolved questions. Surprisingly tumor pathology of the salivary glands is little known to a wide range of doctors. Among all the neoplasms tumors of the salivary glands make 1-2% and 5% of all the neoplasms of head and neck. During many years these numbers are quite stable and don't tend to decrease.

Aim: To make statistical analysis of the morbidity rate and prevalence of salivary glands tumors.

Materials and methods: The main statistics were compared which display the morbidity rate and prevalence of salivary glands tumors. The data of Sumy Region Oncology Centre and cancer-register of Ukraine for the last seven years were used for it. Statistical calculations were made with the help of the software STATISTICA (normality of group distribution test, t-test).

Results: Analyzing the statistical data one can see that the general incidence in Ukraine and in Sumy region has the tendency to increase. The highest incidence rates are observed in Chernigov, Sumy, Nikolaev and Kirovograd regions, and these areas do not cease to lead from year to year. The minimum incidence rate in Ukraine was in 2016 and it was 5.0 per 100 thousand population, the maximum rate was in 2012 and 2013 (5.5 per 100 thousand). In the Sumy region, the minimum indicator was in 2011 and it was 6.6 per 100 thousand population, the maximum rate was in 2015 and 2017 (8.3 per 100 thousand) which indicates an increase in the incidence rate in our region. The percentage of patients who lived less than 1 year after the first detected disease as well as the five-year survival rate remains at the same level. The indicator of the histologically confirmed diagnosis does not exceed 79% for all seven years.

Conclusions: Taking into account the obtained results it can be concluded that the problem of salivary gland tumors is relevant both for Ukraine as a whole and for the Sumy region. As for the Sumy region, there is a tendency to increase the incidence rate. The data obtained by us show that early and timely diagnosis as well as treatment of this disease remains at a low level which should attract the attention of relevant specialists.

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INVESTIGATION OF THE INFLUENCE OF EXTRACELLULAR DEHYDRATION ON MORPHOLOGY OF GASTRIC FUNDUS GLANDS

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Introduction. Extracellular dehydration may be caused by leakage of the exsudate from the wound surface, prolonged hyperalsalivation, excessive sweating, acute blood loss, postoperative fistulas of the small intestine, chronic diarrhea syndrome due to pancreatic diseases, biliary tract and intestinal pathology, etc. There are not enough references about the effects of extracellular dehydration, which occurs in the described cases, on the stomach.

The aim: to investigate the effect of extracellular dehydration on the cellular composition of the gastric fundus glands.

Materials and methods: Investigation of changes of the cellular composition of the fundal glands of the mucous gastric membrane was performed on 36 white laboratory rats of mature age. Animals under experiment were on a non-salt diet, drinking bidistilled water and receiving intraperitoneally furosemide at a dose of 1.76 mg/1 kg of rat's body weight for 30 days (corresponding to a light degree of severity), 60 days (average), and 90 days (sublethal severity). The fundal part of the animals stomach was taken for the study. Samples for research were prepared according to generally accepted methods.

The results. The percentage of mucous neck cells in the gastric glands of animals under experiment is approximately 14.97%, on the 30th day of extracellular dehydration it changes by 16.73%, on the 60th day it grows to 17.54%, by the 90th day it increases to 21.6 %. The share of parietal exocrinocytes in the fundal glands of control group is 36.86% on average, in the experimental group on the 30th day of extracellular dehydration is 29.17%, on the 60th day it is 28.89%, on the 90th - 28.65 %. The percentage of chief cells in the glands is 36.9%, on the 30th day of experiment it is 38.01%, on the 60th - 38.06%, and on the 90th - 31.44%. The percentage of apudocytes (cells of APUD system) in the total number of glands cells in the control group is 21.38%, on a mild level of extracellular dehydration reduced to 12.85%, on the average level - 13.23%, and on the heavy level - 12.42%.

Conclusion. The extracellular dehydration shows itself as a gradual decrease of the total number of cells in the gastric glands due to the growth of degenerative-destructive processes. Reduction of the cells percentage in favor of the mucous neck cells can be explained by the activation of regenerative-compensatory mechanisms, since these cells can replace other types of glandular cells under the influence of external factors. Also, mucous neck cells are considered the main regenerative pool of the cellular composition of the gastric glands.

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INVESTIGATION OF PROLACTIN LEVELS IN PATIENTS WITH BENIGN BREAST PATHOLOGY

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Introduction. Violation of hormonal regulation is an important factor in the development of breast cancer and tumors of other localizations in the human reproductive system. Significant role in this imbalance plays hormone prolactin (PRL). For the pathology of breast the main importance is when women has increased level of PRL in biological fluids and body tissues.

According to recent studies, pathological dysplastic manifestations in mammary gland, including tumor genesis, are primarily caused by the level of PRL receptor's expression in breast tissues.

The purpose of the work is to study the relation of serum PCL level in patients, who has breast fibroadenomas with presence and absence of proliferative activity.

Materials and methods. We examined 45 patients in the age of 18-45 years with benign breast diseases, as: fibroadenoma (FA) with active epithelial proliferation component, intracanalicular FA, perikanalicular FA, phylloid FA. Serum levels of PRL were determined by using the immunofluorescence method. Verification of the diagnosis of FA, conducted by histological examination. This study compared two groups of patients: with benign breast diseases and proliferation of the epithelial component (n = 32) and the control group with benign breast tumors without proliferative changes (n = 13).

Research results. For the control group without proliferative activity, the mean value of serum prolactin was $18,03 \pm 2,6$ ng/ml. For the group with proliferative events, the mean serum PCL level was $21,08 \pm 4,96$ ng / ml ($p > 0.05$), these data shows a lack of a significant difference between the PRL indices of both groups.

Conclusions. In our study of serum PRL in patients with benign breast diseases with increased proliferative activity and absence of proliferative changes, no significant difference was found. Therefore, concentration of prolactin in blood serum may not always have a pathological influence on the mammary gland. Consequently, this work needs further investigation to determine expression of prolactin receptors in breast tissue.

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MORPHOMETRIC ASSESSMENT OF CHANGES IN THE PANCREATIC ISLETS AND ACINUS IN CONDITIONS OF CELLULAR DEHYDRATION OF THE BODY

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Introduction: Water is an integral component of the water-electrolyte balance, the violation of which is accompanied by a number of pathological conditions and causes the restructuring of the organs and systems of the body. Pancreas occupies a special place in the structure of morbidity and disability among the population.

Aim: The aim of the research was to study the histomorphometric changes in the pancreas of rats under conditions of cellular dehydration of the organism.

Materials and methods: The experiment was carried out on 35 mature male white rats, which were in a stationary vivarium. Animals were divided into two series: control (5 rats) and experimental (30 rats). Experimental, was divided according to the degree of dehydration into 3 groups (10 rats in each). When the corresponding degree of dehydration was reached, the animals were withdrawn from the experiment under ether anesthesia for 10 days with a mild degree, for 20 days – from the middle and on the 30th day – with a severe degree of dehydration. The histological preparations of the pancreas were stained with hematoxylin-eosin and Van Gieson. The results of histomorphometric measurements were processed by statistical methods.

Results: The area of the acini in the 10th day increased by 39.9% ($p < 0.001$) relative to the control group. On the 20th day of the study, the area of the acini with respect to the control group increased by 2.2% ($p > 0.005$), and decreased by 38.6% relative to 10 days ($p < 0.001$). On the 30th day of the study the area of the acini was reduced by 18.5% relative to the control group ($p > 0.005$), relative to 10 days decreased by 51.1% ($p < 0.001$); relative to 20 days decreased by 20.3% ($p > 0.005$). The area of the pancreatic islets increased by 0.63% ($p > 0.005$) for the control group on the 10th day. On the 20th day of the study, the area of the islets relative to the control group increased by 51.6% ($p < 0.001$) and 51.4% ($p < 0.001$) with respect to 10 days. On the 30th day of the study, the islet area increased by 45.9% relative to the control group ($p < 0.001$); relative to 10 days increased by 45.5% ($p < 0.001$); relative to 20 days decreased by 10.6% ($p > 0.005$).

Conclusions: Analysis of pancreas morphometric data in conditions of cellular dehydration showed that a significant increase in the acini area occurs only with mild dehydration. A significant increase in the area of the pancreatic islets occurs in conditions of moderate and severe dehydration. The acinus area under conditions of severe dehydration decreased, probably due to adaptation-compensatory reactions.

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VASCULARIZATION FEATURES OF NORMAL AND PATHOLOGICAL ENDOMETRIUM

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Introduction: Proliferative process in endometrium is one of the most common pathology among women in all periods of their life. Despite the diagnostic and therapeutic potential in the world there is a high cancer mortality rate, because the lymphatic and hematogenous spread of the tumor. Therefore studying of vascularization (angiogenesis) features in neoplastic tissues, which are observed in different proliferative diseases, is an actual question for a modern tissue diagnostics.

Aim: Investigation of vascularization features in normal endometrium and in endometrial neoplasias.

Materials and methods: Morphological peculiarities of endometrial tissues were observed on the slides, stained with hematoxylin-eosin. The investigation of the vascularization pattern was performed by immunohistochemistry study using monoclonal antibody for CD31. A microvascular density was evaluated by the average number of CD31 positive patterns in the tissues.

Results: Vascularization of the normal endometrium tissue in different phases of menstrual cycle has its own peculiarities, which are represented by different levels of density of spiral arteries and thin-walled veins. Endometrial hyperplasia also contains these features, although in some samples areas with vascular increase could be observed along with avascular areas. In neoplastic tissue there is a variable vascular distribution both in parenchymal and stromal components of the tumor. The vessels are represented by arteries, veins and sporadic small vessels (arterioles and venules). All endothelial cells have cytoplasmic expression of CD31. Higher density of capillarization (microvascularization) was observed in the tumor endometrial tissue in comparison with the normal endometrium. The degree of vessel density was correlated with the stage of tumor cataplasia – increase of microvascular structures were observed with malignancy growth of the neoplastic tissue. The vascularization elevation in comparison with the normal tissue was found in the hyperplasia endometrium, but it is represented mainly not by capillaries, as occurs in tumors, but in most cases by arteries and veins.

Conclusions: In the endometrial tissue during tumor transformation the elevation of angiogenesis and microvascular density was observed. Blood vessel density is directly dependent on the tumor differentiation and grows during the tissue cataplasia.

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STUDY OF IMUNOHISTOCHEMICAL FEATURES OF CHONODROCYTES IN HUMAN ARTICULAR CARTILAGE

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Introduction: Articular cartilage is highly-organized nonvascularized tissue which is responsible for pressure absorption under load in the human body, the smoothness of the opposite tangential bone surfaces. Chondrocytes are metabolically-active cells that need constant flow of nutrients whose shortage results in the development of tissue degeneration. The changing of their immune profile can serve as a visiting card in the early stages of their disorganization, even if changes are absent at the light-optical level.

Aim: Investigation of protein composition of chondrocytes in human intact cartilaginous tissue.

Materials and methods: The study was conducted on 10 samples of femoral heads (whirlbones) obtained during autopsy. In order to identify the receptor profile of chondrocytes we undertook an immunohistochemical study. In the course of the studies we used antibodies to proteins Ki-67, p53, bcl-2, MMP1, OPN, S100 (“Thermoscientific”, USA).

Results: It was found out that articular cartilage includes solitary cells (in the intermediate layer of the transition zone) with positive nuclear reaction concerning the expression of receptors Ki-67 (less than 1% of the total number of chondrocytes). Within the layer of hypertrophic cells in the deep zone of noncalcified cartilage, as well as in calcified cartilage there are chondrocytes (up to 10% of the cells in these areas) which have cytoplasmic expression of antiapoptotic protein bcl-2. All the 100% of hyaline cartilage cells express receptors to protein S100, which is manifested by the availability of intense cytoplasmic reaction. Moreover, even empty gaps (chondrocytes deprived of the core) have intensive stain demonstrating the presence in them of S100 protein receptors. Intranuclear receptors to proapoptotic protein p53 become apparent only in the middle of the articular cartilage (the transition zone) with a tendency to its strengthening in deeper areas. While studying the receptors to OPN, its cytoplasmic expression was found in deeper-seated chondrocytes. Instead, proteinase proteins MMR1 were detected in most chondrocytes’ cytoplasm of the transition and deep zones.

Conclusions: Articular hyaline cartilage is highly-organized tissue, which even in the absence of innervation and vascularization maintains a clear structure. In the course of human life, cartilage is being constantly self-renewed, what is manifested by means of a rather slow division of the surface-located chondrocytes and programmed death of dystrophic-modified cells. Immune profile of the chondrocytes are characterized by distinct receptor peculiarities, which can vary with initial disorganization of articular cartilage.

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THE EFFECTIVNES OF HYPNOTIC DRUGS IN ELDERLY PATIENTS SUFFER NEUROLOGICAL DISODERS

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Introduction: There are many groups of pharmacological agents for correction of sleep disorders depend from causes and concomitant diseases. It creates the difficultness in the choosing of high effectiveness and less safety drug group in specific part of patients.

Aim. Given the widespread use of hypnotics' drugs to normalize sleep, the prevalence in the target group of elderly patients we have studied the spectrum of pharmacological safety of this group of drugs in older patients.

The objectives of the study were:

1. Determine the spectrum of the main prescribed sedative and hypnotic drugs, used to normalize sleep in elderly patients with various pathologies.
2. Develop test for interview and control of patients.
3. Determine the range of efficacy and safety of these groups.

Materials and methods. Two groups of elderly patients have been selected for achieving the results of this study. These both groups included 35 elderly patients (mean age 78 ± 6 years) with various therapeutic and neurological pathologies. Evaluation of the efficacy and safety of taking the drugs evaluated in accordance with the questionnaire, which was developed by us specifically for this study.

Results. Ambulance doctors preferred benzodiazepine preparations and not expensive preparations of imidazopyridine and cyclopyrone. In some cases, various plant derivatives are also recommended. While in hospital treatment drugs are used that are paid with budgetary money with the tender procedure. Therefore, hospital doctors mainly prescribed drugs of Ukrainian companies - Imovan, Vita-Melatonin, Sonopax. It should be noted that the overwhelming majority of patients (13 patients) did not consider the problem of sleep too significant, suggesting that these changes are inevitable at their age. On the other hand, near 67 % of patients had insufficient attention of physicians to this pathology.

Almost all patients were transferred as short-term use, and exchange treatment with these agents relatively well. None of the patients there was no significant health problems. Of the side effects 2 patients (13%) of the sword dry mouth, 3 patients noted a feeling of heaviness in the head, loss of coordination in the form of instability in a vertical position and unsteadiness when walking.

Conclusions.

1. In clinical practice, the use of hypnotics is a shift in emphasis from the refusal of the application of commonly used previously representatives of barbiturate and benzodiazepine analogues towards benzodiazepine with new classes of cyclopirolones and imidazopyridines derivatives.

2. The most safe in terms of the patients were drugs and cyclopirolones imidazopyridines derivatives.

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STUDY OF THE GASTROPROTECTIVE EFFECT OF DECOCTION FROM BLUEBERRIES IN THE DESIGN OF A NON-STEROIDAL ULCER IN RATS

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Introduction: Nonsteroidal anti-inflammatory drugs are a class of drugs that provide analgesic and antipyretic effects and, when used at higher doses, anti-inflammatory effect. Drugs are indicated in the treatment of acute and chronic stages of the disease, which are accompanied by inflammation pain. Nonsteroidal anti-inflammatory drugs are effective in treating bones with joints: arthritis, arthrosis, post-traumatic injuries. Therefore, they are widely used among patients of different ages and with various diseases. One of the negative consequences of the use of drugs in this series is the possibility of erosions, ulcers in the stomach and duodenum.

Aim: To study the gastroprotective effect of blueberry decoction in the modeling of non-steroidal ulcers in rats.

Materials and methods: The study was conducted on 50 animals. Group 1 - intact, group 2 – animals receiving orthofen at a dose of 7 mg / kg once daily for 5 days, group 3 – animals, which simultaneously with orthophene introduced a 1% solution of polysorb (1 ml per 100 g of body weight), group 4 – prevention of erosions of blueberries broth 1:10 1 ml per 100 g of mass and 5 group – prophylaxis of erosions with the preparation Almagel (0.7 ml of the drug per animal).

Results: A macroscopic study has shown that the relief of the stomach of intact animals has a pronounced folding, which is formed by the mucous and submucosal membranes. Histological examination of the cardiac stomach of intact animals found that the mucous membrane was constructed from single-layer prismatic glandular epithelium, own and mucosal plates and submucosal basis. The growth of the epithelium in its own plate forms a pit – pits. The depth of the pits is equal to $\frac{1}{4}$ of the thickness of the mucous membrane. At the bottom of the gastric pits, as well as in the area of the cervix of the stomach glands, there are less differentiated cells. In its own plate, built of loose connective tissue, the cardiac glands of the stomach lie – simple tubular strongly branched. The results of the study showed that the largest changes in the mucous membrane of the cardiac stomach of animals were in the 3rd group, which determined the multiple erosion with the transition to real ulcers. The best gastroprotective effect was noted during the prophylactic use of broth of blueberries.

Conclusions: Simultaneous use of broth from blueberries leaves the appearance of nonsteroidal erosions and ulcers of the gastric mucosa in their experimental modeling in rats

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MORPHOLOGICAL CHANGES IN THE PULMONARY TISSUE OF RATS OF AGED AGE UNDER CONDITIONS OF EXPERIMENTAL DIABETES I TYPE

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Introduction: Type 1 diabetes mellitus occupies the main place among the general morbidity, and as is known affects young and middle-aged people, and manifests itself in a wide range of complications. Target organs in chronic hyperglycemia, besides the well-known (vessels, nervous system, etc.), are lungs that are not enough investigated today.

Aim: Detect and explore the morphological lungs in conditions of aloxane diabetes.

Materials and methods. Three groups of white non-breeding rats of both sexes were studied, with terms of diabetes 10 days, 20 days, 30 days. Morphological indices of animals in each experimental group were compared with those in intact animals. The following research methods were used: scanning electron microscopy (micromorphomeria of conduction bronchioles width (SBP)), blood glucose levels determined by glucose oxidase method, glycosylated hemoglobin level (HbA1C).

Results During the morphometric study, it was found that within the first 10 days of the experiment, the SBI increased slightly and amounted to $65.52 \pm 0.05 \mu\text{m}$ ($p < 0.05$), which indicates an increase of 3.1% compared to the intact group. Indicators of glucose in the blood and glycosylated hemoglobin were $14.8 \pm 0.19 \text{ mmol/l}$ and $6.3 \pm 0.14\%$ respectively, corresponding to a severe degree of diabetes mellitus.

At 20 days of chronic hyperglycemia, BPI rates increase to $67.3 \pm 0.04 \mu\text{m}$ by 5.7% and by 2.7% in comparison with animals and diabetes mellitus for 10 days, respectively, which may indicate initial fibro-emphysematous changes in pulmonary stroma. The average glucose indexes in the blood and glycosylated hemoglobin was $12.3 \pm 0.04 \text{ mmol/l}$ and $7.1 \pm 0.14\%$ respectively, which corresponds to the average level of diabetes mellitus.

There were dilatation changes of the leading bronchioles for 30 days of aloxane diabetes, the size of which was 70.15 ± 0.52 ($p < 0.05$), which is 8.5% higher than intact animals. Blood glucose and glycosylated hemoglobin values were $10.2 \pm 0.1 \text{ mmol/l}$ and $7.4 \pm 0.08\%$ respectively, which corresponds to the average degree of diabetes mellitus.

Conclusions. Under the conditions of experimental aloxane diabetes, which corresponded to severe and moderate stages (from 10 to 30 days), dilatation changes in leading bronchioles develop in rats of mature age, which may indicate of initial changes in the pulmonary stroma of the emphysematous direction.

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MORPHOLOGICAL FEATURES IN THE PARATHYROID GLAND IN RATS CAUSED BY SIMULATED INFLUENCE UNDER PROLONGED OF HEAVY METAL SALTS

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Introduction: The main problem today is the pollution of the environment because of the intensive development of industry. Heavy metals are classified as particularly dangerous and widespread both in Ukraine and in other countries. Biological activity and their ability to accumulate in the environment and in the organism leads to disturbances of the function of many systems and organs. The endocrine system has a high susceptibility to the influence of toxic compounds.

Aim: The aim of the study was to investigate a morphological features of parathyroid glands of rats under the prolonged impact of heavy metal salts.

Materials and methods: The experiment was performed on white rats. The laboratory animals were divided into 2 groups. The experimental rats in the first group (control) were kept under normal conditions. For 90 days the second group (HM) drank water saturated with a combination of salts, heavy metals: zinc, copper, iron, manganese, lead, chromium. The animals were excluded from the experiment by decapitation under etheric anesthesia for 90 days to study morphological changes. The parathyroid glands together with thyroid glands were selected by median laparotomy. Then the material was fixed in 10% formalin solution. The material was filled with paraffin. Samples were made in a thickness of 5 μm using a rotational microtome. The histological specimens were stained with hematoxylin and eosin. They were examined using the Microscope "Carl Zeiss Primo Star" (Germany) with the digital output of the image system "ZEN 2" (dblue edition) (Germany).

Results: The negative morphological changes in the parenchyma of the parathyroid glands were observed in the experimental group HM, according to the experimental conditions. There was a pronounced perivascular edema, a stasis of red blood cells in the capillaries. In parathyroid cells edema was manifested, tentorial properties were changed. The nucleus of the cells were different in size and shape. The average area of the nucleus is 3.5 times ($p \leq 0.01$) more than in the parathyreocytes of the control group. The minimum value of the nucleus area in cells of the hm group was practically equal to the maximum value – in the control group.

Conclusions: 1. There were negative changes observed in the parenchyma of the parathyroid glands in conditions of prolonged action of the combination of heavy metal salts. 2. Morphological transformations in parathyreocytes were characterized by a change in the tentorial properties, edema, and hypertrophy of the nucleus.

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ASSOCIATION OF MALAT1 POLYMORPHISM RS3200401 WITH RENAL CELL CARCINOMA IN UKRAINIAN POPULATION

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Introduction: In human organism about 20,000 genes encoding proteins, that is no more than 2% of its genome. Almost 90% of the genome is actively transcribed, so the main part of transcripts is represented by non-coding RNAs that regulate the expression of more than 70% of human genes. MALAT1 (metastasis associated lung adenocarcinoma transcript), also known as NEAT2 (noncoding nuclear-enriched abundant transcript 2) refers to long (over 200 nucleotides) non coding RNAs and is associated with different types of cancer, particularly with renal cell carcinoma.

Aim: The aim of our investigation was research the relations between MALAT1 polymorphism rs3200401 and development of renal cell carcinoma.

Materials and methods: This study was performed using venous whole blood of 101 patients with renal cell carcinoma as a final diagnosis, which was based on anamnesis data, clinical, biochemical and instrumental examinations according to the recommendations of European Association of Urology. All participants were treated in the hospital of Sumy Regional Oncology Center. The control group included 100 clinically healthy individuals without personal cancer history. We used Real-time PCR and TaqMan Assays for allelic discrimination in SNP MALAT1 (rs3200401) – 7500 Fast Real-time PCR System (Applied Biosystems, Foster City, USA) and TaqMan®SNP Assay C_3246069_10. The thermal cycles of PCR amplification were the following: initial denaturation step at 95°C for 20 s, treatment at 95°C for 30 s, and at 60°C for 30 s (50 cycles). Analysis of the obtained data was carried out with 7500 Fast Real-time PCR Software.

Results: As a result of the performed genotyping it was shown that the distribution of genotypes for homozygotes for the major allele (C/C), heterozygotes (C/T) and homozygotes for the minor allele (T/T) in patients with kidney cancer was 71 (70.3%), 29 (28.7%) and 1 (0.99%) respectively. In control group distribution of that genotypes was 59 (59.0%), 32 (32.0%) and 9 (9.0%) respectively. There is a significant difference in the distribution of genotypes between patients with kidney cancer and control group ($\chi^2=7.165$; $P=0.022$).

Conclusions: There is a statistically significant relationship between MALAT1 polymorphism rs3200401 and the development of kidney cancer in the Ukrainian population. So we will continue our research to investigate relationship between this polymorphism and other types of cancer.

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EFFICACY OF PHARMACOTHERAPY AT ACUTE TOXIC LIVER DAMAGE BY TETRACHLOROMETHANE

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Introduction: The chlorinated hydrocarbons are xenobiotics with the high hepatotoxicity. Tetrachloromethane (CCl₄) is a typical their representative. Morphological and biochemical characteristics of the poisoning of experimental animals by this xenobiotic are like acute liver damage in human.

Aim: Investigate mechanisms of formation of liver damage and ways of their correction at acute intoxication by CCl₄.

Materials and methods: White nonlinear rats; activity of AST, ALT and alkaline phosphatase was determined by test-system BIO-LA-TEST, Czech Republic; malonic dialdehyde (MDA), diene conjugates (DC) – by method of I.D.Stalnaya (1977); SH-, -S-S-groups – by reaction with parachloromercury benzoate.

Results: Research has shown that repeated tetrachloromethane administration leads to violation of hepatic function: activity of serum enzymes (AST, ALT, and alkaline phosphatase) was elevated; lipid peroxidation was intensified; synthesis and release of bile acids and intensity of bile secretion were decelerated, bilirubin and cholesterol secretion were reduced, concentration of SH-groups was decreased with simultaneous elevation of level of -S-S-groups in the homogenates of liver and in the blood. It was showed that some antioxidants (vitamin E, sodium selenite, preparations of *Astragalus dasyanthus*) exhibited marked hepatoprotective action at this hepatic pathology. Their administration to animals was restricted hepatotoxicity of tetrachloromethane. Concentrations of MDA and DC in the blood, in the bile, and in the hepatic homogenates were elevated in less degree; elevation of serum enzymes activity and concentration of -S-S-groups in the blood and in the liver was decelerated. Antioxidants were inhibited the reduction of concentration of SH-groups in the blood and in the hepatic homogenates and positively influenced parameters of bile formation. Efficacy of mentioned drugs was elevated at the combined use of vitamin E and sodium selenite or herbal infusion of *Astragalus dasyanthus*.

Conclusions: The analysis of the obtained results testifies an important role of initiation of lipid peroxidation in pathogenesis of liver damage by CCl₄ and high efficacy of antioxidants at this pathology.

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A GENERAL OVERVIEW OF THE THYROID GLAND AND ITS EFFECTS ON METABOLISM, GROWTH AND DEVELOPMENT

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Introduction. The thyroid gland is responsible for lots of activities in the body. Plays a very important role on metabolism and protein synthesis, growth and development, and thus, increasing a catecholamine effect.

Aim. To know how the body adjusts to secretion levels of the thyroid hormones, being it hypersecretion or hyposecretion and their major effects.

Materials and methods. The whole study was based on the body adjusting to the levels of the thyroid levels. First, the hypothalamus situated above the pituitary gland (in the brain), secretes the thyrotropin releasing hormone, causing the pituitary gland to produce thyroid stimulating hormone (TSH) which leads to the stimulation of the thyroid gland in the production of thyroid hormones. The thyroid stimulating hormone is being regulated by the pituitary gland due to the levels of the hormones in the blood stream (being low or high).

Results. Thyroid gland is a major endocrine system very essential for growth and metabolism of the human body. Abnormal functioning and levels of it has its negative implications on overall human body.

Conclusion. Since the thyroid gland is very essential for metabolism, protein synthesis, growth, development and increased catecholamine effect, it needs to be properly and frequently checked, probably at the hospital (examples; ultrasonography, a radioactive iodine uptake test or suspected antibodies attacking the thyroid gland using blood tests) to have a good maintenance of the gland. We also have to check on the diets very suitable for proper maintenance of the thyroid.

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CLINICAL MEDICAL SCIENCES

INFANTILE SYSTEMIC HYALINOSIS (ISH) CASE

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Introduction: ISH is very rare genetic pathology. 25 cases are registered in world literature only. Children with ISH are dying at the age of 2-3 years.

Aim: To share the experience of a clinical case of ISH

Materials and methods: The boy S. was born in the Sumy perinatal center. It was 1 normal pregnancy, cesarean section (breech presentation), term – 40 weeks. Apgar – 7-9. The mass – 3050 g, length – 50 cm. Condition of the baby after birth satisfactory. Breastfeeding is begun in 3 h. It is discharged for the 5th days of life. Breastfeeding (to an age 2,5 years), a good increase in weight.

Results: To 3-mo-old age, the boy appeared hypotension of upper extremities, limitation of extension of the lower limbs in the knee joints. The child was diagnosed spasticity-tonic syndrome. After rehabilitative treatment (cinnarizin, cortexin, massage, electrical stimulation for extremities, etc.) active movement of the limbs appeared, but contractures progressed. At 8 mo o. reddish-bluish nodules and pigmented skin seal at neck, back appeared, papular rash on the face, hypertrophy of the alveolar processes of the upper jaw was discovered. Dysmorphic syndrome (the presence of “+” tissue in the neck, back, joints, gums) worsened. Phenotype: brachycephalic, broad face, short nose and neck, blue sclera, cartilage tissue on the gums, contractures of elbow and knee joints, pigmentation of skin over the joints. In the internal organs changes were noted. At the age of 18 mo was diagnosed with ISH. The child received symptomatic treatment. The child's condition progressively worsened. At 4 y. o.: the tumor masses in the ears, gums, hands, neck, back, contractures of upper and lower extremities. Metaphysis fractures of thigh bones and left forearm. In the last days of life – shortness of breath, impaired thermoregulation, pain syndrome was observed. At 4. 5 y. o. boy died.

Conclusions: 1. ISH is a genetic disorder affecting of infant children. It occurs due to the deposition of a collagen-like substance (amorphous hyaline) in the tissues of the body. The disease is inherited in an autosomal recessive type, it occurs due to CMG2 or ANTXR2 gene mutations that encode proteins on chromosome 4 4q21.21). 2. In Ukraine, it is the first registered case. 3. In our casethe child lived for 4.5 years.4. Repeated genetic risk in this marriage – 25%.

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EARLY REPOLARIZATION IS ASSOCIATED WITH ECG SIGNS OF MYOCARDIAL HYPERTROPHY IN PROFESSIONAL ATHLETES

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Introduction: It is known that early ventricular repolarization (ER) is one of the most common findings on an electrocardiogram (ECG) in professional athletes. Until recently, this syndrome was considered as benign. However, emerging data since 2008 from separate prospective cohort and case-control studies suggest that ER is associated with an increased risk of sudden cardiac death (SCD). The last problem is one of the most urgent in sports cardiology. Even in the United States, the cause of 50% of SCD cases in athletes cannot be revealed. It stipulates further evaluation of ECG symptoms with subsequent study of pattern of their occurrence in sports cardiology.

Aim: The aim of our study was to analyze the association between ER and ECG symptoms of myocardial hypertrophy (MH) in professional athletes.

Materials and methods: The study included 28 high-level competition athletes who had regular intensive physical activity for at least six months. Out of them, there are were 10 women (35,7%) and 18 men (64,3%), average age of the examined persons was $23,2 \pm 0,73$ year (women – $22,7 \pm 1,03$; men – $23,44 \pm 0,99$). All participants of the study underwent ECG testing.

Results: It was found that the most common findings on the ECG were: sinus bradycardia – 15 cases (53,6%), ER – 12 (42,9%), signs of MH – 11 (39,3%). Further analysis showed that in patients with ER the ECG signs of MH were more commonly detected: 67% vs. 23% ($\chi^2=4,745$, $p=0,029$). As well, the Sokolow-Lyon index (SLI) was significantly higher in the ER group: $33,42 \pm 2,37$ mm vs. $22,38 \pm 2,06$ mm ($p = 0,002$). Although technically was positive correlation between SLI and amplitude of j-point elevation, the relationship between variables was weak ($r=0,3$). This may indicate the significance of intense physical activity in the pathogenesis of ER in athletes. It should be noted that the harmful aspect of the impact of excessive physical exertion is not fully understood. In any case, athletes with ER should be observed more closely.

Conclusions: We have established clear connection between early repolarization and ECG signs of MH in professional athletes. Further investigations are needed to determine the role of ER in the development of "Athlete's heart".

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FREQUENCY OF OBSTETRIC FISTULA

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Introduction: An obstetric fistula is an abnormal opening between the vagina and organs of pelvis. Each year, more than a quarter million women in Nigeria die in pregnancy and childbirth, of those that do not perish, suffer from obstetric fistula (OF). OF is usually caused by of obstructed labor, without timely medical intervention or Cesarean section. During this time, the soft tissues of the pelvis are compressed between the baby's head and the mother's pelvic bones. The lack of blood flow causes tissue to die, creating a hole between the mother's vagina and organs of pelvis resulting in leakage.

Aim: to establish the prevalence and disparity to development of obstetric fistula in African countries with respect to their European counterparts.

Materials and methods: we did an epidemiological research in the Nigerian communities for the last 18 months (FMN, UNPF). Women between the ages of 15-40yrs were taken into account, in various communities sited in Nigeria and United nations population, from the time of pregnancy till postnatal period.

Results: In Nigeria 1.5million women yearly going into childbirth resulting in 2,000,000 accounted births yearly.10% of childbirth results in OF, 15.6 % cases treated immediatiatly,32% much later and wide majority not treated. 800,000-1.2million women living with the problem and about 20,000 new cases occurring annually; 90% go untreated. According WHO is estimated that two million women suffer from OF globally. In less developed countries like the people of Nepal, Pakistan still have a considerable high amount, with estimate 7000 cases each every day. The cases of OF in Europe has drastically reduced since the beginning of 21 century, with a thin population of estimate of 2 in every 1000 births.

Conclusions: Nigeria accounts for over 45% of world OF cases, with the northern part of the country having a very high risk of prevalence relating to pregnancy, labour, abortions, poverty, early marriage, illiteracy, lack of quality maternal care, distance from health facility, making obstetric fistula very high in Nigerian women.

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ANALYSIS OF THE EFFECT OF A DELIVERY AT DIFFERENT PERIODS OF GESTATIONAL AGE IN ORDER TO PREDICT PATHOLOGICAL CONDITIONS AND CONSEQUENCES FOR WOMEN AND NEWBORNS

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Introduction: Prolonged pregnancy is one of the topical problems of obstetrics, the causes of which are still not fully elucidated. Prolonged pregnancy is accompanied by a high level of perinatal morbidity and mortality, a large number of complications in childbirth and the postpartum period both from the mother's side and the newborn.

Aim: To analyze the correlation between delivery at different periods of gestation age and results of birth.

Materials and methods: . During the study, 3020 case reports were processed with birthmark for 2017. All childbirths were separated by the term of birth of the child. The first group – from 37 to 40 weeks, the second – from 40 to 41, and the third – after 41 weeks. The main methods of research in the work were statistical and histological.

Results: By histological examination of the placenta, it was found that in the first group, 98% of placenta samples are in the physiological norm. In the second group – 7% of the samples have signs of petrification. In the third group, placental aging signs were found in 12% of the samples. The biophysical profile of the fetus was determined in totality by 5 indicators using ultrasound. At the end of the study it was determined that in the first group, on average, there were 8-10 points, in the second – from 7-9 points and in the third – from 6-8 points. According to the data of doplerography in the first group of vessels of 99% are within the normal range, in the second group, 3% of the subjects showed an increase in the parameters of the umbilical artery, in 9% of cases, the decrease in the parameters of the umbilical artery and increased pressure in the middle cerebral artery. Determining the mass of children at birth reveals a tendency to increase the mass, that is, the average weight of children in the first group – 3300 g, the second group – 3600 g, the third group – 3900 g.

Conclusions: Consequently, according to the studied parameters, it can be concluded that normal placental, vascular and physiological norms of the fetus and the newborn are distorted with the postponement of pregnancy. That is, postponing affects negatively on the course of pregnancy and postoperative period.

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OPTIMIZATION DIAGNOSIS OF LEFT VENTRICULAR DIASTOLIC DYSFUNCTION IN PATIENTS WITH TYPE 2 DIABETES

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Introduction: Diastolic dysfunction of heart, which is a prognostic factor of heart failure, has an important role in identification of clinical status and prognosis for patients who has diabetes. There are outstanding issues in determining of pathogenetic mechanisms of the development of diastolic dysfunction which are connected with differences of heart failure formation in diabetes patients and features of their diagnosis.

Aim: To improve methods of early diagnosis of cardiovascular diseases in diabetes patients based on studying of diastolic function disorder of left ventricle.

Materials and methods: For this investigation we selected 52 people who were sick on diabetes from 5 till 15 years. It was conducted such studies as intraclinical research, glucose profile, lipid profile, HbA1c, echocardiography, doppler cardiometry, ultrasonic examination of the neck and lower limb with color dopplerography, ECG, measurement of blood pressure, retrospective analysis of medical history of diabetes 2 patients and statistical method.

Results: 20 (38%) of the patients had dilatation of left atrium, 32 (62%) of patients had hypertrophy of the back wall of left ventricle and/or intraventricular septum, 8 (16%) patients had decreased ejection fraction and existence of hypo- and akinezia zones. By the transmitral flow only 1 (5,2%) patient had normal indicators, and 51 examined, which is 94,8% had some from disorders of diastolic function, even 8 (16%) patients with diastolic dysfunction combine it with systolic.

Conclusions: Diastolic dysfunction of left ventricle is formed on early stages of diabetes 2. Diabetes 2 patients has diastolic dysfunction which is resulted from combination of factors related with progressing of atherosclerotic changes. Sonography indicators helps to establish the presence of diastolic dysfunction on the early stages of diseases and can be used like prognosis predictors during heart failure in diabetes patients.

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DIAGNOSTIC CHALLENGES OF MENINGOCOCCAL INFECTION

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Introduction: Meningococcal infection (MI) is one of the actual problem of modern medicine, taking into account its global spread, high mortality, frequent disability, and tendencies of massive epidemic outbreaks. The main adverse effects in MI are on meningococemia, while main factors of adverse consequences are untimely and inadequate treatment of infectious-toxic shock and continuous progression of multi-organ failure. The aim of the work was to study the features of the course and structure of errors in establishing the diagnosis of meningococcal infection.

Aim: The aim of the work was to study the features of the course and structure of errors in establishing the diagnosis of meningococcal infection.

Materials and methods: Methods of research – clinical and statistical. 66 cases of children treated at the St. Zinaida SBDC are analyzed. Among them, 49 (74,2%) were children under the age of 3 (to 1 year of age- 18 (36,7%)), 14,3% – over 15 years. Among the sick, boys (77,2%). Incidence marked in autumn (46,9%). 89,4% of patients had severe generalized forms of the disease and 24 (72,7%) children had mixed form (meningococemia + meningitis).

Results: The outpatient diagnosis did not coincide with that established later in the hospital 12 (37,8%) patients, and untimely hospitalization was in every fourth child. In reviewing medical documentation, it was found that only 16 (24,2%) patients applied for medical care in the first 12-24 hours of the disease. Nonspecific clinical manifestations in the initial period of the disease in children of the first year of life became one of the causes of diagnostic errors at the prehospital stage. Initial check up by a medical worker, only 17 (51,5%) children was diagnosed with MI, while other children were falsely diagnosed. The most frequently diagnosed: ARVI – in 6 (19,7%) patients, OCI – in 5 (7,5%), capillarotoxicosis – in 10 (15,1%) children. At the pre-hospital stage, only 25% of children received medical care that wasn't enough, while others did not receive it at all. On admission at hospital 95,5% of patients were correctly diagnosed. Perhaps this was due to the fact that a typical hemorrhagic rash appeared or increased precisely during the transportation of the patient to the hospital.

Conclusions: Conclusions: a careful examination of the child, a correct assessment of the clinical and epidemiological features of the course of the disease (sudden or acute onset, the prevalence of symptoms of intoxication, the presence of hemorrhagic rash) will allow timely diagnosis of the disease and undertake appropriate etiopathogenetic therapy, and all together will help reduce disability and mortality.

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DISEASES IN LEPTOSPIROSIS IN SUMY REGION AND EPIDEMIOLOGICAL ASPECTS

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Introduction: Leptospirosis remains very relevant to widespread zoonoses in many regions of the world. The medical and social problem of the diseases determined by the intensive penetration of it in those regions where this pathology has not previously been registered, as well as involvement of various contingents in the epidemic process, a significant increase in the incidence and mortality from this infection. The level of morbidity depends on climatic, sanitary, economic conditions, and remains high every year in many countries, including Ukraine.

Aim: To analyze the epidemiological situation and morbidity of leptospirosis in the Sumy region.

Materials and methods: It was used the epidemiological analysis method.

Results: The reservoir of leptospirosis is rodents, namely, rats, mice, foals, water poles, shredders, mouse-housekeepers, which, by their excrement, pollute reservoirs, agricultural land and forest arrays, located on wetlands. Among rodents caught in settlements, it was infected 49.6%, in natural conditions – 25.2%. During the watering in these areas and pastures, there is an infection of domestic and agricultural animals (pigs, cattle).

According to the results of the epidemiological analysis, 52.3% of the patients were infected in anthropogenesis cells in contact with rodents and domestic animals at home, 31.0% in natural conditions (fishing, bathing in open water reservoirs, hay harvesting in frozen places, cattle grazing), in 16.7% of the source of infection is not established. Currently, in the territory of the region in natural there are the cells predominate leptospyri serogroups Grippotyphosa, in a smaller number of Pomona, Hebdomadis. In anthropogenesis cells, when infected from pigs, pigs dominate the serogroups Pomona, when infected from bovine animals – Grippotyphosa, Tarasovi. Gray rats and dogs are often sources of *L. icterohaemorrhagiae*. According to epidemiological monitoring, in the region for the period from 1994 to 2015 and 10 months of 2016, 327 cases of the disease caused by 10 serogroups were registered, of which 308 (94.2%) were laboratory confirmed and 19 (5, 8%) were diagnosed clinically.

Conclusions: The prognosis of the disease in the region's population for leptospirosis remains unfavorable due to the intensive spread of rodents in human settlements, livestock farms, and industrial food facilities. The level of morbidity remains high in Ukraine and Sumy region. The etiological factor in the last decades is dominated by the leptospyros of the serogroup *Icterohaemorrhagiae*.

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TREATMENT OF PATIENTS WITH CHOLESTATIC SYNDROME WHILE DEALING WITH CHRONIC LYMPHOCYTIC LEUKEMIA

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Introduction: There are several reasons for the occurrence of cholestatic syndrome in patients with chronic lymphocytic leukemia (CLL). They can be caused by the infiltration of the liver by lymphoid cells in the course of disease progression, the presence of concomitant diseases of the liver and biliary tract, and the development of side effects of chemotherapy. The choice of treatment tactics plays an important role in recovery of the patient.

Aim: Reporting the case of acute cholestatic syndrome in a patient with CLL, complicated by development of hepatorenal syndrome and its method of treatment.

Materials and methods: Patient M., 54 years old, the diagnosis of B-cell CLL was established 4 months ago. The patient received two courses of chemotherapy with fludarabine and cyclophosphamide. After two courses, the signs of cholestasis have appeared.

Results: There was a dull pain in the right hypochondrium, jaundice, general weakness, fever. We exclude the progression of the disease, because in the general analysis of blood we did not find signs of lymphocytosis (white blood cells $3.7 \times 10^9/L$, lymphocyte count was $0,78 \times 10^9/L$, platelets – $219 \times 10^9/L$). Cholestatic syndrome is established due to a increase in the level of total bilirubin ($211 \mu\text{mol/L}$) and direct bilirubin ($133 \mu\text{mol/L}$), and the ratio of alanine aminotransferase (22 U/L) to alkaline phosphatase (347 U/L) was less than 2. Hepatitis A, B, C and HIV infection tests were negative. Imaging of the abdomen revealed increased only retroperitoneal lymph nodes up to 15 mm and no evidence of hepatic vascular obstruction and gallstones. We diagnosed drug-induced liver failure, and initiated therapy with ursodeoxycholic acid and glucocorticosteroids. After 3 days of therapy clinically there were signs of dyspnea, drowsiness, edema, the level of total bilirubin increased up to $287 \mu\text{mol/L}$ (direct bilirubin $244 \mu\text{mol/L}$), creatinine – $123 \mu\text{mol/L}$. Due to the ineffectiveness of drug therapy and the increase in symptoms of intoxication and hepatorenal failure, it was decided to conduct a plasmapheresis. After the third plasmapheresis the level of bilirubin decreased to $19.7 \mu\text{mol/L}$ (direct $5.2 \mu\text{mol/L}$).

Conclusions: Plasmapheresis is prescribed in European guidelines only for the treatment of resistant forms of pruritus. However, as shown in this clinical case, it can be used in case of ineffectiveness of standard treatment of severe cholestatic syndrome in patients with CLL.

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INFLUENCE OF THE PLATELET-RICH PLASMA ON REPARATIVE PROCESSES IN TROPHIC ULCERS, CAUSED BY DIABETES MELLITUS

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Introduction: Nowadays the diabetes mellitus (DM) is among the most important medical and social problems that concern the most economically developed countries of the world. Diabetic foot syndrome is one of the most serious complications of diabetes mellitus. It is known that 80-90% of patients, who need a high amputation due to diabetes mellitus, suffered from the chronic ulceration. Recently, the platelet-rich plasma is offered as a substrate, enriched with the growth factors.

Aim: To study the ways of the improvement of the treatment of the lower limbs ulceration, caused by the diabetes mellitus by using our technique of PRP application. To study the features of the morphological and histochemical changes, and the effect of the growth factors of PRP on the regeneration and healing of the ulcers, caused by the diabetes mellitus.

Materials and methods: The patients were divided into two groups. The main (I) group consisted of 18 patients. Their standard treatment was complemented by the usage of PRP by their agreement. The injections to ulcer were made on 5th, 10th and 20th day of the treatment. This technique was supplemented by the local PRP applications that were carried out during 15 days at the intervals of 2 days. The comparison (II) group consisted of 16 patients who received the standard treatment: sanitation of the ulcers, correction of the carbohydrate exchange, antibiotics treatment, vascular drugs, unload of the pressure from the foot with a help of orthotics.

Results: The morphological study and light and optical study of the samples, stained with hematoxylin and eosin revealed the different regeneration of the ulceration in different period. In the main group, the rapid epithelialization of the defect, "maturation" of the granulation tissue, elimination of the destructive changes as well as the reduction of the mixed-cellular inflammatory infiltration was observed due to the use of PRP, compared to the patients from the comparison group. During the immunohistochemical study, the denser vascularization both in the regenerating tissue and surrounding areas was revealed in the main group (CD 31-positive cells). The study of podoplanin receptors allowed to visualize the lymphatic vessels. The immunohistochemical study of VEGF receptors revealed the stromal and endothelial fraction of the regenerating tissue in the patients from the main group. The number of these receptors was significantly lower in the comparison group that indicates the prevalent angiogenic potential of PRP.

Conclusions: PRP, used in complex treatment of the trophic ulcers, speeds the regeneration of the ulceration by the reduction of the destructive and inflammatory changes and improvement of the vascularization that reduces the period of the epithelialization of the trophic ulcers.

INCIDENCE OF ACUTE INTESTINAL INFECTIONS IN CHILDREN 2015-2017 IN SUMY

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Introduction: Acute intestinal infections are diseases characterized by diarrhea syndrome and is also accompanied with toxicosis. According to WHO data, the etiological diagnosis in children with diarrhea diseases is shown in 68% of cases. Bacterial agents occur in 48% of cases while viruses in 20% of cases.

Aim: Is to analyze how acute intestinal infection has affected children over past years.

Materials and methods: We investigated children`s case history from 1 month – 18 years in the State Sumy Children Clinical Hospital of Saint Zinaida.

Results: The result of studies obtained shows that In the year 2015 there were 686 children affected reportedly having an acute intestinal infection, they were treated in State clinic. In 2016 another research was done, it was proven that 863 cases were reported meaning an increase in the number of cases up to +177. In 2017 it was found out that only 629 cases were reported meaning there was a decrease in a number of cases in 2017 up to -234 cases.

Conclusions: In last year was a decrease of morbidity, which we think may be due to good medical care, proper hygiene and good attention of the pediatrician to give proper prophylactics. In other words, the morbidity of children affected has reduced drastically over the years.

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HELIKOBACTERIOSIS AND FUNCTIONAL DISORDERS

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Introduction: The syndrome of cyclic vomiting and abdominal migraine is the most common pathology among the functional gastrointestinal disorders in children. According to numerous studies, the prevalence of this pathology is 0.3-2.2%. This problem is very urgent and not fully resolved in pediatrics and despite the progress in studies of etiology and clinical symptoms, the pathogenesis remains not fully studied. That is why the discovery of helicobacteriosis caused the search for the interdependence between *Helicobacter pylori* and functional disorders of the gastrointestinal tract.

Aim: The aim of the work is to detect the possible connection of *Helicobacter pylori* with the emergence of cyclic vomiting syndrome and abdominal migraine in children.

Materials and methods: We analyzed the medical records of hospital patients and examined 52 children aged from 3 to 6 years old who were treated at Sumy City Children's Clinical Hospital of St. Zinaida in 2016-2017 regarding gastroduodenal pathology. Among the examined children there were 29 boys (55.77%) and 23 girls (44.23%). The examination was carried out using generally accepted clinical, laboratory and instrumental research methods. In order to detect *Helicobacter pylori*, a rapid urease test was conducted for all children.

Results: In the course of the study, the following results were obtained: in three children (2 boys and 1 girl), that is 4% of the entire study group, the urease test was positive. The results of the clinical analysis of blood, urine, and biochemical blood tests were not demonstrative in this study. Urine test on ketone bodies was sharply positive in all patients, that was a confirmation of the cyclic vomiting syndrome. Blood glucose in all patients was within the age range. Esophagogastroduodenoscopy was performed in 20 patients aged 5 and 6 years old, and 7 patients had gastric mucosal inflammation, but only 2 of them had a positive *Helicobacter pylori* test.

Conclusions: After analyzing the results of this study, it can be concluded that the syndromes of an abdominal migraine and cyclic vomiting in children of 3-6 years old have no direct connection with *Helicobacter pylori* infection, but it is not possible to exclude the role of this infection in the development of these syndromes with the whole certainty, that leaves the possibility of a more detailed study of this issue.

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DIAGNOSTIC VALUE OF GENERAL CLINICAL INDICES OF ACUTE TONSILLOPHARYNGITIS WITH NON-STREPTOCOCCAL ETIOLOGY IN CHILDREN

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Introduction: A considerable occurrence of acute tonsillopharyngitis among children stipulates the topicality of the issues of timely diagnostics and correct tactics of eiotropic treatment of this pathology in pediatrics.

Aim: Objective of the study was to investigate diagnostic value of general clinical indices to confirm non-streptococcal etiology of acute tonsillopharyngitis in children with the purpose to optimize their treatment.

Materials and methods: General clinical indices in children were assessed in two groups of comparison. The first group included 68 patients with acute tonsillopharyngitis of non-streptococcal etiology (I, the first clinical group), which was evidenced by a negative result of bacteriological examinations of swabs from the pharynx and posterior pharyngeal wall. The second (II) clinical group included 34 children with acute streptococcal tonsillopharyngitis. Streptococcal etiology of the disease was confirmed by a positive result of the culture inoculation from the pharyngeal swab.

Results: To examine diagnostic value of general clinical indices the clinical manifestation of the disease was evaluated analyzing the expressiveness of catarrh of the upper respiratory tract and high body temperature. Catarrh of the upper respiratory tract was associated with the signs of non-exudative tonsillitis. The indices of diagnostic value concerning detection of non-streptococcal tonsillopharyngitis concerning tonsillopharyngitis of streptococcal genesis were found the following: sensitivity – 26,9%, specificity – 87,5%, prognostic value of a positive result – 68,3%, prognostic value of a negative result – 54,5%, likelihood ratio of a positive result – 2,2, likelihood ratio of a negative result – 0,8. Evaluation of hyperthermic reaction in children from the groups of comparison determined that diagnostic value was characteristic for low grade fever only. Thus, in patients with acute non-streptococcal tonsillopharyngitis this index possessed the following diagnostic value: sensitivity – 20,9%, specificity – 93,9%, prognostic value of a positive result – 77,4%, prognostic value of a negative result – 54,3%, prognostic value of a positive result – 3,4, prognostic value of a negative result – 0,8

Conclusions: On the basis of the obtained results acute tonsillopharyngitis of non-streptococcal etiology was evidenced by catarrhal inflammation of the upper respiratory tract in children against the ground of low grade fever.

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APPLICATION FREQUENCY OF SURGICAL INTERVENTIONS DURING TREATMENT OF OSTEOCHONDROSIS

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Introduction: Nowadays in Ukraine there is current problem of diseases that are precipitated by sedentary lifestyle. Osteochondrosis takes the considerable part that represents number of degenerate-dystrophic processes, that are in small movable joints of axis, in intervertebral cartilage and axis. As the result natural structure of bony tissue is changed and chondral disk becomes less formable changing its original form that leads to complications such as protrusion and spine disc hernia, that represent serious danger to human health.

Aim: The analyses of application frequency of surgical interventions during treatment of osteochondrosis based on neurosurgery department of Sumy Regional Clinical Hospital.

Materials and methods: Post-op analyses of statistics of neurosurgery department of Sumy Regional Clinical Hospital concerning treatment of all cases of osteochondrosis for the period from 01.01.2014 to 31.12.2016.

Results: This is established that in 2014 36,4 % of patients got operative treatment (160 from 439 of patients of osteochondrosis). In 2015 this part was 25,7% of patients (126 from 404 of patients of osteochondrosis). In 2016 30,5% of patients got operated (126 from 413 of patients of osteochondrosis). Total of 1256 cases of osteochondrosis were treated for the period from 2014 to 2016 of which 390 patients (38%) had surgical treatment concerning complications (interlaminar hernia excision of intervertebral cartilage). Indications for surgical treatment were nerve root pain that does not undergo of complex conservative treatment during 6-8 weeks and invalidated patient, verificative compressive substrate, hyperallergic from of compressive nerve root syndrome, syndrome of conduction defects of nerve root with the danger of development of permanent changes with crusty compression of the nerve root, combination of radicular syndrome with reflexogenic and nerve root syndrome that is invalidated patient.

Conclusions: Application frequency of surgical interventions during treatment of osteochondrosis in Department of Neurosurgery of Sumy Regional Clinical Hospital for the period from 2014-2016 is 38%.

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THE PREDOMINANT INFECTIOUS DISEASES IN ANGOLA

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Introduction: Infectious diseases such as Malaria, HIV Infection, Cholera, Meningitis, they remain a dominant public health problem in Angola.

Aim: Compare the incidence rate for malaria, HIV infection, cholera, and meningitis in Angola and Ukraine.

Materials and methods: Statistical analysis for data are from the Angolan and Ukraine Ministry of Health.

Results: In Angola, there is a high level of certain infectious diseases.

Malaria accounts for about 35% of the demand for curative care, 20% for hospital admissions, 40% for perinatal deaths and 25% for maternal mortality. In 2016 – 4 276 million cases with 15 000 deaths; 2017 – 3 319 107 cases with 2 000 deaths; 2018 – 1 527 238 cases with 3 853 deaths. In 2017, in Ukraine, 47 cases of malaria were registered for the population of 42.7 million (0,11 intensive indices).

The HIV epidemic in Angola is widespread with a prevalence of 2.4% in the general population. In 2017 Angola recorded on average around 28 000 new infections and 11 000 to 12 000 total deaths. In 2017 in Ukraine 14 667 cases of HIV/AIDS were infected with citizens and 2 511 total deaths.

Angola has been facing a cholera outbreak since December 2017, restricted to northern Uíge province, which recorded 640 cases, of which 12 resulted in deaths. In 2018 (January- June) reached 1,370 cases with 20 deaths. In 2017, in Ukraine, there was not one case of cholera.

In Angola meningitis is one of the leading causes of hospital mortality, in 2016 were 822 cases of new infections, and in Ukraine were 485 cases for the same time. In Angola in 2017 was reached 7 677 or 2.48% of total deaths. In 2017, in Ukraine 302 cases of Viral meningitis was registered (0.71 intensive indices) and 326 cases meningococcal infection (0.77 intensive indices). Angola has areas at risk of meningococcal meningitis serotype A, that in the past had outbreaks of great magnitude. In Ukraine, the risks of the incidence of meningococcal meningitis of serotypes B and C.

Conclusions: Among all the mentioned infectious diseases, compared to the cases occurred in Ukraine in the respective years 2016-2018 the level in Angola is without doubt higher. This may be due to unsustainable basic sanitation and inadequate medical care.

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**PREDICTOR PROPERTIES OF MICROELEMENTS IN THE BIOMEDIAS OF
THE RELEVANT NEWBORNS WITH HYPCOXIC-ISCHEMIC
DAMAGE OF CNS**

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Introduction: Hypoxic-ischemic lesion of the central nervous system remains one of the topical medical and social problems of modern neonatology and neurology. Newborns with perinatal pathology have a high risk of metabolism disorders. A special place is taken by the influence of lead and nickel.

Aim: The aim of the study was to investigate the content of nickel and lead in newborns and in the mother-placenta-fetus in the case of hypoxic-ischemic damage (HID) and to study its predictive properties in the formation of HID.

Materials and methods: The determination of nickel and lead in blood serum and erythrocytes of 30 pregnant women and their 30 newborns with HID. The control group – 30 women with physiological pregnancy and their 30 healthy newborns.

Results: The barrier and the function of depositing of placenta were significantly affected in cases of birth children in conditions of hypoxia. It was established that children who had transferred HID had elevated serum and erythrocytic concentration of lead. In serum of umbilical cord blood of newborn infants with HID there was an increase in the content of nickel in 1.6 times. In red blood cells of the umbilical cord blood, on the contrary from the blood serum of children with hypoxia, the content of nickel was reduced by 41.4% compared with the control group. The use of predictive properties of the micronutrient composition of the umbilical cord blood in combination with clinical and anamnestic indices in newborn infants with HID allows to create an algorithm for predicting the development of cerebral palsy at the end of the first year of life, since the first ranked place according to the degree of informativity occupy microelementosis ($I=15.0, +16.1$). The content of trace elements in urine is advisable to predict cerebral palsy, due to its very high informativity ($I = 15.0$). Thus, the risk of developing cerebral palsy in newborns with HID predicts the content of urine Pb ($\leq 0.115 \mu\text{mol} / \text{L}$) and Ni ($\leq 0.50 \mu\text{mol/L}$).

Conclusions: Thus, a comprehensive assessment of the microelement balance, clinical anamnestic and paraclinical data in the case of HID will allow the introduction of early criteria for non-invasive diagnosis in clinical practice and will enable prediction of the development of cerebral palsy. This can reduce infant morbidity and disability in children, which has important economic and social significance.

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IMPACT OF VITAMIN D INSUFFICIENCY ON METABOLIC STATUS IN PATIENTS WITH CARBOHYDRATE METABOLISM DISORDERS

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Aim: to evaluate the effect of the vitamin D therapy on metabolic parameters in type 2 diabetes mellitus and prediabetes patients

Materials and methods: There was a 6-month study of 68 participants: 48 diabetes patient on stable antihyperglycemic treatment (metformin and/or sulfonylurea) and antihypertensive treatment (including angiotensin II receptor blockers) were randomized on two groups: 24 patients (Ist group) received 2,000 IU/day of cholecalciferol for 16 weeks, the IInd group of 24 patients continued antihyperglycemic and antihypertensive treatment. 20 prediabetes patients of the IIIId group were on a stable dose of 2,000 IU/day of cholecalciferol. Body mass index (BMI), blood pressure, heart rate, hemoglobin A1c (HbA1c), plasma 25 (OH) vitamin D, low-density lipoprotein cholesterol (LDL-C), homeostatic model assessment of insulin resistance (HOMA-ir) were estimated before and after 4-month period, after 6-month period. Inclusion criteria: prediabetes, type2 DM patients with HbA1c $\geq 7\%$; controlled arterial hypertension. Exclusion criteria were bone metabolism and liver diseases. Quantitative data are expressed as the mean \pm 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 (52 \pm 5,6) years, BMI – (31,4 \pm 2,01) kg/m², HOMA in the Ist, IInd and IIIId group – (6,1 \pm 2,80), (6,3 \pm 3,10), (7,1 \pm 2,70), respectively (P > 0.5). The mean HbA1c in diabetes patients – (7,8 \pm 0,85) %, prediabetes (6,2 \pm 0,85) %. The mean 25 (OH) vitamin D was (27,5 \pm 4,40) ng/ml, LDL-C was (3,68 \pm 0,23) mmol/l and didn't differ in all groups. 25 (OH) vitamin D levels were inversely associated with BMI (r=-0.4; P=0.05), HOMA (r=-0.6; P=0.005), LDL-C (r=-0.4; P=0.02). Vitamin D therapy had no significant effect on plasma LDL-C concentration, HbA1c in patients with diabetes (P > 0.5). Compared with the IInd group cholecalciferol therapy had lead to reduction of HOMA in the Ist group by (2,3 \pm 0,94) and in the IIIId one by (3,3 \pm 1,21) in 6 months (P < 0.05).

Conclusions: Although the daily intake of vitamin D was not accompanied with significant glycemc improvement strong inverse correlation between 25 (OH) vitamin D levels and HOMA, reduction of HOMA can indicate on beneficial of vitamin D supplementation for treatment of insulin resistance in prediabetes and diabetes patients with vitamin D insufficiency.

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CORRELATION BETWEEN THE SERUM LEVELS OF FETUIN-A AND LEPTIN, AND OVERWEIGHTNESS IN POLYCYSTIC OVARY SYNDROME
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Introduction: Polycystic ovary syndrome is characterized by mild obesity, irregular menses, signs of androgen excess, and affects 5 to 10% of women. Majority of the patients develop a metabolic syndrome. Fetuin-A is a multifunctional protein produced in the liver and related to variety of disease among them to metabolic syndrome. Various effects of fetuin-A on adipocyte metabolism, insulin resistance have been studied, however, its relationship with the development of polycystic ovary syndrome (PCOS) in obese and lean individuals is not still defined.

Aim: This research aims to determine the serum levels of fetuin-A and leptin in women with PCOS in order to evaluate the correlation between fetuin-A and leptin levels, and overweightness and obesity in women diagnosed with PCOS.

Materials and methods: 52 patients admitted to the Obstetrics and Gynaecology Clinics of Medical University – Pleven and Clinical Institute of Reproductive Medicine Sveta Elizaveta, with a history of PSOC, mean body mass indexes (BMI) 26.2 kg/m² were investigated. A control group of 110 women without a history of PCOS of similar age and BMI 24.8/m² (below 25) was constituted. Serum levels of fetuin-A, and leptin of the groups were examined and statistically analyzed for high and low BMI in PCOS patients.

Results: Serum levels of fetuin-A women diagnosed with PCOS in overweight and with normal BMI were subsequently 448.17 ± 22 mg/ml and 330.7 ± 13 mg/ml, (and were below 300 mg/ml in the control group). Serum levels of leptin in overweight and with normal BMI PCOS patients were subsequently 28.56 ± 2.1 ng/ml and 9.55 ± 1.2 ng/ml and were in normal range (below 10 ng/ml) in the control group.

Conclusions: A significant correlation between increased BMI and increased leptin levels (p <0.05) in PCOS patients was detected. Serum fetuin-A levels of women with PCOS were significantly higher than in control group; however the difference between overweight and obese PCOS patients was not significant. This research suggests that levels of fetuin-A, leptin and BMI above the normal range are correlated in patients with PCOS.

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MITTEL SCHMERZ SYNDROME MIMICS ACUTE APPENDICITIS

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Introduction: Acute appendicitis (AA) is the most common surgical emergency. Painful ovulation (Mittel Schmerz syndrome) can mimic AA, making the diagnosis unclear. This is pain associated with the rupture of the dominant follicle during ovulation, occurring in the middle menstrual cycle, usually felt in the lower abdomen. Misdiagnosis of AA provides for performing "useless" appendectomy with the removal of morphologically unaltered appendix. Reported negative appendectomy rates can be as high as 25%. "Ineffective" appendectomy can lead to the development of infectious wound complications, adhesion obstruction, the formation of hernias, secondary infertility.

Aim: To study the incidence of appendectomy in women of reproductive age, in which the ovulatory syndrome masked the clinical picture of AA.

Materials and methods: A retrospective analysis of the cases of history of patients, operated on AA in the surgical department of SRCH in 2017, was conducted.

Results: A total of 127 appendectomies were performed. Men were 38 (29.9%), women – 89 (71.1%), among them reproductive age 55 (43.3%). The average age of women with preserved menstrual function was 27.3 years. In the analysis of the results of the morphological study in this group of women, the simple appendicitis was 10 (18.2%), catarrhal 21 (38.2%), phlegmonous 23 (41.8%), gangrenous 1(1.8%) In the vast majority of patients examined, the diagnosis was based on the results of a physical examination, data from a clinical analysis of blood and urine. Emergency US was performed only in 30% of cases, and computer tomography and diagnostic laparoscopy were not carried out. Morphological studies of isolated appendix in 10 out of 55 (18.2%) women of reproductive age showed a lack of morphological changes, indicating that they could avoid having an emergency appendectomy in them.

Conclusions: In order to exclude useless appendectomy in women of reproductive age, the diagnostic algorithm must include examination of a gynecologist, an US examination of the abdominal cavity and genitals, and computer tomography. If diagnostic uncertainty exists, laparoscopy with direct visualization of the pelvis and abdominal cavity is often the best method for investigating pelvic pain in women.

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A COMPARISON OF THE EFFECTIVENESS OF DORMICUM AND PETHIDINE TO ACHIEVE THE EFFECT OF ANXIOLYSIS IN THE PREOPERATIVE PERIOD

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Introduction: Anxiolysis – reducing anxiety and fear. They are one of the main components of the premedication. Fear leads to stimulation of the sympatho-adrenal system. This leads to increased blood pressure, tachycardia, cardiac ischemia and affects the duration of the revival. Diazepines and opioids are used to anxiolysis.

Aim: to study the effectiveness of dormicum (the active ingredient – midazolam) and pethidine (meperidine) for sedation of patients prior to General anesthesia for planned interventions in orthopedics, to determine the effect of these drugs on the duration of awakening of the patient after General anesthesia.

Materials and methods: Two groups of patients were formed. The patients underwent orthopaedic surgery on lower extremities in orthopedic departments 1st Sumy city hospital. 1 group consisted of 19 patients for premedication 30 min before induction of anesthesia by i/m injection was introduced dormicum 0.1 mg/kg. In the 2nd group consisted of 20 patients, they are for the purpose of premedication 30 min before induction of anesthesia received pethidine solution of 0.15 mg/kg. The effectiveness of sedation after premedication was assessed on a scale of Ramsey and Richmond scale arousal-sedation RASS. In the perioperative period, the hemodynamic parameters, ECG, saturation, mean arterial pressure was monitorowanie. After completion of the surgical intervention determines the time required for full awakening of the patient.

Results: In group 1 – 7 patients achieved a sedation level 2 on a scale Ramsey, 9 – 3 level and 3 patients – 4 level. On a scale RASS level 1 was achieved in 9 patients, level 2 – 6, level 3 – 4 patients. In group 2 the level 1 in 1 patient, level 2 in 12 patients and 3 – in 7 on a scale of Ramsey. On a scale RASS +1 in 1 patient, level 0 – 7 patients, level 1 – 6, level 2 – 5 patients. The time required for full awakening, with premedication dormicum amounted to 28.2±1,5 min., while premedication with pethidine -16,3±3,4 min. ($p<0.01$).

Conclusions: The use in sedation of dormicum and pethidine provides sedation patients prior to induction of anaesthesia. In the group of patients treated as a premedication dormicum, there had been cases of excessive sedation, and in the group of pethidine insufficient. When used in premedication of diazepam, the increase in recovery time of psychomotor function, compared to premedication with pethidine.

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MODERN TRENDS OF EPIDEMIOLOGICAL PARAMETERS OF MULTIPLE SCLEROSIS IN THE SUMY REGION

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Introduction: The patient's quality of life depends on the state of his health. A healthy nation is a guarantee of a stable economy. The cost of treatment, the fight against the consequences and the payment of retirement benefits in connection with disability is a great weight of budget funds. Multiple sclerosis (MS) causes disability mostly young people. At the present time, in the European countries, the highest rates of the MS prevalence and morbidity are recorded. Monitoring of epidemiological rates is the main method of the quality of medical care studying and evaluating. Observing global trends give a sense to make long-term forecasts for the situation in a particular region.

Aim: To study the basic trends of parameters of morbidity and prevalence in the Sumy region.

Materials and methods: Department of Neurosurgery and Neurology more than 10 years engaged in the research of MS. It should be noted that epidemiological indicators in Ukraine are heterogeneous and dependent on geographical characteristics. The data for the period 2006-2016 were studied through the analysis of medical statistic records. Additionally, probable risk factors were studied.

Results: The analysis of prevalence and morbidity showed an increase in relative indicators in the regional center. At the same time, district specialists' data remained at the same level. Some indicators have increased in major cities (Shostka, Romny, Konotop). So the prevalence increased from 49.7 per 100 thousand in 2006 to 53.01 per 100 thousand adult population in 2016. And the morbidity from 0,96 to 3,69 per 100 thousand adult population. Among the possible risk factors, it should be noted childhood infections transmitted, acute respiratory diseases, heredity and vaccination. With all that said, it can be concluded that over the past 5 years there has been a tendency towards an increase in epidemiological rates in Sumy region. This correlates with the national situation. Among the variants of the course of the disease, the relapse-remitting course (32,2%) predominated.

Conclusions: The increase in the number of cases of MS in recent years can be explained not only by the increase in morbidity, but also by improving the quality of treatment, diagnosis, and the availability of neuroimaging techniques. Improvement and effective struggle are impossible without a scientifically-based program of assistance and effective rehabilitation. But the only method of monitoring the adequacy of the measures is precisely the epidemiological analysis of the prevalence, morbidity and percentage of disability.

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APPLICATION OF NEUROMIDIN FOR PATIENTS DURING ISCHEMIC APOPLECTIC INSULT ACUTE PERIOD

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Introduction: As of today cerebrovascular diseases (CVD) could be considered as the prime epidemy of the XXI century. Among them apoplectic insults have the main rank. As to their frequency they are the second/third cause of mortality and occupy leading position among the factors of stabile disabling.

Aim: Educe the effectiveness of neuromidin during acute disorders of ischemic-type cerebral circulation.

Materials and methods: A complex treatment of 45 ischemic-type Acute disorders of cerebral circulation patients at the age of 40 to 78 years was conducted including 22 men and 33 women. The main group as well as the control group included patents with ischemic insult only. Brain CT and MRI methods were used to confirm diagnosis. 25 patients had ischemic insult in cerebral hemispheres in carotid system, 20 patients had ischemic insult in brain trunk in vertebro-basilar region. Clinical implications in patients under trial depended on the affection of vascular region. Hemiparesis, hemiplegia, aphasia, apraxia, dysphonia, dysphagia, abnormality of cognitive functions were the main syndromes of patients under trial. Base treatment + 1,5%-1,0 i/m neuromidin was prescribed for patients of the main group (23 patients) and only base treatment was prescribed for control group patients (22 patients). Neuromidin was prescribed from the third day after insult and was used during 10 days.

Results: While performing treatment of patients of the main group with neuromidin the decrease of paresis intensity by 2 points as well as significant progress of bulbar abnormality (dysphagia, dysphonia, absence of pharyngeal reflex) was noted this was not observed in control group of patients. Neuromidin positively affects regenerative process of motional abnormalities and bulbar syndrome in patients with cerebral ischemic insult which is stipulated by decrease in excitation transfer in cholinergic neurons. Neuromidin is more effective during treatment of patients with vertebro-basilar abnormalities. It is expedient to use neuromidin from the first days of cerebral ischemic insult which positively affects the degree and time of neurological deficits regenerative process.

Conclusions: Clinical curative and rehabilitation procedure performed by us in the conditions of acute neurology lead to faster regress in neurologic symptomatology comparing to control group of patients.

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CONTENTS OF C-REACTIVE PROTEIN IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND ANEMIA

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Introduction: Recent studies have shown that anemia occurs in 17-27% of patients with chronic obstructive pulmonary disease (COPD). In most patients, anemia is normocytic and normochromic, which is characteristic of anemia of chronic diseases (ACD). Hyperproduction of hepcidin under the influence of cytokines and proteins of the acute phase (CRP, fibrinogen) is the main cause of ACD.

Aim: The purpose of our work was to determine the content of CRP in patients with COPD and ACD.

Materials and methods: The study included 177 COPD patients aged > 40 years with consent to participate in the study. Exclusion criteria were: severe concomitant diseases; preliminary diagnosis of true anemia; period of pregnancy or lactation, permanent administration of systemic corticosteroids, erythrocytosis. The diagnosis was established according to GOLD recommendations (2014). ACD was diagnosed according to WHO guidelines (hemoglobin <130 g / l for men and <120 g / l for women) and unified clinical protocol No. 709 (content of soluble transferrin receptors (sTFR) within the reference values (8.7-28, 1 nmol / L)). All patients were examined in general clinical, laboratory (clinical blood tests, determination of sTFR and CRP) and instrumental studies. Statistical processing of the obtained results was performed by using the SPSS-21 program.

Results: The patients were divided into two groups: 1 group – 33 patients with ACD, 2 groups – 144 patients with hemoglobin values within the reference values. There was a significant ($p < 0,001$) increase of CRP level in patients 1 group (2.97 ± 0.5) in compared with patients of 2 group (1.56 ± 0.2 mg/dl) and no statistically significant difference ($p = 0, 52$) in sTFR contents of patients 1 and 2 groups (15.22 ± 0.17 and 14.82 ± 0.17 nmol/l).

Conclusions: The high CRP content in patients with COPD and ACD may indicate the role of CRP in the pathogenesis of ACD development in this group of patients.

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POSSIBILITIES OF PROPHYLAXIS OF STRESS-RELATED ULCERS IN PATIENTS WITH SEVERE HEAD INJURY

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Introduction: In 1932, Cushing in his article "Peptic ulcers and the interbrain" described the formation of ulcers in the stomach and bleeding in patients after severe head injury (HI). According to Cushing, increased intracranial pressure may affect different areas of the hypothalamic nuclei or brainstem leading to overstimulation of the n.vagus or paralysis of the sympathetic system. Both of these circumstances increase secretion of gastric acid and the likelihood of ulceration of gastro-duodenal mucosa. The mortality rate for SRGU complicated by bleeding remains high, ranging from 16 to 87.5%.

Aim: Study the frequency of ulcerative gastroduodenal bleeding (UGDB) in severe HI and the possibility of preventing their development.

Materials and methods: A retrospective analysis of the cases of history was carried out on 230 patients with severe HI who were treated in SOKL. Men were -166 (72.2%), women – 64 (27.8%). The average age – 44.3 ± 3.6 y. Patients were randomized to 2 groups, the first consisted of 124 (53,9%) people who did not have anti-ulcer therapy, the second – 106 (46,1%) patients who received it. The severity of HI was evaluated by the Glasgow comatose scale (CGS). The algorithm of examination, in addition to laboratory studies, included: craniography, echoencephaloscropy, KT of the brain, FGS. The activity of the bleeding and the state of hemostasis was estimated by Forrest.

Results: Among 124 victims with severe HI (CGS <8 balls) in the first group, UGDB of varying degrees of severity was observed in 22 (17.7%) patients. At FGS acute multiple ulcers with a diameter of 2-10 mm were determined, which were located on the small curvature and in contrast to peptic ulcers, they characterized the predominance of dystrophic and necrotic processes over the inflamed. In 16 (72.7%) of them, conservative treatment was effective, 6 (27.35%) patients were operated without hemostasis. Died after surgery 2 (9.1%) patients. Patients in the second group received additional prophylactic anti-ulcer therapy, which included parenteral introduction of quamatel in high doses, early enteral nutrition. Among 106 victims of the second group, UGDB were observed in 6 (5.7%), which is significantly less than those who did not receive prophylactic anti-ulcer treatment ($P < 0.05$). Conservative treatment in them was effective and the lethality from the UGDB was absent.

Conclusions: In patients with severe head injury, there is a high risk of developing SRGU. The mortality rate for SRGU complicated by bleeding remains high. Prophylactic use of anti-ulcer therapy and early enteral nutrition contributes to a significant reduction in the incidence of SRGU, UGDB and mortality.

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ASSOCIATION BETWEEN LIPID PANEL AND HOMOCYSTEINE LEVEL IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE

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Introduction: Non-alcoholic fatty liver disease (NAFLD) is a multifactorial disease characterized by adipose degeneration, progressive inflammation, and hepatocellular damage. NAFLD along with obesity and arterial hypertension are the constituents of metabolic syndrome, the pathogenesis of which is diverse and involves many factors. Homocysteine is considered as one of the causes of pathological changes in the liver, and its role was established in metabolic disorders

Aim: The objective of our paper was to study the lipid panel parameters in dependence on homocysteine level in patients with non-alcoholic fatty liver disease

Materials and methods: We examined 109 patients with confirmed NAFLD and 40 apparently healthy individuals who made up the control group. The patients with NAFLD were divided into groups: Group I comprised patients with non-alcoholic liver steatosis (n=59 subjects), Group II – patients with non-alcoholic steatohepatitis (NASH) (n=50 subjects). All patients had their lipid panels examined; this involved measurement of total cholesterol (TC), triacylglycerides (TG), cholesterol of low-density (LDL), very low density (VLDL) and high-density lipoproteins (HDL) as well as atherogenic index (AI) according to standard methods

Results: The following lipid panel values were obtained during the study: TC (Group I – 5.9 ± 1.25 , Group II – 6.3 ± 2.01), TG (Group I – 2.2 ± 0.68 , Group II – 2.6 ± 0.92) HDL (Group I – 0.97 ± 0.151 , Group II – 0.99 ± 0.232), LDL (Group I – 3.2 ± 0.31 , Group II – 3.4 ± 0.35), VLDL (Group I – 2.2 ± 0.21 , Group II – 2.3 ± 0.29), AI (Group I – 5.9 ± 0.51 , Group II – 6.1 ± 0.53). Homocysteine level in Group I patients equaled 15.3 ± 2.40 , while in Group II patients it was 23.6 ± 3.36 ($p < 0.05$). In both groups a moderate correlation was established between the homocysteine and TC levels – 0.63 and 0.68, respectively ($p < 0.05$), and between the homocysteine and TG levels – 0.51 and 0.69, respectively ($p < 0.05$). Group II patients also demonstrated an additional correlation between the homocysteine and LDL levels – 0.46 ($p < 0.05$).

Conclusions: There is a correlation between the level of homocysteine and lipid panel in patients with NAFLD; moreover, in patients with non-alcoholic steatohepatitis this correlation is stronger

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DEGREE OF SEVERITY OF LABORATORY SYNDROMES IN PATIENTS WITH CHRONIC VIRAL HEPATITIS C

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Introduction: In the world there are about 71 million people who have an HCV infection. Approximately half of the fatal cases are caused by cirrhosis and hepatocellular carcinoma.

Aim: To study the severity of the cytolytic, mesenchymal-inflammatory and cholestasis syndrome in patients with chronic viral hepatitis C

Materials and methods: 72 patients with chronic viral hepatitis C were examined prior to appointment of antiviral therapy. To study the activity of the cytolytic syndrome, the levels of AST and ALT were analyzed, the De Rithis coefficient was calculated; mesenchymal-inflammatory syndrome – ESR, protein and albumin levels; syndrome of cholestasis – bilirubin, alkaline phosphatase.

Results: Among all patients with chronic viral hepatitis C who were on antiviral therapy, men (73.00%) were 2.7 times more than women (27.00%). The average age of patients was 44.69 ± 1.39 . Almost equally were persons of young and middle age (47.62% and 42.86%), it is much less than elderly people (9.52%). Almost all patients had a subclinical course of acute hepatitis C and only 4.76% of patients had acute hepatitis in the anamnesis. Most of the examined had F2 fibrose (32.73%), which was 1.5 times more frequent than F0 (21.82%) and F4 (21.82%), and almost 2.5 times more than F3 (12.73%) and F1 (10.9%). Among patients with chronic viral hepatitis C prevailed patients with ALT value to 120 OD (73.61%) that is 1.5 times more, than the person with value in the range from 120 to 400 OD (23.61%). The number of people with values more than 400 OD was only 2.78%. Analyzing the level of AST, the first place was also occupied by patients who had a minimum activity process for this indicator, that is, values in the range of 120 OD (84.72%), the second place was taken by a group of patients with moderate activity (13.89%) and the smallest part were patients with severe activity (1.39%).

Calculating the De Rithis coefficient (AST / ALT), it was found that only 6.94% of patients showed an increase, indicating severe liver damage with the destruction of most of the hepatocyte only in these patients, while in other patients with elevated activity, only the membrane destruction, which had no effect on the deep structures of the liver cells.

Studying the laboratory signs of mesenchymal-inflammatory syndrome, it was found that in 29.17% of patients, ESR was increased, in 6.90% was observed the hypoproteinemia, with a decrease in albumin levels in 16.33% of patients.

The level of total bilirubin was increased in almost a third of patients (36.21%), while in other two thirds (63.79%) of patients it remained within normal limits.

Increasing of alkaline phosphatase (15.25%) was noted 5.6 times less frequently than the normal level of this enzyme in the blood of patients.

Conclusions: Thus, the most expressed in examined was cholestasis syndrome and mesenchymal-inflammatory syndrome, and the least pronounced – cytolytic, which may be due to the formation of fibrosis of varying degrees of most patients.

ACTUAL DIAGNOSTIC AND TREATMENT PROBLEMS OF ALZHEIMER'S DISEASE

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Introduction: Alzheimer's disease (AD) is considered by most scientists to be the most common cause of dementia. There are over 9.9 million new cases of dementia each year worldwide, implying one new case every 3.2 seconds. The causes of the occurrence are not fully understood, only hypotheses exist. This disease is incurable, existing methods of treatment only slow down the process. Therefore, it is necessary to search for new methods that could bring us closer to both improved diagnosis and treatment. The cerebrospinal fluid (CSF) "Alzheimer profile" showed good results and scientists are looking for new biomarkers that can be used in diagnosis, treatment, and shed light on the pathogenesis.

Aim: Find out the perspectives of biomarkers in Alzheimer's disease diagnostic and treatment.

Materials and methods: Studies and articles were analyzed.

Results: The quantity of AD CSF biomarkers can be amplified with new biomarkers demonstrating additional sights of one such as synaptic dysfunction. Blood and plasma biomarkers also have great potential, but further research are needed. Also these biomarkers can be detected in other age-related neurodegenerative disorders such as transactive response DNA binding protein 43 (TDP-43) and Lewy body disease, so ones are the part in a personalized medicine. Finally, first-in-line screening tools can be expanded with blood biomarkers in high-risk patients. Modern therapeutic agents act only on neurotransmitter dysfunction. Thus, it is possible to achieve positive results in managing the course of the AD with medications that interfere with the cleavage (inhibitor of β -site APP cleaving enzyme (BACE 1)) and amyloid β aggregation.

Conclusions: The arguments we have presented would indicate some biomarkers show a high potential in diagnosis, especially CSF ones, and can also be used in the treatment and management of Alzheimer's and other neurodegenerative diseases, but needed additional research.

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METASTATIC PREGNANCY-ASSOCIATED BREAST CANCER – CLINICAL CASE

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Introduction: Pregnancy-associated breast cancer (PABC) is defined as breast cancer occurring anytime during gestation, lactation, or within 1 year after delivery. Breast cancer is the second most common malignancy diagnosed in pregnancy (after cervical cancer). The incidence is between 1 in 3000 and 1 in 10,000 pregnancies. As women delay childbirth, the incidence of pregnancy-associated breast cancer is expected to increase. A high degree of suspicion is necessary to ensure timely investigation and diagnosis of breast cancer in a pregnant woman with a suspicious breast lump. Diagnosis of breast cancer in the later stages of pregnancy can be managed with primary chemotherapy or surgery.

Aim: This presentation will look at the use of imaging diagnostic methods and procedures for diagnosis during pregnancy as well as the current approach to the treatment of the disease.

Materials and methods: We present a clinical case of 41-year old in 20 weeks gestational age, gravida 3, para 2 with metastatic breast cancer – challenges in the diagnosis and treatment of the disease.

Results: Surgery as an initial approach is more suitable when diagnosis is made in the first trimester and systemic therapy can be delayed to second trimester. Diagnosis of breast cancer in the later stages of pregnancy can be managed with primary chemotherapy or surgery.

Conclusions: A multidisciplinary approach involving medical and surgical oncologists, high-risk obstetric care, genetic counselors, pharmacists, radiation oncologists, and neonatologist is highly recommended for the successful management of cancer and pregnancy. In any situation, serious consideration should be given to the option of treating breast carcinoma while maintaining pregnancy.

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ECHOCARDIOGRAPHIC CHARACTERISTICS ACCORDING TO C825T POLYMORPHISM GNB3 IN PATIENTS WITH ESSENTIAL HYPERTENSION

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Introduction: Left ventricular hypertrophy (LVH) is associated with an increased risk of cardiovascular morbidity and mortality. Studies suggest that LVH may be influenced by genetic factors. One of them is β 3-subunit G-protein gene polymorphisms (GNB3). Epidemiological studies have demonstrated an interest in C825T polymorphism GNB3 gene due to participation in the initiation of cell growth and proliferation.

Aim: The aim this research was to analyze the association between the C825T polymorphism GNB3 and echocardiographic characteristics in patients with essential hypertension (EH) and LVH.

Materials and methods: Echocardiograms were recorded with each patient by "Sonoline Ultrasound Imaging System" (Siemens, Germany). Left ventricular internal end-diastolic diameter (EDD), intraventricular septum thickness (IST), and posterior wall thickness (PWT) were measured according to the Penn convention just below the tip of the mitral valve as recommended by the American Society of Echocardiography. Left ventricular mass (LVM) was calculated according to the formula of Devereux et al.: $LVM \text{ (in grams)} = (1.04[EDD + IST + PWT]^3 - EDD^3) - 13.6g$. The LVM indexed to body size (LVMI) was obtained according the allometric signal height^{2.7}. LVH was diagnosed if LVMI exceeded : $>50 \text{ g/m}^2.7$ in men, $>47 \text{ g/m}^2.7$ in women. To identify the GNB3 promotor C825T polymorphism (rs 5443) PCR with subsequent restriction fragment length polymorphism (RFLP) analysis were performed. All statistical analyses were performed by using the statistical software package SPSS version 21 (SPSS for Windows, version 21, SPSS Inc., Chicago, IL).

Results: The differences between echocardiographic parameters in the patients with EH according to genotypes and alleles of C825T polymorphism GNB3 gene are statistical significance, except PWT ($p=0,812$). T allele carriers had greater LV dimensions and thickness compare the patients with the CC genotype. LV dimensions and thickness in patients with CC genotype were less compare the patients with CT genotype while these parameters were significantly higher in patients with homozygotes for T allele. We indicated increase LVM and LVMI in patients with T allele carriers versus CC genotype. Furthermore, these parameters were significantly higher in homozygous for the T allele compare heterozygous.

Conclusions: In conclusion, patient with CT and TT genotypes had significantly higher echocardiographic parameters compared with CC genotype.

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STUDY THE EFFECT OF THE PLACENTAL GROWTH FACTORS ON THE GESTATIONAL PROCESS IN MULTIPLE PREGNANCIES

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Introduction: The majority of clinical studies have proved the fact that multiple pregnancy is accompanied by a significant number of perinatal complications, namely premature abortion, feto placental dysfunction with delayed fetal growth, as well as pre-eclampsia, which in turn contributes to an increase in perinatal morbidity and mortality. The course of pregnancy with multiple pregnancies is predicted and in the future depends on the process of implantation of the fetal egg, the type of placenta, the adaptation of the mother's body to the pregnancy, and the influence of external factors on the pregnant woman during the critical periods of the developing the fetus.

Aim: In order to evaluate the value of the Placenta Growth Factor (PIGF) in the developing the gestational complications during multiple pregnancies, a study of this indicator in serum of 320 pregnant women with multiple pregnancies in the first trimester, as well as 40 pregnant women with single pregnancy, constituted a control group.

Materials and methods: A prospective study of maternity pregnancy in 320 females with multiple pregnancies was conducted, which comprised the main group of the subjects and 40 healthy women with unipolar pregnancy. The level of PIGF in serum was determined by solid phase enzyme analysis using monoclonal antibody sets in the first trimester of pregnancy. Indicators of the hemostasis system (vascular thrombocyte and coagulation link) were evaluated according to generally accepted methods. Dopplerometry of placental and fetal blood flow was performed in uterine arteries, arteries and umbilical cord veins, middle cerebral artery of the fetus.

Results: Women with multiple pregnancies are at the risk of gestational complications – premature births in 67.8% ($p < 0.01$), feto placental dysfunction, pre eclampsia – in 17.5% ($p < 0.05$) cases. The revealed violations of the vascular thrombocyte and coagulation homeostasis in the first trimester of pregnancy are the main risk factors for early premature abortion. It has been shown that the low level of placental growth factor in serum of pregnant women with multiple pregnancies in the case of premature labor, feto placental dysfunction and pre-eclampsia (111.23 ± 8.4 , 203.24 ± 6.4 and 305.86 ± 7.4 pg / ml) compared with the corresponding indicators for single-pregnancy (418.2 ± 10.4 pg / ml) is a prognostic marker for the development of gestational complications.

Conclusions: Timely medical correction of gestational complications during multiple pregnancies with the use of micronized progesterone, low molecular weight heparins, angio protectants allowed prolonging the pregnancy with mono choric type of placentation by 3.2 weeks (up to 34.2 ± 2.4 weeks), and in the case of dichoric twins – to full-term pregnancy.

HOW DO TERM NEWBORNS RESPOND TO PAIN?

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INTRODUCTION. Neonates were initially thought to have no response to painful stimuli because of the immaturity or inhibition of cortical neurons and thalamocortical inputs in the neonate, as these elements are essential for conscious pain perception. There is also no known direct biological marker of pain and one has to rely only on behavioral and stress-related physiological correlates.

AIM. To evaluate pain in response to venipuncture in newborns.

METHODS. The research involves 12 term neonates aged 8-28 days old of which included 8 males and 4 females. Each of the neonates were assessed by the Neonatal Infant Pain Scale (NIPS) before and during a venipuncture, and their oxygen saturation (SpO₂) and heart rate (HR) was recorded.

The NIPS is a behavioral scale that is used as an indicative for infant pain or distress. The scale is composed of 6 indicators: facial expression, cry, breathing patterns, arms and legs movement and state of arousal. The child is evaluated and either scored a 0 or 1 in each category based on their behavior. The total pain scores range from 0-7 with a score greater than 3 indicating pain.

RESULTS. During the observation of neonates, the average score according to NIPS before and during venipuncture increases in 3.7 points (average score before venipuncture was 0.67 points, and during venipuncture – 4.37 points). The average HR during painful procedure increases in 22,6 beats/min (145.6±3.7 beats/min–before, 168.2±6.4beats/min – during), which is 15.5%. The average SpO₂ decreases in 8.1% (96.3±0.6 % – before, 88.25±1.2% – during).

Inter-rater reliability of the NIPS scale was determined by Pearson's Correlation and the total scores obtained before and during the procedure yielded r (Pearson's r) to be 0.57. On obtaining P value for correlation coefficient, P was equal to 0.05 denoting that the correlation is statistically significant.

With this, the relationship between the NIPS behavioral scores and physiological changes to heart rate and oxygen saturation in response to needle prick has been determined and all groups showed significant increases in NIPS scores after the venipuncture was started.

CONCLUSION. Neonates experience pain during procedures and therefore, accurate pain assessment and effective management is required to minimize acute physiological and behavioral distress and to determine therapy that should be initiated.

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ANTIOXIDANT PROTECTION OF PREMATURE NEWBORNS WITH HYPOXIC-ISCHEMIC DAMAGE OF CENTRAL NERVOUS SYSTEM

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Introduction: Fetal hypoxia leads to a violation of mitochondrial oxidative phosphorylation and activates lipid peroxidation (LPO). LPO on the background of hypoxia causes the activation of the body's antioxidant system, which also includes copper-containing ceruloplasmin oxidase (CP). Participation of ceruloplasmin in antioxidant protection of premature newborns against the background of hypoxic damage to CNS remains unexplored.

Aim: To study the state of the antioxidant system in premature newborns against the background of hypoxic-ischemic damage of CNS on the basis of indices of ceruloplasmin concentration in blood plasma

Materials and methods: The concentration of ceruloplasmin in the blood serum was determined in 16 conditionally healthy premature newborns – group comparison and 64 prematurity with hypoxic-ischemic lesions of the central nervous system, which were divided into three groups: group I-33 children with mild CNS lesion, group II-16 toddlers with severe hypoxic-ischemic lesions and low body weight, group III – 15 newborns with severe CNS lesions and very small body weight.

Results: It was found that level of ceruloplasmin in conditionally healthy premature newborns was 0.29 ± 0.02 mg/ml. Against the background of mild hypoxia, the concentration of this enzyme in serum decreased by 28% compared with healthy children ($p < 0.001$). Perinatal hypoxia of severe degree in newborns of group II led to the depletion of this antioxidant – the content of ceruloplasmin decreased by 1.5 times in comparison with the index of USNN ($p < 0.001$). In addition, its concentration against a background of severe hypoxia was 10% less relative to children with mild hypoxia ($p < 0.05$). The concentration of ceruloplasmin in premature babies with a very small body weight against severe hypoxia was significantly lower relative to children of other groups. Thus, the level of this enzyme in children of this group was 1.8 times less than in healthy ($p < 0.001$) and 31% and 18% decreased relative to preterm I ($p < 0.01$) and group II ($p < 0.05$), respectively.

Conclusions: Thus, against the background of severe hypoxia, the activity of one of the main components of the antioxidant system of the blood plasma, ceruloplasmin, is suppressed. So, in preterm neonates against background of hypoxic damage of central nervous system, there is a violation of antioxidant defense mechanisms, which requires further development of correction of this pathological condition.

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THE PREVALENCE OF PLEURAL ADHESIONS IN PATIENTS WITH PLEURAL EFFUSION SYNDROME DEPENDING ON THE METHOD OF THE RADIOLOGICAL EXAMINATION

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Introduction: Diagnosis of pleural diseases, including tuberculosis of the pleura, remains complicated as the disease does not have pathognomonic signs in its course, and the pleural cavity is a closed system for objective research.

Aim: To study the role of ultrasonoscopy in the early detection of diseases of the pleura of tuberculosis and other genesis in terms of the prevalence of pleural adhesions.

Materials and methods: We analyzed the medical documentation of 329 patients with pleural effusion syndrome, in 142 of them (the main group), ultrasonoscopy and radiography were used in the primary examination; in 187 (the comparison group), only radiography was used. All patients were examined using thoracoscopy with pleural biopsy.

Results: Pleural adhesions with an area up to 2 % of the surface, that is, insignificant layers, met more often in the 1,7 times in the main group (14,8 % and 8,6 % respectively), and more significant layers (2-4 %) predominated in the comparison group in 2,9 times (33,1 % and 11,3 % respectively). Pleural adhesions from 5 to 6 % was recorded in 58 (31,0 %) patients in the comparison group and only in 6 (4,2 %) patients in the main group, more often in 7,4 times ($p < 0,05$). The pleura impression of more than 6 % of the surface area of the body in the main group was not detected, and among the patients in the comparison group occurred in 20 (10,7 %) of the subjects. In general, among all patients in the main group, pleural adhesions were observed in 43 (30,3 %) patients, and in 156 (83,4 %) patients in the comparison group, which was more often 2,8 times ($p < 0,05$).

Conclusions: Thus, the addition of radiography of the chest organs, with suspicion of pleural effusion, ultrasonoscopy contributes to the earlier conduct of thoracoscopy with pleural biopsy after the discovery of effusion in the pleural cavity. It has been established that the development and prevalence of pleural adhesions and joints depends on the choice of the method of beam research.

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THE PREVALENCE OF POLYMORPHISM OF THE CYP2C19*2 GENE WHICH IS ASSOCIATED WITH A CHANGE OF THE ANTIPLATELET EFFECT OF CLOPIDOGREL AMONG THE UKRAINIAN POPULATION

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Introduction: Clopsdogrel Antsagregant's effect in the human body depends on the process of its biotransformation from inactive form into the active under the actson of the enzyme encoded by the gene CYP2C19. CYP2C19*2 and CYP2C19*3 – are associated with decreasing of the enzymatic activity of liver's cytochromes and with appearing of resistance to clopidogrel, which is clinically manifested by repeated myocardial infarction, stroke, stent thrombosis.

Aim: The aim of the study was to investigate among the persons living in Ukraine (Sumy region), the prevalence of the gene polymorphism of CYP2C19*2 (681G>A, rs4244285).

Materials and methods: There were included 100 patients with ischemic heart disease in the research. There were 67% of the men, and 33% of the women aged 48 to 83 years (mean age 62.73) among the examined patients. All the patients were carried out the molecular genetics research of the polymorphism of the gene CYP2C19*2 in addition to the clinical and instrumental examination. The buccal's epithelium samples were taken with the help of sterile applicators for taking buccal epithelium. DNA's fragments amplification which are containing polymorphic areas were carried out using polymerase chain reaction (PCR) PCR Core sets (Isogen Laboratory, Russia) in the Gene Amp PCR System 9700 amplifiers (Applied Biosystems, USA). Statistical analysis was performed by the using the SPSS-17 program.

Results: The identifying of the carriers of allelic variant CYP2C19*2 was regarded with the help of follows: GG– wild type, the metabolism is sufficient, the clopidogrel's transformation is not changed; GA–polymorphic genotype, intermediate metabolism, the deceleration of the clopidogrel's transformation. A genotype GG was identified in 82 (82%) patients and genotype of GA – 18 (18%) patients according to the results of the genetic classes of the polymorphism of the gene CYP2C9*2.

Conclusions: According to the results of the investigation nearly 18 % of the patients are “the slowly metabolizers” and they have possible threat of the occurrence of cardiovascular disasters due to the lack or low sensitivity to the clopidogrel.

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TEMPORAL TRENDS IN THE INCIDENCE OF PEDIATRIC LEUKEMIA IN THE SUMY REGION OF UKRAINE, 2010-2017

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Introduction: Leukemia is a broad term for cancers of the blood cells. Even as the cure continues to improve, pediatric leukemia (PL) has been steadily staying one of the deadliest diseases, with one of the highest mortality rates throughout the world. With the current economic situation in Ukraine the cancer treatment has become more expensive and problematic for the most citizens. In 2017 the Ukrainian Ministry of Health (MoH Ukraine) increased a financial support for pediatric cancer cure. The study of regional epidemiological features of PL will be helpful for the optimal allocation of resources in the provision of healthcare.

Aim: The aim of this study was to assess the epidemiological features of PL 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 leukemia in children age 0–17 years from 2010-2017 in SR were included. PL cases were identified using ICDO-3. 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).

Results: Between 2010 and 2017, 57 cases of PL were reported in SR. The sex ratio (boys/girls) was 1.4. The age-standardized incidence of PL was 4.3 in 2010, 4.9 in 2011, 1.1 in 2012, 3.4 in 2013, 6.2 in 2014, 5.7 in 2015, 2.9 in 2016, 3.5 in 2017 (cases per 100000 children 0 to 17 years old). Overall incidence rates decreased throughout the study period (APC: – 3%, 95% CI: -3.03 to -2.99). In contrast, slightly increase in incidence was observed in summary Ukrainian data. Over the same time period, APC for age-standardized incidence of PL was 0.32% in Ukraine. The incidence of PL (more often ALL) peaks at approximately 2–3 years of age and decreases until age 8.

Conclusions: From 2010 to 2017, in the SR the age-standardized incidence of PL decreased overall (APC: – 3%, 95% CI: -3.03 to -2.99). In Ukraine the overall incidence of PL remained stable (APC: 0.32%). Future studies may be useful in understanding potential risk factors of the increase in incidence rates of PL among children.

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EFFICIENCY OF IMMUNITY IN CHILDREN WITH ACUTE RESPIRATORY VIRAL INFECTION OF SCHOOL AGE

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Introduction: Despite new knowledge and a large number of drugs in the doctor's arsenal for acute respiratory viral infections (ARIs), respiratory diseases continue to occupy the first place in the structure of morbidity in children.

Aim: By analyzing the movement of patients in the infectious department number 2 of the Sumy City Children's Clinical Hospital of Saint Zinaida, we concluded that over the years the number of children who became ill with acute viral infection has increased significantly. Analyzing the structure of diseases for 2017, the proportion of acute respiratory viral infection is 70.3%. In the first place, acute respiratory viral infection predominate, namely influenza (43.5%), in the second place acute bronchitis (19.4%), in the third place – acute pneumonia is uncomplicated (15.9%).

Materials and methods: By analyzing the movement of patients in the infectious department number 2 of the Sumy City Children's Clinical Hospital of Saint According to our observation, there was the I group (67 children), who received the medication "imustat" in the age-long dose and the second group (59 children) without this preparation received the traditional therapy. Children of the first group shortened the period of stay in the hospital, the clinical symptoms of the flu proceeded less pronounced, the temperature reaction normalized for 1-2 days earlier compared with the children of the second group.

Results: According to our observation, there was the I group (67 children), who received the medication "imustat" in the age-long dose and the second group (59 children) without this preparation received the traditional therapy. Children of the first group shortened the period of stay in the hospital, the clinical symptoms of the flu proceeded less pronounced, the temperature reaction normalized for 1-2 days earlier compared with the children of the second group.

Conclusions: Such a rapid increase in the incidence of acute respiratory viral infections may indicate, on the one hand, the imperfection of the immune system of children in the fight against viruses or the lack of diagnosis or not timely treatment of specialists regarding the incidence of last year. Today, there are many preparations for immune prevention of acute respiratory infections in children. Therefore, it is advisable to start such prevention even at the pre-hospital stage, which will effectively affect the cause of the disease or completely stop its manifestation.

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THE PECULIARITIES OF HOLTER MONITORING ACCORDING TO CHRONOTYPE IN ADOLESCENTS

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Introduction. Many mechanisms of human diseases and drug effects are controlled by the circadian timing system. Chronodiagnosics and chronotherapeutics of illnesses according to the endogenous biologic rhythms open possibility of better prevention and treatment especially cardiologic pathology.

Objective: The aim of this study was to assess heart activity in adolescents with endocrine pathology according to circadian chronotype.

Materials and methods. In the study 59 children with endocrine pathology in age 12-18 years were examined (diabetes, obesity). The study includes assessment of clinical and anthropometric data, blood pressure measurements. ABPM and holter monitoring ECG performed using complex Ritm-2000" (RTO Beta, Ukraine). Circadian rhythm chronotype assessed too with the standard questionnaire for identifying the chronotypes (morningness–eveningness). Statistical analysis conducted with program Statistica (version 5.11, StatSoft Inc.). All p-values were two-tailed and $p < 0.05$ was considered statistically significant.

Results. In our adolescent cohort were 25 (42.4%) subjects with morning and 34 (57.6%) with evening chronotype. In persons with different chronotype there were no difference in daytime and nighttime pulse frequency: average daytime (morning and evening chronotype respectively) – 68.5 bm and 69.5 bm, average nighttime – 53.5 bm and 53.0 bm. The same were with maximum and minimum pulse: 134.8 bm and 132.5 bm (respectively), 37.5 bm and 43.5 bm ($p > 0.05$). But we found out significant difference in morning pulse frequency (64.6±3.12 bm versus 79.5±6.11 bm), in index RMSSD (288.5±91.1 and 84.0±36.2), in time of day bradycardia duration (90.6±17.4 min versus 25.6±11.3 min) and in circadian index (1.28±0.01 versus 1.31±0.01) ($p < 0.05$). In correlation with other factors the most interesting was dependence of maximum pulse frequency on parents smoking at home ($r = 0.65$, $p < 0.05$).

Conclusions. Our data suggest that persons with morning chronotype have better adaptation of autonomic nervous system in regulation cardiac functions.

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FACTORS OF ANTIBIOTIC-ASSOCIATED DIARRHEA DEVELOPMENT

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Introduction: Acute respiratory infections (ARIs) are one of the frequent diseases in children. One of the important issues of treatment of ARI is the appointment of antibiotic therapy. It is shown only in the presence of bacterial complications. However, the child's small age, the possibility of complications, the lack of data on the cause of the disease leads to the frequent use of antibiotic therapy. This can lead to various complications, including the occurrence of antibiotic-associated diarrhea (AAD). According to various sources, its frequency ranges from 20 to 60% in children. The development of antibiotic-associated diarrhea complicates the course of the underlying disease, which further worsens the prognosis of the health of the child.

Aim: The purpose of the study was to identify the causes of antibiotic-associated diarrhea in children with acute respiratory infections.

Materials and methods: The subject of the study was children aged from birth to 12 years who were treated at the hospital department with a diagnosis of acute respiratory infections, in particular rhinopharyngitis. Clinical methods of research, laboratory methods of research – clinical analysis of blood, biochemical analysis of blood on liver tests, analytical and statistical methods of research were used. The results of the prevalence of antibiotic-associated diarrhea, peculiarities of anamnesis, hereditary anamnesis, and transmitted diseases are analyzed.

Results: Data were obtained that the development of an antibiotic-associated diarrhea occurred in 52% of cases in general, but most often in the group of young children. Among the antibacterial faces most often, the development of AAD was noted with the use of β -lactam penicillins, less often macrolides and cephalosporins. According to the calculation of the ratio of chances, its largest value was found for pairs the duration of breastfeeding less than 6 months and AAD – 7.65 units; the family history of stool disorders and allergic conditions in parents and AAD is burdened with 3.42 and 3.74 units; the presence of signs of functional disorders and allergies in the history of the patient and AAA – 3.14 and 2.33 units.

Conclusions: Thus, the most important factors in the development of AAD were the duration of breastfeeding less than 6 months, hereditary history, signs of functional disorders and allergies.

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RESULTS OF TREATMENT OF HERNIA CERVICAL SPINE

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Introduction: Among the most common causes of temporary disability, now cervical hernia at the first place.

Aim: Set the percentage of patients with the cervical spine disc herniation from different groups. Among the examined patients with the diagnosis: «cervical hernia» two groups of people were selected. 1st group – these are patients who have a low active lifestyle. Most often, they are people who are very long in a static position, and have to be overweight. 2nd group – these are patients who have age-related changes in the body, extremely strong physical activity in the history, suffered from infectious diseases and operations on the spine.

Materials and methods: According to the survey, it turned out that among the young people who faced with cervical spine disc herniation and turned to a doctor, in 2015, there are – 404 people. Among them: young people who have a low active lifestyle and have overweight – 190, and among people which have extremely heavy physical activity and operations on the spine – 214. Aimed to surgical treatment in Institute of Neurosurgery National Academy Medical Sciences of Ukraine – 23 patients, this amounts to – 5,6 %. Conservative treatment in Sumy Regional Clinical Hospital neurosurgical department – 94,4 %.

Results: In 2016, 413 people was treated by neurosurgeons. Of these, in the conditions of the neurosurgical department, medical treatment (physiotherapy, laser therapy) was performed and 392 patients, which is 95%, became better and sent for surgical treatment at the endoscopic and laser neurosurgery clinic of the Institute of Neurosurgery – 21 patients, which is 5% of total number of patients. In 2017, 411 people turned to this problem. In the conditions of the Sumy Neurosurgical Department with the use of physiotherapy and laser therapy, 386 patients improved, which is 94% of the total number of patients. 25 patients were sent to a surgical department at the Endoscopic and Laser Neurosurgery Clinic of the Institute of Neurosurgery, which was 6% of the total number of patients.

Conclusions: Consequently, this study revealed that timely conservative treatment in the Sumy Regional Clinical Hospital has produced significant improvements the majority of patients, accounting for 95% of patients annually discharged with improvement.

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LIFE OF A MODERN WOMAN WITH ENDOMETRIOSIS

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Introduction: At present, endometriosis is ranked 3rd among gynecologic pathologies in modern women and thus impairs their quality of life and working capacity.

Aim: In this study, finding the clinical effectiveness of empirical treatment for neonatal sepsis by *Klebsiella* at KBTH in Ghana and Modern Diagnostic and therapeutic approach to treatment of neonatal sepsis

Materials and methods: Set the percentage of women with endometriosis from different groups. Among 100 women surveyed, 65% of "Business" women. They occupy high positions, are more stress-stricken, have a low-level lifestyle, are office workers, teachers, educators, service staff, students, and students who combine learning and family life, and 35% are «Housewives». They spend most of their time at home, usually have a child, less stressful situations, adhere to the regime and carry out a metered physical exercise.

Results: According to the survey, it was found that 47% of women were born among women: "Business" women – 20% and Housewives – 27%, and among women who did not give birth to 53% of them: "Business" women – 45 %, Housewives – 8%. 52% of women surveyed have a mild degree of progression (menstrual dysfunction), among them: "Business" women-27%, Housewives -25%, Average degree-48%, of which "Business" women-38%, Housewives -10 %. We also studied patients depending on the symptoms of the disease. Women who were disturbed by persistent pelvic pain, general weakness and poor quality of life, but retained reproductive function of 43%, including: "Business" women -20%, Housewives – 23%. Severity: The percentage of women with complaints of permanent pelvic pain, metabolic disorders, disorientation, menstrual irregularities and reproductive function 57%, among them: "Business women" -45%, Housewives -12%.

Conclusions: This study found that "Business" women, and that 65% of all patients with endometriosis are more likely to be exposed to this disease than housewives, because 38% of them have a severe course, 45% have no pain, dysmenorrhea, reproductive function impairment, and 45% – did not give birth, that is, they are more at risk of endometriosis.

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SKIN-TO-SKIN CONTACT – HOW DOES IT INFLUENCE ON PRETERM INFANTS

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Introduction: Skin-to-skin contact (SSC) is a cornerstone of neuro-development and family-oriented care for preterm infants. It support infant's physiological stability, warmth and sleeping; it reduces pain and stress, and promotes breastfeeding and lactation. But still, some researches do not show the positive results of this newly applied care. Therefore the purpose of the present study was to investigate the effectiveness of skin-to-skin contact depending on its peculiarities such as regularity, duration and period of first contact in preterm babies.

Aim: To investigate the impact skin-to-skin contact on the preterm baby's health.

Materials and methods: The study involved 26 premature infants with gestational age $27,85 \pm 1,33$ weeks who were treated in NICU and neonatal department. All infants included in the study had skin to skin contact with their parents. According to the first SSC newborns were divided in two groups – group 1 (SSC begins in the first week of life) included 15 (57.7%) infants, group 2 (SSC begins after the first week of life) – 11 (42.3%). According to the regularity of SSC there were group A (SSC was performed regularly) which included 16 (61.5%) infants and group B (SSC was irregular) – 10 (38.5%). According to the duration of SSC there were group I (SSC was more than 3 hours per day) – 10 infants (38.5%) and group II (SSC was less than 3 hours per day) – 16 (61.5%).

Results: The infants of group 1 had lower incidence of BPD comparing with group 2 (20% vs 72.7%, $p < 0.05$). Cases of cholestasis in group 1 didn't occur, in group 2 – 36% ($p < 0.05$). Weight gain per 1 day was higher in group 1 (23.13 ± 4.29 g vs 19.51 ± 3.96 g; $p < 0,05$). The incidences of nosocomial infection was lower in group A comparing to group B (37.5% and 90.0%, $p < 0.05$). The impact of SSC regularity on weight gain per 1 day was substantial, but not significant ($22,8 \pm 4,17$ g vs $19,64 \pm 4,4$ g; $p = 0,075$). The incidences of nosocomial infection was lower in group I comparing with group II (37.0% and 75.0%, $p < 0.05$). The percentage of infants who were breastfed at the moment of discharge was higher in group I compared to group II (70.0% vs 25.0%, $p < 0.05$). The impact of SSC duration on weight gain per 1 day was substantial, but not significant ($23,46 \pm 4,61$ g vs $20,44 \pm 4,09$ g; $p = 0.093$).

Conclusions: Early, regular and prolonged SSC has a positive impact on the preterm baby's health. Early SSC prevents the development of BPD, cholestasis and promotes weight gain. Regular and long contact prevents nosocomial infections and promotes breastfeeding. Skin-to-skin care should be encouraged in all clinics and should be started as soon as possible depending on baby's condition, be regular and long-lasting according to parents' opportunities.

INVOLVEMENT OF CYTOKINES IN COMORBIDITY OF CHILDREN WITH CEREBRAL PALSY

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Introduction: Cerebral palsy (CP) is defined as "a group of permanent disorders of the development of movement and posture, causing activity limitations, which are attributed to non-progressive disturbances that occurred in the developing fetal or infant brain." Most recent research in the population of CP is limited to prenatal and perinatal abnormalities and developmental neurology. It should have also been taken into consideration that life expectancy of people with mild to moderate CP is relatively within the normal range. During adulthood there is a significant progression of the disability independent of the neurological damage. Still, there has been very little focus on understanding the mechanisms of comorbid conditions in children with CP. It is very important to reveal the secondary and tertiary mechanisms of disability to increase the quality of life for these patients. Inflammatory cytokines IL-6, TNF- α play specific roles in the pathogenesis of CP, but they also may contribute to the development of comorbid conditions in the latter period of life. Anti-inflammatory cytokines such as EPO and IL10 may counter the effects of pro-inflammatory in the complex model of biological interactions.

Aim: To compare levels of TNF- α , IL6, EPO, and IL10 between healthy children and children with CP.

Materials and methods: Serum samples from 15 healthy children and 22 children with CP were analyzed using enzyme-linked immunosorbent assay (ELISA). Levels of TNF- α , IL6, EPO, and IL10 were determined with photospectrometry. Data was analyzed with GraphPad Prism 7.04 with t-unpaired test.

Results: There were significantly higher levels of TNF- α in children with cerebral palsy (mean=17,97pg/mL, SD \pm 25,48 vs. mean=2,74pg/mL, SD \pm 4,9), as well as levels of IL6 (mean=17,97pg/mL, SD \pm 25,48 vs. mean=2,74pg/mL, SD \pm 4,9). The p-value did not reach a significant value in analysis of EPO for healthy children and children with CP (mean= 3,86mIU/mL, SD \pm 1,52 vs. mean=5,1mIU/mL, SD \pm 2,55). Values of IL10 were close to zero without statistical difference between groups of children.

Conclusions: It is likely to observe higher levels of pro-inflammatory cytokines with anti-inflammatory cytokines corresponding to the levels in healthy children. This data suggests the persistence of inflammatory process in children with CP. Further investigation would help to reveal mechanisms of secondary disability and comorbidity.

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ERRORS AND SHORTCOMINGS OF EMERGENCY CARE FOR VICTIMS WITH COMBINED SKELETAL INJURIES AT THE PREHOSPITAL STAGE

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Introduction: Given the complexity of treatment and the danger to human life, a special place in the structure of traumatism is occupied by combined skeletal injuries. The result of treatment of the victims largely depends on the timely provision of qualified medical care. Errors and defects of treatment, admitted at the prehospital stage, affect the course of the traumatic process.

Aim: Purpose of the research was to analyze the scope and nature of urgent measures provided to victims with combined skeletal injuries during the prehospital stage.

Materials and methods: The results of treatment of 210 people with combined injuries of the musculoskeletal system, who had been traumatized in the Sumy region during 2015–2017, were studied. The reporting documentation of the municipal institution “Sumy Regional Centre for Emergency Medical Care and Disaster Medicine” and medical charts of the inpatients were the sources for obtaining information.

Results: It was established that 167 victims were delivered by emergency medical care teams, representing 79.52 % of the observation array, 33.81 % of which were paramedic brigades, and the medical and specialized brigades delivered 42.86 % and 2.86 % of injured respectively; 43 (20.48%) people were transported by any available means. When studying the emergency assistance provided at the scene of the accident and at the evacuation stages by various (linear and specialized) emergency teams, we determined that in 52.69% of cases it had significant shortcomings. The presence of shock-producing injuries, which, of course, were all cases of combined skeletal injuries, required the provision of preventive infusion therapy, regardless of the level of consciousness and hemodynamic parameters in the victim, but only 47.31 % of the victims received it at the prehospital stage. During transportation, immobilization was performed in 83.23 % of patients with skeletal injuries. Analysis of the administration of analgesics showed that among the victims who needed analgesia, anesthesia was applied in 72.46 % of cases.

Conclusions: The analysis shows that the emergency medical care for the victims with combined skeletal injuries is extremely inadequate, both in terms of volume and level, which is most often manifested in the absence of infusion therapy, inadequate anesthesia and immobilization.

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THE USE OF ULIPRISTAL ACETATE IN WOMEN OF OLDER AGE GROUPS WITH UTERINE LEIOMYOMA

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Introduction: Leiomyoma of the uterus (LM) is the most common benign tumor of female genital organs. The incidence of LM found in 30-40% of women over the age of 40, ranging from 30% to 70% in premenopausal women. Often, LM decrease in the quality of life of women due to abnormal uterine bleeding (AUB) or pelvic pain. Modern approaches to managing patients with LM in the world have changed towards organ-preserving treatment methods and conservative therapy. In recent years, management of patients with LM occupy by ulipristal acetate (UPA). Ulipristal acetate (UPA) is selective modulator of progesterone receptors. The results of two randomized clinical trials demonstrated that UPA decrease symptoms and size of uterine myoma. New algorithms of this therapy were proposed, which allowed reassessing the primacy of surgical treatment of uterine myoma in modern medical practice.

Aim: The aim of our study was to study the clinical experience of using UPA in patients with uterine leiomyoma.

Materials and methods: During the year 2017, 10 women with LM were treated. All patients received UPA as a monotherapy within 3 months. Four women underwent combined treatment with UPA and conservative myomectomy. In 2 cases, UPA was used as a preoperative therapy, in 2 cases after surgical treatment. During the study, an analysis was made of the change in the character of the menstrual function and the severity of AUB. Ultrasound of pelvic organs was performed before and after therapy.

Results: In all patients, amenorrhea occurred after the first month of treatment. The calculated volume of nodes on average decreased by $35.5 \pm 9.8\%$. Three months after the end of the course of treatment, 5th cases out of 6 were not observed the formation of new nodes or restoration to their original size. In 1st case, the size of the myomatous nodes decreased by 10.2 mm, but the volume of the uterus increased by 20% due to heterotopies of endometriosis, no recurrence of AUB was observed.

Conclusions: According to the results of our study, the main effects of UPA in monotherapy and combined treatment were different. In general, the use of UPA opens up new opportunities and prospects for management of patients with LM in both monotherapy and multi-stage combined treatment. Promising are further studies of the long-term effects of UPA therapy, especially when combined with uterine leiomyoma and adenomyosis.

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USING OF ANTICONVULSANTS IN THE PREVENTIVE TREATMENT OF MIGRAINE

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Introduction: The prevalence of chronic migraine in different popular groups is from 0,7% to 1,8%. Chronic migraine significantly impair the quality of life patients.

Aim: The objective of research is to study the comparative efficacy of prophylactic treatment of chronic migraine in anticonvulsants – Lamotrigine, Gabapentin and Pregabalin.

Materials and methods: The study involved 140 patients suffering from chronic migraine, aged 18 to 60 (average 37,4±3,9) years. Duration of the disease was 18,6±4,2 years. The majority of patients were women – 104 (74,3%) persons. In chronic migraine we differentiated 2 types of cephalgia: the intensity of 5 or more points for visual analogue scale (VAS) which limits the daily activities was considered an attack, and in other cases, the headache was regarded as "background" (bilateral, moderate). Patients were randomly divided into four groups. All the patients made daily entries in headache diaries. Anxiety and depression rates were investigated in accordance with Spielberger's and Beck's tests. Their treatment started with minimal doses, with subsequent titration every week with respect of individual effectiveness and good tolerability.

Results: The average daily dose with proved efficacy and good tolerability for Propranolol was 80,0±4,7 mg, Gabapentin – 864±46.9 mg, Pregabalin 167.4±13,6 mg, Lamotrigine – 111.1±7.2 mg. The least cases of adverse effects by use of Lamotrigine – 3 cases (8,6%). The Pregabalin confirmed the most effective in reducing the number of days with "background" headache and frequent migraine attacks. Pregabalin was also most effective in reducing the intensity of the headache. Pregabalin and Gabapentin were most effective in reducing the duration of attacks.

Conclusions: Gabapentin and Lamotrigine have shown their efficacy in the treatment of chronic migraine and can be used by ineffectiveness or intolerability of Pregabalin.

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CLINICAL COMPARISON OF THE RESULTS OF LAPAROSCOPIC AND OPEN SURGICAL OPERATIONS IN UROLOGICAL PRACTICE

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Introduction: Laparoscopic operations are widely used nowadays in the surgical treatment of urological patients. Therefore, indications and contraindications for these operations, clinical, pathophysiological and outcome evaluation of minimally invasive interventions, their place in modern surgery, the degree of trauma inflicted during the operations are main questions for further clinical studies and a comprehensive assessment.

Aim: The aim of the study was a comparative analysis of laparoscopic and open accesses interventions in urological clinic.

Materials and methods: In the Urological department of Sumy City Clinical Hospital we formed 2 groups of patients. Each group consisted of 150 people: operated with laparoscopic and open surgical accesses respectively. All interventions were performed on the upper urinary tract: radical nephrectomy, pielolithotomy, nephropexy and others. The method of operative access was determined by clinical indications and generally accepted practice. All patients before and after surgery were subjected not only to a standard examination, including a complex of diagnostic, laboratory and instrumental studies, but also to additional studies of changes in the hormonal background and respiratory system, for a more objective assessment of the trauma caused during surgical intervention. The average age of patients was 20-60 years. Patients with a burdened somatic status, with chronic metabolic and systemic diseases were excluded from the groups.

Results: The result obtained during the research show that the laparoscopic operations are less traumatic to the patients than the operations with open access. Consequently, postoperative recovery is faster, social and work rehabilitation is better. Laparoscopic interventions in urological practice require more advanced technological equipment, than traditional operations, and also special medical training for surgeons. Nevertheless, total cost of operation is not much higher than for open access operations, because of the shortened hospitalization and temporal disability periods.

Conclusions: Influence of different surgical approaches on patient's outcome and their further recovery in urological clinic require more investigations. More accurate selection of patients and their separation in nosological groups are planned for future studies.

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TRICHOMONAS VAGINALIS WITH SYSTEMIC ORNIDAZOLE

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Introduction: Introduction: Treatment of infectious vulvovaginitis of mixed etiology is accompanied by a number of difficulties: the need for a thorough bacteriological study, the resistance of microorganisms to antibacterial drugs, the difficulty in choosing the right drug for effective control of the entire complex of mixed pathogenic flora, incomplete vaginal sanitation, demand a need to search for new ways of treatment of these diseases with the use of new generation antibiotics.

Aim: Aim: To evaluate the effectiveness of treatment of women suffering with trichomonas vaginitis(TV) with systemic ornidazole(O) and a combination of topical drugs: O, neomycin(Nm) and nystatin(N).

Materials and methods: Methods and materials: We analysed 72 female patients aged 17 to 36 with TV. The experimental groups consisted of 22 women who received O in a complex therapy of 1 tablet (500 mg) twice a day for 10 days (group I); 25 women who received in complex therapy O 1 tablet (500 mg) 2 times a day and O intravaginally, Nm and N for 10 days (group I); the comparison group included 25 patients who received metronidazole intravenously 250 mg four times a day for 10 days. All women underwent general clinical examination, three times a day (before, 2 weeks and 3 months after the start of treatment) microscopic and bacteriological study of vaginal discharge.

Results: Results: From the anamnesis, chronic inflammatory diseases of the uterus and appendages took place in almost every fourth woman (24%), chronic endocervicitis – in 52%, cervical erosion – in 26%; inflammatory processes of the vagina were observed in all patients, including 64% of women had a history of TV, 70% – candidal vaginitis; 72% of the observed patients suffered from violation of the menstrual cycle, 12% – infertility of various etiologies. Somatic pathology was noted in more than 48% of patients whose structure was dominated by obesity (34%), gastrointestinal tract diseases (26%), and urinary tract disorders (12%).

Conclusions: Conclusions: The use of combined intravaginal therapy and systemic O effectively normalised the indices of vaginal microflora, shortened treatment duration, prevented the development of relapses in the future, thereby improving the quality of life of patients.

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PECULIARITIES OF ELECTROENCEPHALOGRAM IN PATIENTS WITH EPILEPTIC SEIZURE CONDITIONED OF ALCOHOL OVERUSE

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Introduction: Today people are increasingly exposed to various stress, extreme and toxic factors. The impact of such factors on human body is relevant today.

Aim: The aim of our study was to establish the diagnostic value of EEG in epileptic seizures conditioned by PAS.

Materials and methods: We examined 33 patients aged 27 to 58 years old with PAS after epileptic seizures, which developed on the 2nd – 3rd day after drinking alcohol. The neurological status and EEG data of these patients were evaluated.

Results: On the part of the nervous system, in all of the subjects examined it was found the signs of vegetative dystonia of varying degrees of severity, with predominance of tachycardia, arterial hypertension, facial hyperemia, sweating, tremor of the extremities. Epileptic seizures were generalized convulsive, tonic-clonic. The EEG was performed in the period from several hours to 3 days after the attack. According to EEG data, it was observed the desynchronization of cerebral bioelectrical activity with predominance of low-amplitude alpha and beta activity on the background EEG of 29 patients. The average frequency of alpha activity was 12.5 Hz at average amplitude of 22 μV . The average frequency of beta activity was 14.5 Hz at average amplitude of 13.5 μV . Such patterns were observed in all leads and practically did not change during functional tests with eyes opening, hyperventilation and photostimulation. 4 patients on their EEG had paroxysmal changes in the form of acute and slow waves of alpha and delta amplitudes up to 50-60 μV in all leads. Focal changes in EEG in all examined patients were not detected.

Conclusions: As evidence shows, in the vast majority of patients with epileptic seizures conditioned by PAS, the signs of epileptic activity on EEG were not detected. On the contrary, desynchronization predominated. Such patterns of EEG indicate the absence of a functioning epileptic focus in the brain and the presence of the signs of dysfunction of the mid-stem (diencephalous-reticular) regulatory brain divisions. The absence of an epileptic focus on EEG confirms the symptomatic nature of epileptic seizures (conditioned by alcohol intoxication) and indicates a favorable prognosis for epileptic seizures in the event of the abolition of alcohol abuse. Taking into account the above data, it should be noted that the main in treatment of epileptic seizures conditioned by PAS is the refusal of alcohol consumption, and antiepileptic drugs for long-term use are not necessary.

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CLINICAL FEATURES AND LABORATORY DIAGNOSIS OF ROTAVIRUS-ASSOCIATED GASTROENTERITIS IN INFANTS AND CHILDREN

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Introduction: Rotavirus infection (RVI) is ubiquitous worldwide disease. RVI is cause 453,000 deaths of young children each year, with more than 85% of these deaths occurring in low-income countries. Severe rotavirus gastroenteritis occurs at a younger age in developing countries and coinfections with other enteric pathogens.

Aim: To determine the main clinical and laboratory features of the current Rotavirus-Infection at the present stage.

Materials and methods: Under observation, there were 40 children aged 6 months to 5 years old who were in-patient unit at the Sumy City Children's Clinical Hospital of St. Zinaida in the Infectious Diseases Department No.3, with rotavirus gastroenteritis. The diagnosis of rotavirus infection was confirmed by the immuno-chromatographic test "CITO TEST ROTA" by Pharmaco Ltd.

Results: For patients with rotavirus infection (40) in number, the intoxication syndrome was characteristic: weakness, loss of appetite were found in 21 (52.5%) or its absence – in 4 (10%) patients, under age 2 in 37 (92.5%). The temperature of the body up to 37.2 °C was increased in 4 children, which is 10%, increase in range 37.3-37.9 °C was found in 27 (67.5%) patients and the temperature above 38 °C was characteristic for 9 (13%) patients with hospitalization to the hospital. Vomiting, was characteristic of 30 (75.0%) patients. The first day, vomiting occurred in 24 (60%), on the second day – in 1 (2.5%), at the 3rd and later in 5 (12.5%) patients. The duration of vomiting for one day was observed in 52.5% of children (21), two days in 40% (16) and three days in 7.5% (3) of patients with rotavirus gastroenteritis. Diarrhea occurred in 19 (47.5%) of patients, on day 2 in 7 (17.5%), on day 3 and later 15 (37.5%). The duration of diarrhea in children for 1 day was 12.5%, 2 days – 15.0%, 3 days – 25.0%, 4 days – 20.0%, and 5 days 30.0% children with rotavirus infection. In the analysis of peripheral blood parameters in 40 children, inflammatory changes were detected: leukocytosis 6 (15.0%), moderate neutrophilosis 5 (12.5%), lymphocytosis 29 (72.5%), the acceleration of ESR – at 7 (17.5%).

Conclusions: The main clinical symptoms in children with rotavirus infection are subfebrile temperature, vomiting and diarrhea occurred in the first day of disease, also duration of diarrhea for 3 days and more. Lymphocytosis was found in blood analysis in children with RVI.

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PECULIARITIES OF MANAGEMENT IN COMORBIDITY OF HELICOBACTER PYLORI INFECTION AND IRON DEFICIENCY ANEMIA

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Introduction: Recently, in the scientific medical literature, considerable attention is paid to the extracurricular effects of *Helicobacter pylori* (HP) infection. Among them one of the important places is Iron Deficiency Anemia (IDA). There is an association between HP infection and incidence of unexplained IDA, but the mechanisms remain unclear. One of the probable causes that are considered by the researchers is the iron regulatory hormone hepsidin.

Aim: To assess the role of HP infection in patients with IDA and effect of eradication therapy on treatment efficiency.

Materials and methods: 102 patients with IDA were examined, among them 61 women, 41 men, and the average age of the subjects – 35.2 ± 7.5 years. The diagnosis was verified on the ground of a set of data from blood test.

Results: At the beginning of the research we provide Fe supplementation therapy to all the patients for 6 weeks. After that we divide all the patients into two groups: 1 – with good response to therapy (39 patients) and 2 – with weak response to therapy (63 patients). Then to all of patients was evaluated level of HP contamination by the ¹³C-urea breath test. In most of patients with weak response for oral Fe supplementation (57 or 90.5%) therapy was detected HP contamination. As a result of the study, it was found that patients with HP infection have higher levels of serum Fe and ferritin as far as hemoglobin and RBC ($p < 0.05$). The level of contamination of HP correlated with a decrease in the level of iron metabolism and anemia parameters. It was also found that the level of hepsidin was significantly higher in the group of patients with comorbid pathology (84.2 ± 6.5 pg / ml) than in patients not infected with HP (62.1 ± 5.1 pg / ml). For all he patients in group 2 was proposed eradication of HP for 14 days with continuing of Fe supplementation for 6 weeks. HP was eradicated in 56 of the 57 patients. In all of them, IDA recovery was observed at the 6-weeks follow-up visit after HP-eradication ($p < 0.05$). This corresponded with the reduction of hepsidin level in this groupe (to 67.5 ± 8.2 pg / ml, or for 19.8%, $p < 0.05$).

Conclusions: Hence, the contamination of the HP stomach mucosa is likely to be a cause of unexplained cases of IDA, and successful eradication therapy can probably lead to a leveling of symptoms of IDA refractory to iron monotherapy.

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FEATURES OF TREATMENT OF PATIENTS WITH LIVER ABSCESES

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Introduction: Liver abscesses (LA) are extremely serious illnesses with difficult clinical course of illness and high rates of lethality.

Aim: The purpose of the work: to analyze the results of the complex treatment of patients with LA, including the use of mini-invasive interventions under the control of ultrasound, to estimate the advantages and disadvantages of these technologies.

Materials and methods: We analyzed the results of treatment of 27 patients with LA who were on inpatient treatment at the Clinic of General Surgery, Sumy State University. The age of the patients ranged from 36 to 65 years. Men were 17, women – 10. Single abscesses were observed in 20 patients, multiple – in 7. Volume of fluid formations ranged from 10 ml to 100 ml. The purulent centers are more often affected by the right lobe of the liver – in 18 patients, left – in 6, both particles – in 3 patients. In the right lobe it was mainly 7 and 8 segments, in the left – 3 and 4. The time from the onset of the disease to the hospital was from 10 days to 1.5 months. LA, as a rule, were of secondary character.

Results: Through the use of mini-invasive technologies under the control of ultrasound, 27 patients were operated. Punctions were performed under the control of ultrasound and dopplerography. Indications for this method of treatment were abscesses in diameter of 3-4 cm or more. Duration of drainage was from 10 to 28 days. In the postoperative period, all patients were required to conduct a control ultrasound to study involutational changes in the residual cavities of the poisons. There was a clear correlation with clinical and laboratory parameters of the disease. The duration of inpatient treatment ranged from 7 to 16 days. The microbial landscape of the LA was as follows: *Staphylococcus* spp., *E. coli*, *Citrobacter* spp., *Enterococcus* spp. All patients at the beginning of treatment received cephalosporins III-IV generation, aminoglycosides, fluoroquinolones. After receiving sensitivity to antibiotics, antimicrobial therapy was prescribed for correction. The reason for recurrences of abscesses in 2 patients was the presence of small sequesters of necrotized liver parenchyma, which supported the purulent-inflammatory process. There was no morbidity.

Conclusions: Thus, the use of puncture-drainage technology under the control of ultrasound in patients with LA is an effective method of their treatment and an alternative to traditional open surgery.

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CHRONIC PELVIS PAIN SYNDROME IN WOMEN

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Introduction: Chronic pelvic pain is the most common syndrome that accompanies different gynaecological diseases in women. The main pathogenetic factors of pain in gynaecological patients are changes in blood filling of pelvic organs and intoxication. Microcirculation disturbances leads to tissue ischemia, tissue hypoxia and release of neurotransmitters serotonin, histamine, acetylcholine, arachidonic cascade, including prostaglandins which leads to inhibition of progesterone and development of hyperplastic endometrial processes. The treatment of pain by using NSAIDs, inhibitors of the cyclooxygenase enzyme system, helps in relieving inflammation and pain, but have no adverse side effects. There is a large selection of COX-2 inhibitors, such as meloxicam, nimesulide.

Aim: The aim of the work was to study the clinical efficacy and prospects of the use of selective COX-2 inhibitors in the treatment of chronic pelvic pain syndrome in women.

Materials and methods: There were 87 patients aged 32-58 years had taken treatment with COX2 inhibitors. The main group consisted of 48 patients, who were assigned to take selective COX-2 inhibitor (i/m). Indications for its use in 27 patients (group I) against the background of chronic inflammatory process of genital organs and adhesive disease with a sharp pain syndrome. In 21 patients (subgroup II) against the background of chronic urethro-vesicular syndrome, a selective COX-2 inhibitor was used.

Results: The Prophylactic use of the selective COX-2 inhibitor for 3 days by triggering pain moments, such as severe neuropsychiatric stimulation, overcooling, physical activity. Contraindications to the use of the selective COX-2 inhibitor were the exacerbation of the ulcer, hemostasis disorder, renal failure, weakness, depression, irritability.

When analyzing the quality of life indicators 3 months after the start of treatment for women of both groups, a significant difference has been noted in terms of the integral index score and in the assessment of sleep disturbance, anxiety, depression and conflicts in the family. This testifies to the best social relationships of women who received a selective COX-2 inhibitor.

Conclusions: The use of selective COX-2 inhibitors in women with Chronic pelvic pain syndrome in the background of chronic inflammatory processes of genital organs and chronic urethro-vesicular syndrome. The complex treatment of selective COX-2 inhibitor promotes faster positive changes in the clinical course of the disease and improves their quality of life.

DYNAMICS OF THE LEUCOCYTIC INTOXICATION INDEX (LII) IN THE PERIPHERAL BLOOD OF CHILDREN WITH ACUTE INTESTINAL INFECTION (AII)

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Introduction: Diagnostic methods must meet many requirements: objectivity, high informative, fast execution, low cost, less traumatic for the patient, and others like that. In this regard, the study of the LII in children is very important, since it is nontraumatic, economical, easy to implement, and most importantly, it enables the activity of the infection process to be established and, due to this, it is timely to allocate adequate therapy.

Aim: Establishing the dynamics of changes in the LII of peripheral blood of patients with Acute Intestinal Infections and its diagnostic value.

Materials and methods: We surveyed 53 children aged 1 month, up to 18 years old. Thirty-three patients with moderate severity of the disease and 20 – with severe disease, who were on inpatient treatment at the Sumy city children's hospital. The children were inspected at the beginning of the disease before the appointment of antibiotic therapy and during the early recovery (5-6 days of the disease).

Results: LII depends on the severity grade of Acute intestinal infection (AII) in direct ratio. Children diagnosed with severe form of AII had LII value reliably higher compared to patients with moderate severity grade ($p < 0.001$). There was in 3,6 ($p < 0.05$) and 11,0 ($p < 0.001$) times higher LII value in group with moderate or severe form of AII respectively when compared to control. It was established a positive dynamics for endogenic intoxication integrative value during prescribed treatment. This index had significantly decreased in both patients with moderate and severe AII (0,32 nominal units (NU) and 0,47 NU respectively, $p < 0.001$) by 5-6 day that indicates the decrease in intensity of intoxication.

Conclusions: Children with acute intestinal infection in the height disease period have a significant increase of Leukocyte intoxication index (LII). This indicator was higher in children who had a hard form of the disease than in children with moderate. The return of the LII indicator to normal values was noted in the recovery period, Thus, LII is available for identification and is a sensitive method for assessing the activity of the inflammatory process and the severity of the course of Acute Intestinal Infections, and also serves as a criterion for the effectiveness of therapy in children.

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ASSESSMENT OF RISK FACTORS AND EJECTION FRACTION WITH SEVERITY OF CORONARY ARTERY DISEASE IN PATIENTS WITH ACUTE CORONARY SYNDROME

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Introduction: Percutaneous coronary interventions (PCI) widely used in cardiology since 1953. Today PCI is priority strategy in the treatment of patients with acute coronary syndrome (ACS).

Aim: The purpose of our work was to analyze association of coronary artery damage severity according to the data of coronary angiography (CAG) with risk factors for coronary heart disease development, features of the clinical sign and indicators of the left ventricle systolic function in patients with ACS.

Materials and methods: 102 patients with diagnosis of "acute coronary syndrome" were involved in this study. which was CAG with subsequent stenting was performed. Risk factors of CAD (overweight or obesity, type 2 diabetes, smoking, family history of cardio-vascular diseases) were evaluated for all patients, time of admission to the clinic (up to 2 hours, 2-12 hours, 12-24 hours after the development of the symptoms of ACS), left ventricular ejection fraction (EF) and their association with coronary artery lesion.

Results: The results showed that patients with ST segment elevation myocardial infarction were prevalence (78,43%), 16,67% were patients with non-ST segment elevation myocardial infarction and 4.9% with unstable angina in the structure of treated patients with ACS. Only 8.82% of the patients were admitted to the hospital in up to 2 hours, and all others from 2 to 12 hours. One vessel's lesions were detected in 26.47% of patients, two vessel's disease – in 37.25%, lesions of three vessels – in 22.54% of patients, and in other patients – stenosis of CA were less than 50% from their diameter. There was found an association with obesity ($r = 0.61$) and arterial hypertension ($r = 0.55$). There was no association with smoking ($r = -0.12$) and family history ($r = 0.09$). The angiographic degree of lesion correlated with the presence of diabetes mellitus ($r = 0.73$): all patients with this disease had a three-vessel's lesion of CA. EF less than 40% was also associated with a lesion of three coronary vessels ($r = -0.68$).

Conclusions: Thus, preventive measures for the development of ACS should be directed to adequate control of blood pressure and body weight in patients with CAD and hyperglycemia in patients with diabetes mellitus.

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POST-GRADUATE STUDENTS AND YOUNG SCIENTISTS SESSION**THE FEATURES OF OPERATIVE INTERVENTIONS IN PATIENTS WITH
NECROTIZING PERINEAL PHLEGMONS***Berezina K.M.**Research advisor: Kravets O.**Sumy State University, Medical Institute*

Introduction: Treatment of necrotizing phlegmon of perineum (NPF) is an actual problem in the whole world. Operative intervention is the basis of NPF treatment.

Aim: to study the features and analyze the results of surgical treatment of patients with NPF.

Materials and methods: The results of operative treatment of 7 patients with NPF were studied. The median age was $67,5\pm 6,1$ years. For the purpose of diagnosis, clinical and laboratory and radiological methods of investigation were used. All patients were operated under general anesthesia within 3 to 5 days from the onset of the disease.

Results: Active surgical tactics were used. The operation was of an emergency nature and was performed after minimal preoperative preparation. The operative intervention consisted in a wide dissection of foci of purulent inflammation, excision of affected tissues, bathing of wounds with solutions of antiseptics, followed by wide drainage. The borders of necrotomy were determined visually and with digital revision. The features was the creation of conditions for free outflow of purulent contents and good access of oxygen to the tissues, which was especially important for anaerobic infection. The content of wounds, without fail, was sent to a bacteriological study. Despite radical excision of the affected tissues, in 5 patients, subsequently, the purulent process spread to neighboring areas, which required repeated intervention with the addition of additional cuts-contrappers and excision of necrosis areas with additional drainage. In 3 (42,9%) patients, wound defects were healed by secondary intention. In 2 (28,6%) patients with extensive tissue defects, after cleansing the wounds, plastics were performed with local tissues. In both cases, satisfactory results were obtained. The average postoperative bed-day was $34,2\pm 7,3$. The duration of treatment depended on the timing of hospitalization and the size of damage. Two patients, who turned in later terms, died. Death came as a result of the spread of the purulent-necrotic process to neighboring areas, the growth of endotoxemia and multiple organ failure and the further development of sepsis.

Conclusions: In the operational treatment of NPF, an active tactic with the wide incisions, excision of necrosis and wide drainage should be used. During the treatment, stage operations (including plastic ones) should be used. The result of treatment depends on the timing of its beginning.

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THE COMPLEX TREATMENT OF NECROTIZING PERINEAL PHLEGMONS

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Introduction: Necrotizing perineal phlegmons (NPF), despite the rarity, remains a dangerous disease with a high mortality rate. The search for new effective methods of its treatment remains an actual problem of surgery.

Aim: to improve the results of treatment the patients with NPF.

Materials and methods: The analysis of the results of treatment of 7 patients with NPF was carried out. Among them were 4 (57,1%) women and 3 (42,9%) men. The age of patients ranged from 59 to 72 years ($67,5\pm 6,1$ years). During the first 3 days from the onset of the disease 3 (42,9%) patients were hospitalized, more than 3 days – 4 (57,1%). Diagnosis was based on clinical, laboratory, radiology and instrumental study methods.

Results: The main causative agents of infection were: *St. aureus*, *St. epidermidis*, *Str. haemolyticus*, *Escherichia coli*, *Ps. aeruginosa* and *Pr. vulgaris*. Associations of microorganisms were found in 5 (71,4%) cases. At the heart of the treatment was as early as possible surgical intervention, including a wide opening of purulent foci with excision of necrotic tissues and drainage. In 5 (71,4%) patients during the treatment, repeated operations were performed because of the progression of the purulent process and the need for performing secondary necrectomies. Wounds were bathed with 3% hydrogen peroxide solution, loosely filled with napkins with solutions of decasan, dioxidine, chlorhexidine. Local treatment was carried out taking into account the phase of the wound process. Dressings were performed 2-3 times a day. Patients were given intensive detoxication, anticoagulant, antibacterial, immuno-therapy, correction of homeostasis. The basic combination of antibiotics was: ciprofloxacin, ceftriaxone, metrogil. Carbapenems and cephalosporins of the IV generation were more often used as the drugs of reserve. In the treatment complex, all patients were treated with hyperbaric oxygenation. The duration of treatment was 27 to 39 days ($34,2\pm 7,3$ days) and was due the severity condition, the nature and area of tissue damage. Diabetes mellitus complicated the course of the disease In 4 cases. Two patients died. The cause of death was the steady progression of the disease with the development of intoxication and sepsis.

Conclusions: NPF is characterized by the destruction of perineal tissue with rapid spreading to the surrounding areas, pronounced intoxication. Treatment of the disease should be active, complex and begin as early as possible.

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GENDER DIFFERENCES IN PROCESSES OF MEMORY FORMATION AND INFLUENCE OF PIRACETAM IN RATS^{1,2,3,4}

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Introduction: Importance of gender differences discussed during long time with respect to pharmacokinetics and pharmacodynamics of novel and already known drugs, course of metabolic processes, difference in behavior and mechanisms which realize behavioral reaction in different sexes, etc. Moreover, better understanding gender aspect can help to better understand disease state and effectively treat them. If earlier view on gender differences was focused on the action of sex hormones, then recent studies indicate more global approach to this problem on different structural and functional levels. It is apparent to take into account gender issues and define the real impact to investigated phenomena. There is a lack of studies concerned on the gender differences in action of nootropic drugs on memory formation and learning and this research is addressed to this problem.

Aim: Comparative study the processes of memory formation in intact rats and under the influence of Piracetam.

Materials and methods: The processes of memory formation were studied using passive avoidance test (PAT). PAT includes the passive avoidance reaction with negative (pain) reward in apparatus which consists of dark and bright compartments (Stefanov, 2001). Time in dark compartments and entry latency were measured in 24 hours after foot shock learning. 24 white wild rats were divided into four groups: 2 control groups (male, female respectively, n = 6/per group), 2 treatment groups (male, female respectively, n = 6/per group). Treatment groups received daily intraperitoneal injection of 200 mg/kg reference nootropic drug Piracetam during 7 days.

Results: Experiment revealed the gender-dependent difference in memory formation. Male controls showed better remembering: time in a dark compartment (on the next day after foot shock) was in 2.5 times less than on the first day significantly. Female controls showed reducing of time in dark compartment in 1.7 times. Under the influence of Piracetam the results were opposite. Animals from female treatment group remained in dark compartment on the next day in 4 times greater significantly. Downward trend was observed for male treatment group. Entry latency was decreased in 8 times in female group significantly and did not change in male group.

Conclusions: The obtained results can be evidence of gender differences in neurophysiological formation of memory and pharmacokinetics of nootropic drugs. Further research is needed for better understanding of revealed findings.

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PARAMETERS OF ENDOGENOUS INTOXICATION IN PATIENTS WITH SALMONELLOSIS

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Introduction: Salmonellosis is one of the most widespread anthroponozoonotic disease in the world. The main clinical criteria of salmonellosis is endogenous intoxication syndrome.

Aim: study changes in indicators of endogenous intoxication, immunoreactivity of patients with salmonellosis

Materials and methods: During 2012 – 2017 189 patients with salmonellosis, which underwent medical treatment in Sumy regional clinical infectious hospital named after Z. Y. Krasovyt'skoho, were examined. They were taken to hospital at (2,26±0,08) day. All diagnostic and treatment procedures were carried out at patients' informed consent. The group contained 44 clinic anamnestic healthy blood donors aged (37.95±1.72) years old. The following was carried out: anamnestic data collection; clinical laboratory examinations: clinical blood analysis, integrative 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-lymphocyte ratio (NLR), lymphocyte-monocyte ratio (LMR), neutrophil reactive response (NRR), index of leukocyte and ESR ratio (ILES), lymphocyte index (Ilymph), eosinophils-lymphocytes ratio (ELR), index of allergization (IA), nuclear index (NI), index of intoxication severity (IIS).

Results: In the acute phase of salmonellosis there was a reduction contents in blood eosinophils, lymphocyte, monocyte and growing – segmented forms of leukocyte. It led to increase: LII – by 6.5–7.1 times, HII – by 8.5–10.0, ISL – by 2.5–2.7, IK – by 2.7–2.9 ($p<0.05$). There was a reliable increase – ILES (by 1.7–1.8 times), NLR (by 2.3–2.7); decrease – ILG (by 2.2–2.4) ($p<0.05$). NRR was considerably increased in all surveyed by 5.3–5.5 times ($p<0.05$). Ilymph decreased by 2.6–2.8 times ($p<0.05$). ELR reduced by 3.3–4.4 times and IA – by 2.8–3 ($p<0.05$). NI was increased by 7–8.3 ($p<0.05$). Presence of acute inflammatory process reflects IIS that increases by 28.8–34 ($p<0.05$).

Conclusions: On expressive endogenous intoxication and inflammatory reaction in patients with salmonellosis in acute phase specifies increase of integrative indexes of intoxication: LII, ISL, HII, NLR, NI, IIS, KI, and change of NRR – to decompensation. Simultaneous increase of ISL, EL ESR and decrease of ILG connected with endogenous intoxication and abnormality of immunologic reactivity affected by autointoxication. Decrease of Ilymph, ELR, IA caused by active adaptive reaction of leukocytes and immunodeficient disease cell type.

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STRUCTURE OF OPPORTUNISTIC INFECTIONS IN PATIENTS WITH HIV-INFECTION

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Introduction: HIV-infection in recent years has become one of the most important problems of our time. This is due to the fact that the disease is constantly progressing among the population and affects more and more people. The main cause of mortality among HIV-infected are opportunistic infections. Concomitant pathology aggravates the course of the disease.

Aim: to define the structure of HIV-associated infections

Materials and methods: Were research the medical records of 47 patients, who were treated at the Sumy Regional Clinical Infectious Diseases Hospital named after Z.J. Krasovitskiy in 2016-2017 years. The average age was (37,38 ± 7,53), the predominant males (72,34 %).

Results: Patients with the first clinical stage were – 5 (10,63 %), with the second stage – 0, with the third stage – 7 (14,89 %), and with the fourth stage – 35 (74,46 %). Oropharyngeal candidiasis was found in patients – 53,19 % ($p < 0.01$), that more often compared with other opportunistic infections, and comparatively less frequently: brain toxoplasmosis – 21,27 %, pulmonary tuberculosis -19,14 %, extrapulmonary tuberculosis of the nervous system – 8,51 %, pneumocyst pneumonia – 8,51 %, herpetic encephalitis – 4,25 %, chronic generalized cytomegalovirus infection – 4,25 %, papillomatosis of the mouth of the pharynx – 4,25 % extrapulmonary tuberculosis disinmited-2,12 %, encephalitis caused by the virus Epstein-Barr – 2,12 %. It was found complications: anemia – 23,40 %, leukopenia – 2,12 %. In patients with HIV, chronic viral hepatitis C and metabolic cardiomyopathy were found more frequently (57,44 %; 55,31 %, respectively, $p < 0.01$) compared with other concomitant pathologies: an anticopilia of the retinitis of both eyes – 23,53 %, chronic viral hepatitis B – 12,76 %, chronic pancreatitis – 4,25 %, chronic viral hepatitis D – 2,12 %, intestinal dysbiosis – 2,12 %.

Conclusions: Diagnosis of the first and second stages of HIV-infection is low. Opportunistic infections and concomitant illnesses aggravate the course of HIV-infection. The most common opportunistic infection is oropharyngeal candidiasis. Chronic viral hepatitis C and metabolic cardiomyopathy are predominate in the structure of concomitant pathology.

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ENDOTHELIAL PECULIARITIES OF HEART FAILURE IN PATIENTS WITH ARTERIAL HYPERTENSION AND TYPE 2 DIABETES MELLITUS

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Introduction: According to the World Health Organization arterial hypertension (AH) is observed in about quarter of the world's population. As a result of International Diabetes Federation report there are more than 425 million people with diabetes mellitus (DM) in the world. Heart failure is often presence in patients with AH and coexistent type 2 DM. Furthermore, cardiovascular complications are the leading course of morbidity and mortality in such category of patients.

Aim: The aim of our study was the determination of endothelial peculiarities of heart failure in patients with arterial hypertension and type 2 diabetes mellitus.

Materials and methods: Our trial involved 96 persons with AH and type 2 DM (I group), 15 practically healthy people (II group) obtained in Sumy City Clinical Hospital № 1 during 2014–2017 years. The age was $(62,31 \pm 0,2)$ and $(60,73 \pm 1,05)$ years, $p = 0,0166$; systolic blood pressure – $(153,0 \pm 0,07)$ and $(126,7 \pm 0,12)$ mmHg, $p < 0,0001$; diastolic blood pressure – $(101,9 \pm 0,04)$ and $(83,4 \pm 0,13)$ mmHg, $p < 0,0001$; glycated hemoglobin – $(8,48 \pm 0,14)$ and $(3,83 \pm 0,2)$ %, $p < 0,0001$ for patients from the I and II group respectively. The methods of our trial were clinical, anthropometric, biochemical, immunoassay, instrumental, statistical. The level of ET-1 was defined with the help of immunoassay. Heart failure was defined in 94 patients with coexistent pathology.

Results: The level of ET-1 is $(11,42 \pm 0,49)$ for patients with comorbidity and $(2,25 \pm 1,04)$ pg/ml, $p < 0,0001$ for practically healthy people. The II and III functional class of heart failure was presented respectively in 80 (85,11 %) and 14 (14,89 %) people with AH and type 2 DM. The ET-1 level was $(11,23 \pm 0,07)$ and $(11,57 \pm 0,05)$ pg/ml, $p = 0,0476$ respectively for patients with II and III functional class of heart failure.

Conclusions: The biggest level of ET-1 in patients with AH and type 2 DM confirmed the more expressive endothelial dysfunction in persons with such coexistent pathology compared with practically healthy people.

The increase of ET-1 levels proportionally to functional class of heart failure is the confirmation of important role of endothelial dysfunction in heart disorders for patients with AH and coexistent type 2 DM.

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MICROSCOPIC STRUCTURE AND MORPHOMETRIC PARAMETERS IN THE YOUNG RAT'S PANCREAS IN CASE OF ALLOXAN INDUCED HYPERGLYCEMIA OF MAN-MADE MICROELEMENTOSIS

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Introduction: The prevalence of diabetes mellitus is constantly increasing; it contributes essentially to the general structure of mortality, impairs the quality of life and ability to work. Alloxan operates on the cells of the pancreas causes significant changes in the structure and functioning of the pancreas. In the age aspect the changes in pancreas induce by using alloxan has not been studied enough. There is not enough morphometric data for the analysis of consequences in case of man-made microelementosis.

Aim: To study morphological changes and obtaining morphometric data of the endocrine part of the pancreas in young rats after alloxan- induce diabetes.

Materials and methods: The study was conducted in 12 rats. The group A considered of 6 intact rats in yang age. The group B considered of 6 rats in yang age, which was introduced alloxan at the rate of 150 mg/kg.. The tissues were processed histologically and haematoxylin and eosin staining technique was employed. Morphometric evaluations were obtained using software «Digimizer». Statistical analysis of the difference between mean values was performed using the Student's t-test. Probability values of $P=0,05$ were considered significant.

Results: Compared with group A, the number and area of pancreatic islets in the pancreas glands of animals of group B have decreased: number from $105,82 \pm 0,94$ to $100,81 \pm 0,84$ and area from $10659,84 \pm 51,52 \mu\text{m}^2$ to $8680,24 \pm 82,39 \mu\text{m}^2$ ($p < 0,045$). Mean of the nuclear diameters of cells of islets of Langerhans in a group A is $5,14 \pm 0,05 \mu\text{m}$, in a group B – $4,00 \pm 0,14 \mu\text{m}$ ($p < 0,04$). The mean of the nuclear-cytoplasmic ratio of islets cells in a group A is $0,64 \pm 0,02$, in a group B – $0,43 \pm 0,03$ ($p < 0,05$). In islets there is a significant amount of α - and β -cells expressing dystrophic changes. There has also been a decrease in the number and polymorphism of the secretory pellets of the material, mostly of small sizes. Observation was accompanied by microscopically destructive changes in pancreatic islets.

Conclusions: Consequently, the effect of alloxan in conditions of man-made microelementosis causes deterioration of the structural organization of the islet apparatus of the pancreas. Morphological changes in the structure of pancreas in conditions alloxan-induced hyperglycemia is characterized by reduction of area and number of islets due to the loss of β -cells, edema and destructive changes.

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VIRUS HYPATITIS B IN DROP: DYNAMICS OF REPLACEMENT IN UKRAINE

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Introduction: In Ukraine, viral hepatitis B (HBV) has a dominant role in the structure of infectious pathology due to its negative impact on the health of the population. The number of diseases for this pathology is 5-6 times higher than the official statistics: there are 5 to 6 anicteric registered in the first form of HBV, and the number of carriers of the virus in Ukraine exceeds 1 million people.

Aim: Study the dynamics of HBV incidence in Ukraine.

Materials and methods: The statistical data of the Sumy region infection hospital named after Z. Krasovitsky and the Ministry of Health of Ukraine for 2009-2017 are used. Common methods of statistical and epidemiological analysis are used.

Results: In Ukraine, there was an increase in the number of patients with acute HBV in the adult population by 2011(2009-451,2010-344,2011-2201) cases, followed by decrease(2012-1829,2013-1730,2014-1615,2015-1756,2016-1381, 2017-1348)cases. In the ranking of the number of patients with chronic HBV among the regions – the highest recorded in Donetsk(2011-465,2012-400,2013-365) cases and Kiev(2015-165,2016-146,2017-91)cases. The smallest was in Chernivtsi region(2010-9persons) and Ivano-Frankivsk regions(2017-11cases). The number of registered patients with HBV in the Sumy region ranged from 21 to 50 persons with a peak in 2015(2009-22,2010-21,2011-42,2012-29,2013-37,2014-44,2015-50,2016-51, 2017-23)cases. In Ukraine, the largest number of cases was registered in 2015 and 2013(1810 cases), with fluctuations ranging from 708 cases (in 2010) to 1506 cases(2017). The highest number of cases was registered in Nikolaev(2015-178 cases),Kharkiv(2017-135 cases), the least – in Cherkassy and Chernivtsi(in 2010-2 cases),Chernihiv region(2017-15 cases). In Sumy region, the largest number of chronic HBV diagnoses was detected in 2011(127 cases), with variations ranging from 61 to 97 cases.

Conclusions: In Sumy Region,Ukraine,there is a possibility of decreasing the incidence of acute HCV and chronic HBV. This may be possible by changing several factors such as:inaccessibility of diagnostics for the population, the lack of proper registration of diseases,treatment of patients with medical assistance in the late stages of the disease.

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ANTIBACTERIAL ACTIVITY OF ZNO NANOPARTICLES (SPHERICAL AND TETRAPODS) ON GRAM-NEGATIVE ESCHERICHIA COLI

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Introduction: For nanoparticles (NPs) the most common shape is spherical, although other shapes have also been reported. The tetrapod shape is very unique in the sense that it exhibits a three dimensional geometry. The concentration of NPs directly effects toxicity because a larger concentration of NPs emits more ions. As a consequence, the NP dissolution is localized around the bacterial cell membrane, with the kinetic of dissolution depending on the size and shape of the NP. Oxygen vacancies in ZnO structures can influence their cytotoxic behavior. A decrease of oxygen vacancies can be achieved by heating the tetrapods in an oxygen rich environment or the inverse can be achieved by illuminating them with UV light or treated with H₂O₂.

Aim: Aim of the study is an investigation of spherical and different treated Zinc oxide tetrapods (ZnO-T) nanoparticles antibacterial activity on Gram-negative bacteria (*Escherichia coli*).

Materials and methods: To prevent clumping a homogenized suspension was prepared by sonication ZnO-T nanoparticle in nutrient broth with ultrasonic devices. a) H₂O₂ 30% solution treatment for 90 min, rinsed with water and dried at 75°C. b) illuminated with UV lamp (254 nm wavelength) over night. Spherical ZnO NPs were not treated. *E. coli* had been isolated previously from patients and standard strains. All the bacterial isolates were grown on nutrient broth with final concentration of ZnO nanoparticles (spherical and tetrapods) 16, 8, 4, 2, 1, 0,5 µ/ml. Tubes were shaken overnight at 300 rpm and 37°C. Broth dilution method was used to evaluate the minimal inhibitory concentration (MIC) of ZnO-NPs.

Results: Normal ZnO-T at a concentration of 2 for strains isolated from patients and 0,5 µg/mL for standard strains have completely inhibited the growth of *E. coli*. The MIC for spherical zinc oxide nanoparticles amounted to more than 8 µg/mL. Complete growth inhibition has not been observed even at 8 µg/mL both for treated with UV illumination ZnO particles and treated with hydrogen peroxide against clinical and museum strains.

Conclusions: Tetrapods ZnO NPs were shown to be more potent than spherical zinc oxide nanoparticles. Minimum inhibitory concentration (MIC) value for NPs was lower for standard museum strain in comparison with the patients strains for this isolates. However, sensitivity of *E. coli* to these metallic NPs does not vary according to the different types of the treatments.

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THE IMPORTANCE OF BLOOD TESTING IN HIGH-LEVEL ATHLETES TRAINING PROGRAMS

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Introduction: Training of high-level athletes requires new effective preparation's managing and controlling ways. It also requires new markers, which could show the athletes' current abilities level. One of such markers is a regular blood test, which shows the most important indicators of athlete's blood, such as hemoglobin, numbers of red blood cells, lactate acid concentration etc.

Aim: to study and apply the results of the blood system's analysis in training programs of Ukrainian National Athletics team.

Materials and methods: literary and documentary sources analysis, survey, mathematical methods of statistics.

Results: 20 athletes, members of Ukrainian National Athletics team, were questioned, whether innovation training methods are involved in their training process. One of these methods is regular blood testing during their training season. Among these athletes, three are Olympic medalists, World championships medalists, European Championship medalists and Ukraine National champions. The research showed that only 25% of the respondents use such innovation method, as a regular blood testing. Most of Ukrainian top-athletes don't know their blood indicators that could lead to some mistakes in their training programs. Most of respondents (35%) use blood test only during training camps, but these researches aren't connected with current athlete's abilities and fatigue level, and are not regular. 30% of respondents used blood test only once or twice in their career and, of course, such researches couldn't give any useful information for athletes and coaches. At the same time 10 % of respondents never used blood test during their training process.

Conclusions: Regular blood testing during training cycles could help to build up more effective training programs for Ukrainian athletes during preparation for the Olympic Games in Tokio-2020, that, in its turn, could improve results of Ukrainian National Athletics team.

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MACRO- AND MICROELEMENT COMPOSITION OF YOUNG RATS' LIVERS UNDER THE INFLUENCE OF HEAVY METALS SALTS

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Introduction: The rapid development of industry, the active use of fertilizers and pesticides in intensive agriculture, the rapid development of the market of mobile devices, produce and exploit lead and nickel-cadmium rechargeable batteries leads to increased pollution of the environment heavy metals. Cadmium and lead are classified as toxicants of the first class as highly dangerous to humans and animals (Zimmermann M., 2003). Cadmium and lead are easily penetrated through cell membranes, especially newborns and young organisms (Alese M. O., Agbaje M. A., 2018). They rapidly accumulate in the internal organs, primarily the kidneys, the liver, the duodenum, and are very slowly deduced (Skalny A.V., 2004). Cadmium and lead can cause a wide range of pathologies, are potent carcinogens, mutagens, teratogens, they has high embryotoxic and immunotoxic activity (Flora SJS, & Agrawal S., 2017).

Aim: The purpose of our work was to study the macro- and micronutrient composition of liver under the influence of cadmium and lead salts on the organism of young male rats' by methods of atomic absorption spectrophotometry.

Materials and methods: The study was conducted on two groups of white laboratory young (4-6 month) male rats, by 6 individuals in each. The first group was control, the second experimental one. Both animal groups were fed on the basis of daily standards, in free mode. Standard drinking water was provided to animals of control group ad libitum. The solutions of cadmium, lead, iron, zinc, copper salts a prepared in standard drinking water were provided to experimental group of animals in free mode. Salts solutions were prepared by dissolving the weighted portion of salt of the corresponding metal in distilled water. Concentrations of heavy metals were chosen at the upper limit of maximum allowable concentrations (MAC) of heavy metals in drinking water (DSanPiN 2.2.4-171-10, 2010). At day 30, animals were withdrawn from the experiment by overdose of anesthesia. Liver samples were taken out and weighed on the electronic precision scales OHAUS Pioneer PA213c (USA). Samples of livers were treated with nitric acid in autoclaves at high pressure for two hours at a temperature of 150-160 °C. The content of Ca, Mg, Fe, Zn, Cu was determined on a spectrophotometer S-115-M1 AT "Selmi" (Ukraine) with flame atomization in absorption mode.

Results: Consequently, the content of calcium, magnesium and iron in the liver of animals in the experimental group of young age decreased by 11.9% ($p = 0.002$), 21.3% ($p = 0.01$) and 47.6% ($p = 0.005$), respectively. Zinc content in the liver of animals in the experimental group increased by 32.4% ($p = 0.003$). The concentration of copper in both groups, considering confidence intervals, was at the same level.

Conclusions: Thus, the distribution of macro and microelements in the liver of young rats under the influence of cadmium and lead salt solutions was found.

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IMPACT OF LOW LEVEL LASER THERAPY ON THE LEFT VENTRICULAR FUNCTIONAL CAPACITY IN HYPERTENSION PATIENT WITH HYPERURICEMIA

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Introduction: Uric acid (UA) is a strong and independent predictor of arterial hypertension (AH). The relationship between serum UA levels and hypertension can be difficult to evaluate because antihypertensive drugs sometimes affect UA levels. Low level laser therapy (LLLT) may be an alternative or complement to the standard treatments in AH patients.

Aim: to evaluate changes of the myocardial performance index in hypertension patients with hyperuricemia (HU) after LLLT.

Materials and methods: Total of 84 patients with AH were included in the research; they were divided into two groups according to the level of UA: the first group (AH) included 40 patients with arterial hypertension ($UA \leq 400 \mu\text{mol/L}$); the second group (HU+AH) included 44 patients with AH in combination with HU ($UA \geq 400 \mu\text{mol/L}$). Doppler index of myocardial performance (Tei) was evaluated by means of test in the structure of echocardiography. Patients were examined at baseline and after 2 weeks. LLLT course was provided by using of sterile optical fiber with $500 \mu\text{m}$ which was inserted into the cubital vein of the patient and joined with radiant head of the apparatus "Mustang-2000" with wavelength 635 nm . Power at the end of the light guide was 1.5 mW , irradiation power density in continuous operation was 0.2 W/cm^2 , fluence 0.2 J/cm^2 . Total irradiation dose of 900 sec exposures and the 10-procedure course was equal to 180 J/cm^2 .

Results: At the beginning of the study statistically significant difference was found in the indicators of the index Tei. The 1st group (AH) - 0.42, 2nd group (HU+AH) - 0.38, and the levels of average day BP also was significantly different ($p < 0.05$) for day systolic blood pressure (DaySBP) and day diastolic blood pressure (DayDBP): group AH - DaySBP 146 mm Hg, DayDBP 89 mm Hg, group HU+AH: DaySBP - 155 mm Hg, DayDBP - 92 mmHg, respectively. The correlation between the level of UA and Tei index was direct correlation $r = 0.47$ ($p < 0.05$). After the course of the LLLT the Tei index was increased to 0.58 ($\Delta\%$ 9.5) and to 0.41 ($\Delta\%$ 29.3) in the first and second groups. Similar dynamic was found in the analysis of the effect of LLLT on the level of serum UA: decrease UA in the first group by 3.9%, and in the second - by 18.7% ($p < 0.05$). After the treatment BP level was decreased in both groups: group AH - DaySBP - 136 mmHg (decreased by 8.2%) ($p > 0.05$), DayDBP - 80 mmHg (decreased by 10.1%) ($p < 0.05$); group HU+AH: DaySBP - 141 mmHg decreased by 9% ($p < 0.05$), DayDBP - 87 mmHg, decreased by 5.4% ($p < 0.05$).

Conclusions: There is relationship between the UA level and the functional capacity of the left ventricular myocardium in patients with AH. LLLT can be used to correct the systole-diastolic function of the left ventricular myocardium in hypertension patient with hyperuricemia.

OPTIMIZATION OF TREATMENT REGIMENS FOR PATIENTS WITH DIABETIC ANGIOPATHY WITH INTRAVENOUS LASER THERAPY

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Introduction: One of the most common complications of diabetes mellitus is lower limb angiopathy, which occurs in 70% of cases and leads to a number of severe pathological conditions, including ulceration.

Aim: The aim of the work is to optimize the treatment regimens for patients with diabetic angiopathy of the lower extremities with intravenous laser therapy.

Materials and methods: The study included 34 patients with type 2 diabetes mellitus, severe degree, compensation stage. All patients were diagnosed with diabetic foot syndrome II by E.Wagner, neuroischemic form. Patients were divided into two groups, the patients of the first group (17 patients) received standard treatment (antibiotic therapy, surgical treatment of the wound, "Tivortin" infusions), the patients of the second group received standard treatment with low intensity laser therapy (LILT). Intravenous laser therapy was carried out in a continuous mode on the Mustang-2000 apparatus via an intravenous light guide inserted into the lumen of the cubital vein, with a wavelength of 635 nm was used, the exposure 15 minutes, the radiation power 1.5 mW. The course consist of 10 procedures every day. The ultrasound was performed by the SonoScape S6Pro unit, the L741 linear sensor in the B-mode color Doppler mapping of pulse-wave Doppler. All patients underwent blood flow at the posterior tibial artery (PTA) and anterior tibial artery (ATA) to determine maximum systolic velocity (Vps) and resistance index RI.

Results: It was obtained the following results: in patients of the first group the evaluation of PTA flow demonstrated $Vps = 33 \text{ cm / sec}$, $RI = 1.57 = + - 0.03$, in ATA – 42 cm / sec , $RI = 1.27 + -0.02$; patients of the second group in the PTA – $Vps = 35 \text{ cm / sec}$ $RI = 1.58 = + - 0.03$, in ATA 43 cm / sec $RI = 1.31 + -0.03$. After treatment in patients of the first group at the PTA, $Vps = 35 \text{ cm / sec}$, $RI = 1.51 = + - 0.03$, in ATA of 45 cm / sec , $RI = 1.24 + -0.02$, in patients of the second group at PTA $Vps = 42 \text{ cm / sec}$ $RI = 1.39 = + - 0.03$, for ATA 49 cm / sec $RI = 1.26 + -0.03$. There was an increase in the linear blood flow velocities in patients of the first group in the PTA by 5.7%, in ATA – by 6.7%; in the patients of the second group in the PTA by 16.7% and in ATA by 12.2%, decrease in the resistance index in the first group in PTA by 3.8%, in ATA by 2.4%, in patients of the second group by PTA by 12% and ATA by 3.8%.

Conclusions: The use of LILT in the complex treatment of diabetic angiopathy of the lower extremities contributes to the improvement of blood circulation and trophic tissue of the lower limbs.

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MODERN TREND IN METHOD OF DELIVERY AT SUMY REGION

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Introduction: The rate of caesarian section worldwide has been increasing drastically in modern obstetrics. We present the latest Caesarian Section rates and trends over the last six month at Sumy Regional Perinatal Center by examine physician-documented indications for cesarean delivery in order to investigate the specific indications contributing to this increase.

Aim: Conduct an analysis of the frequency and indications for caesarean section in comparison with the world trends and find ways to reduce it.

Materials and methods: We conducted a retrospective analysis of 1121 medical delivery cards that occurred in the Sumy regional perinatal center for the period from January to June 2018 and ended with the operation of a cesarean section. Time trends for each indication were modeled to estimate often indication for cesarean over time and the relative contribution of each indication to the overall increase in primary cesarean delivery rate

Results: According to the latest data from Six month collected data at Sumy Regional Clinical Perinatal Center, from the total live birth delivery 1121, total caesarian section was 407 which is 36.3% where by elective c/s was 233 which is 57.2 % and the urgent c/s was 174 which is 42.8 % Most indications for c/s which was repeated most often, the first place is previous scar which was 113 – 27.7 %, second place is fetal distress 83 – 20.4% and third place is breech presentation 51 – 12.5 %

Conclusions: Most caesarian section is performed due to previous caesarian section. Changes in maternal population, society and in medicine are all factors that have been contributing to Caesarian Section rate increase.

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DYNAMICS OF ENDOGENOUS INTOXICATION INDICES, DEPENDING ON THE COURSE OF FLU

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Introduction: In the world, up to 1 billion cases of Acute Respiratory Infection (ARI) are registered annually. According to the Ministry of Health during the epidemic season (2015-2016), about 3,2 million patients with influenza and ARIs were registered in Ukraine.

Aim: Establish dynamics of endogenous intoxication indices, depending on the course of flu.

Materials and methods: 45 patients with a diagnosis of influenza were on stationary treatment at the SRCIH named after Z. Y. Krasovitsky. Patients were divided into two groups: first – patients who recovered (33 people, 73,3 %), second – who died (12, 26,7 %). Integrative indicators of endogenous intoxication – leukocyte index of intoxication (LII), the ratio of segmental neutrophils and monocytes (ISNM), lymphocytic granulocytic index (ILG), hematological index of intoxication (HII) and nuclear index (NI) were calculated. Statistical processing was performed using Microsoft Office Excel 2010.

Results: The patients who died applied for medical aid on $(4,66 \pm 0,65)$ day from the beginning of disease, and those who recovered – on $(3,70 \pm 0,40)$ day of disease. Patients in the first group $(37,7 \pm 2,5)$ years were younger than the second $(60,16 \pm 3,9)$ years.

At admission patients of the first group had the following indices of endogenous intoxication: LII was $(2,20 \pm 0,27)$, ISNM – $(13,0 \pm 1,51)$, ILG – $(2,77 \pm 0,33)$, HII – $(2,48 \pm 0,41)$, NI – $(0,34 \pm 0,09)$. Patients in the second group had significantly higher indices (LII – $(4,85 \pm 0,55)$, ISNM – $(19,05 \pm 1,41)$, ILG – $(4,75 \pm 0,22)$, HII – $(5,25 \pm 0,29)$, $p < 0,01$) except for NI that was at the same level – $(0,36 \pm 0,06)$. After repeated blood formula researches (on $(4,0 \pm 1,0)$ day of stationary treatment), a statistically significant increase of the following endogenous intoxication indices ($p < 0,05$) was found among patients in the second group: LII was $(5,92 \pm 0,50)$, ISNM – $(21,85 \pm 1,00)$, ILG – $(5,50 \pm 0,23)$, except for NI $(0,39 \pm 0,09)$ and HII $(5,68 \pm 0,31)$ which did not change significantly. In the first group, there was no statistically significant increase of endogenous intoxication indices.

Conclusions: During observed epidemic season 12 (26,7 %) elderly patients with a flu diagnosis died. A more pronounced increase of endogenous intoxication indexes (LII, ISNM, ILG) in patients of the second group in dynamics was revealed.

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COMBINED ANTIMICROBIAL EFFECT OF SILVER NANOPARTICLES AND ULTRASOUND.

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Introduction: Recently, there has been a rapid increase in the resistance of microorganisms in the treatment of patients with bacterial infections. Infectious-inflammatory processes caused by resistant strains are characterized by a prolonged course and frequent complications. In this regard, much attention is paid to the study of metal nanoparticles bactericidal action, that have already proven effectiveness. Silver takes the leading place among metals, and ultrasound (US) prevents the agglomeration of silver nanoparticles (Ag NPs) and enhances their interaction with bacterial cells.

Aim: To study the combined antimicrobial effect of Ag NPs and US.

Materials and methods: Quasispherical Ag NPs of 25-60 nm in size were prepared using the polyol method with use precursors such as PVP, AgNO₃ and ethylene glycol. The antimicrobial activity of Ag NPs with US was examined against clinical strains of *S. aureus*, *E. coli*, *K. pneumonia* and *C. albicans* by use tube dilution method. There were three types of experiment. In the first group suspensions of microorganisms were treated with low-frequency ultrasound (ultrasonic dispergator UZDN-A, SELMI, Ukraine) for 1 and 2 minutes duration, frequency 22±1.65 kHz. In the second group, Ag NPs were added to suspension of microorganism. In third group, the combined antimicrobial effect of Ag NPs and US was investigated.

Results: Low-frequency US did not show antibacterial effect. Ag NPs expressed bactericidal action against all tested microorganisms. Combination of Ag NPs with US caused the sharp decreasing of minimal inhibitory concentration against all tested microorganisms. Moreover longer time of sonication generated increasing of Ag NPs antibacterial activity. Minimal inhibitory concentration (MIC) of Ag NPs against *S. aureus* under application of US decreased from 25 µg/ml to 6,25 µg/ml (US, 1 min) and 0,1 µg/ml (US, 2 min). MIC of Ag NPs against *C. albicans* with the US addition decreased from 25 µg/ml (without US) to 0,78 µg/ml (US, 1 min) and 0,012 µg/ml (US, 2 min). MIC of Ag NPs against *E. coli* with the addition of US decreased from 12,5 µg/ml (without US) to 0,39 µg/ml (US, 2 min). MIC of Ag NPs against *K. pneumonia* decreased from 12,5 µg/ml to 6,25 µg/ml and 0,78 µg/ml respectively. The most sensitive to this combination was *C. albicans*.

Conclusions: Thus, the combined action of Ag NPs and low-frequency US on gram-negative and gram-positive microorganisms improve their antimicrobial effectiveness.

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THE PROBLEM OF TUBERCULOSIS IN THE SUMY REGION NOWADAYS

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Introduction: The struggle against tuberculosis in Ukraine has continued since the moment of independence, this problem is appropriate today. So in 1995, when the epidemic of tuberculosis was registered, 21459 patients were first diagnosed with a disease incidence of 41.7 per 100 thousand population, and in 2017, 27121 patients were diagnosed with tuberculosis and the incidence increased to 63.9 per 100 thousand population. In 1995, in Ukraine, the death rate from tuberculosis was 14.3 per 100 thousand population, and in 2017, the death rate decreased to 8.2 per 100 thousand population. The incidence of TB/HIV remains a valid driving force in the development of the TB epidemic in Ukraine. 5646 TB / HIV cases (new cases and relapse) were registered, an intensive rate of 100,000 population was 13.3%. The specialty of tuberculosis in recent years is the development of resistant TB, in particular, 6757 cases in 2017. Also, the number of cases of almost incurable tuberculosis with an increased resistance to anti-TB drugs, their share is about 15.5% of the total number of patients with MRTB in 2017.

Aim: Show the necessity to further research of tuberculosis in Ukraine

Materials and methods: The patients were found in the general medicine network in the current year, compared with the previous years.

Results: In Sumy region, in 2017, 769 patients with tuberculosis were found, which is 69.8 per 100 people. In the first half of 2018, 320 patients were diagnosed, in the same period last year – 317 people. In addition, over the past six months, 9 children and 2 adolescents were ill; in the same period in 2017, 8 children and 1 adolescent were diseased.

Conclusions: The problem of tuberculosis continues to be very acute and requires considerable attention both from health organizers and from general network physicians, including phthisiologists.

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AN EXPERIMENTAL STUDY ON PHARMACOLOGICAL ACTION OF THE CREAM WITH CERIUM DIOXIDE NANOPARTICLES IN CONDITIONS OF APPLICATION ON PHOTSENSITIZED SKIN

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Introduction. An excessive UV exposure leads to photodynamic injury and is a risk factor of melanoma, squamous cell carcinoma, and basal cell carcinoma development. Photoprotectors are used for prevention of these pathologies. Cerium dioxide nanoparticles (CDN) are considered among the most promising active compounds in this pharmacological group because of their ability to effectively reflect and scatter UV rays and their good safety profile. Thus the development of the topical formulation with CDN appears to be appropriate.

Aim. The study of pharmacological action of the cream with CDN on the model of photodynamic injury in guinea pigs with additional skin sensitization with ammifurin.

Materials and methods. CDN were synthesized in TOV 'NanoMedTech' (Kyiv). The cream with CDN was developed under the supervision of professor M. O. Liapunov (Kharkiv). The photodynamic injury in guinea pigs was modeled with the use of UV emitter with prior application of 1 ml of 0.3% solution of ammifurin as a photosensitizer. The cream with titanium dioxide was chosen as a comparator. Creams were applied preventively in the dose of 2 mg/cm². A degree of erythema intensity was assessed according to S. V. Suvorov colorimetric scale and the photoprotective activity (PPA) was calculated afterwards. The skin temperature, which is an integral sign of inflammation development, was measured in 4 hours after UV exposure. The wound healing effect was assessed by the number of days to complete healing of wounds in guinea pigs.

Results. The photoprotective action of the cream with CDN exceeded the one of the comparator – PPA values were 30.8% and 20.5%, respectively. The preventive application of the cream with CDN contributed to the less pronounced skin temperature increase – the studied index was 0.55 °C lower than in untreated animals, which indicated that studied formulation prevented inflammation. The wound healing action of the cream with CDN was confirmed by complete epithelization of the wound in 9.14 days, which was 44.8% faster than in untreated animals.

Conclusions. The results of current study confirm the photoprotective, anti-inflammatory, and wound healing actions of the cream with CDN, which indicates the expediency of its further development as an effective sunscreen.

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CHANGING THE CHEMICAL COMPOSITION OF LONG TUBULAR BONES OF RATS WITH DIABETES MELLITUS TYPE I

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Introduction: Diabetes mellitus (diabetes mellitus) is a group of metabolic diseases is determined by hyperglycemia, which is the result wrong insulin action, or two factors together. One of the chronic complications of diabetes is diabetic osteopathy, which pronounced from moderate osteoporosis to spontaneous fractures of the tubular bones. Metabolic changes that occurs in diabetes mellitus lead to a violation of the processes of remodeling of bone tissue. In condition shortage of insulin the activity of osteoblasts decreases, and the osteoclast activity, on the contrary, increases due to this bone reabsorption intensifies. With diabetes, the processes of demineralization of bones are clearly expressed. At the diabetes, the processes of demineralization of bones are clearly expressed.

Aim: The purpose: to explore the changes in the chemical composition of long tubular bones in aloxans-induced rats in native diabetic ranges.

Materials and methods: The determination of the chemical composition of the tubular bones was carried out using the atomic absorption method. Study of changes in the chemical composition of long tubular bones was performed on 40 white laboratory rats in mature age. The experiment lasts 30 days. For study, thighs and the shoulder bones of animals were modeled diabetes mellitus type I. During the course of the work, changes in the composition of calcium and phosphorus were detected on the 7th, 14th, 21st and 30th observation days throughout the experiment.

Results: Changes in the quantitative composition of calcium and phosphorus in the femur and shoulder bones of aloxane-induced rats are unidirectional. The amount of calcium in the control group rats was 2.46 mg., Phosphorus was 0.81. The amount of calcium decreased by 7 days by 0.8%, 14 days by 9.8%, 21 days by 2.5%, and by 30 days by 13.3% compared with the control, respectively. The content of phosphorus at 7, 14, 21, 30 days decreased by 2.5%, 6.5%, 6.5%, and 15.5%, respectively, compared to control.

Conclusions: This can be explained by the following. In a number of pathogenetic factors that induce the development of osteopenia in patients with diabetes mellitus is the formation and accumulation of end products of non-enzymatic glycosylation of proteins in the bones. The second probably cause of changes in bone mineral content in type I diabetes may be a shortage of vitamin D, which leads to loss of calcium and phosphorus in the urine. The above circumstances may explain the decrease in the content of calcium and phosphorus in bones in experimental type 1 diabetes mellitus.

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THE ROLE OF CIRCULATING TUMOR DNA IN BREAST CANCER PROGNOSIS

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Introduction: Nowadays breast cancer (BC) is one of the most urgent problems in clinical oncology. This is due to the steady and widespread increase in the incidence of this form of cancer, which occupies the first place in the structure of oncological morbidity in the female population. Hence the importance of finding and developing new diagnostic methods. A modern set of research techniques will be able to monitor the evolution of cancer and therapeutic efficacy. One of the most promising methods in this field is liquid biopsy, focused on the analysis of circulating tumor DNA (ctDNA) in the blood. The main advantages of the liquid biopsy over the tissue biopsy are its noninvasiveness and heterogeneity. However, the lack of standards and a small number of clinical trials are the main problems in the use of ctDNA in clinical practice.

Aim: The aim of our research is to determine the role of ctDNA as a diagnostic and prognostic marker in patients with BC.

Materials and methods: Patients with BC at different stages of treatment will be enrolled in the research. They will be divided into two groups according to the stage of the disease. The first group should comprise patients with locally advanced form of BC, the second – with a metastatic form. The examination before treatment for all patients will include standard tissue biopsy, computer tomography (CT), determination of amount of ctDNA in plasma and determination of serum biomarker CA 15-3. This list of diagnostic procedures (with the exception of tissue biopsy) for patients of the first group will be repeated during the neoadjuvant chemotherapy, before and after surgery, before and during adjuvant chemotherapy and after completion of treatment during the follow-up period. For the patients of the second group, receiving chemotherapy only, all the above procedures will be performed during the treatment and follow-up periods. Identification of mutations in ctDNA by sequencing is advisable before and after treatment in order to control the effectiveness of treatment and predict the possible disease recurrence.

Results: Research results should answer the questions about the dynamics of ctDNA in BC patients at different stages of treatment, as well as the correlation of the results of ctDNA determination with CT scan data and the results of biomarker CA 15-3 determination.

Conclusions: Consequently, the key areas of clinical use of liquid biopsy can be the early detection of cancer, prediction of patients with curable disease and monitoring of systemic therapy.

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ACNE VULGARIS IN MEDICAL STUDENTS

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Introduction: according to different authors the occurrence of acne in adolescents is 80-95% in varying degrees of severity.

Aim: to determine the incidence of acne in medical students

Materials and methods: A questionnaire-based cross-sectional study was conducted among 132 fourth year medical students at the Sumy State University (SSU). This questionnaire was adopted to the aim of the study in the Department of Family Medicine of SSU. Objective Clinical classification of acne severity was done using the Global Acne Grading System (GAGS). Each type of lesion was given a value depending on severity: no lesions = 0, comedones = 1, papules = 2, pustules = 3 and nodules = 4. The score for each area (Local score) is calculated using the formula: Local score = Factor x Grade (0 – 4). The global score is the sum of local scores, and acne severity was graded using the global score. A score of 1 – 18 is considered mild; 19-30 moderate; 31 – 38 severe; and >39 very severe.

Results: In determining the severity of the GAGS scale, the following data was obtained: mild form was diagnosed in 92 persons (69.7%), moderate – in 18 persons (13.6%), severe – in 1 person (0.75%). In a survey using the questionnaire 80 (61%) students had assessed their disease as a mild form of acne, 14 students (10.6%) – as moderate severity. 38 of the examined students (28.8%) denied the presence of acne. Obtained data isn't coincident with the results of the objective examination: only in 21 (16%) cases no acne elements were found. The presence of the elements on the back was noted by 44 out of 132 (33.3%) of the respondents, on the chest – 26 out of 132 (19.7%). It was founded the forehead is most susceptible place on the face to the appearance of acne elements: 42/132 (31.8%). Involving into pathological process two or more areas of the face was detected in 28/132 (21.2%) patients. 30/132 (22.7%) of the respondents had applied to the dermatologist, 66/132 (50%) had tried to treat acne by themselves.

Conclusions: in medical students the incidence of acne diseases in varying degrees of severity is 84%. Due to survey evaluation, only 71.6% of them estimate their condition as a problem. The level of appeal to the dermatologist is low and amounts to 22.7%, which leads to prolonged course of the disease and an increase in complications (post-acne scars at 15% and post-acne pigmentation in 18% of cases).

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RECURRENT ERYSIPELAS: CLINICAL AND EPIDEMIOLOGICAL FEATURES

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Introduction: Modern problems of erysipelas are determined by high morbidity rate (fourth place among infectious diseases), a clear tendency of the development of the disease relapses, the development of complications.

Aim: Of the study is to determine the clinical and epidemic characteristics of recurrent erysipelas, and the severity of endogenous intoxication.

Materials and methods: The hospital records of erysipelas in-patients, treated at the Sumy Regional Clinical Infectious Hospital after Krasovitskiy were examined and analyzed. Patients were divided into three groups of 25 people each: the first – with primary erysipelas, the second – with repeated one, and the third – with relapsing erysipelas.

Results: Women predominated among all the patients (79%). The inflammation was localized predominantly on the lower limbs (72%). Erythematous form of erysipelas was found most often (71%) The study of endogenous intoxication and immunoreactivity syndrome has been undertaken. In the acute period of the disease, all the examined patients showed raised integrative indices of intoxication: leukocyte index, hematologic index, leukocyte shift index, reactive neutrophil response ($p < 0,05$). Indices of non-specific reactivity: such as lymphocytes to monocytes ratio, eosinophils to lymphocytes ratio, index of allergy were decreasing ($p < 0,05$). The severity of the changes prevailed in recurrent erysipelas ($p < 0,05$).

Conclusions: Women (79%) are more likely to suffer from erysipelas with localization affecting mostly the lower limbs (72%) with predominance of erythematous form (71%). The increase of the ratios of endogenous intoxication indices is an evidence of active inflammatory process, tissue decay activation, and systemic immune response that are shown more in recurrent erysipelas.

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BACTERIOLOGICAL CONTAMINATION OF FOOD PRODUCTS WITH ANTIBIOTICRESISTANT STAPHYLOCOCCUS AUREUS

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Introduction: *Staphylococcus aureus* is one of the most common microorganisms. This is part of the normal microflora of human and animal skin. This microorganism produces a number of enterotoxins. When enterotoxins enter the human body with food, it can cause food poisoning. In addition, *S. aureus* is characterized by multidrug resistance, which greatly complicates treatment and preventive measures. Thus, the determination of the stability of *S. aureus* to different group of antibiotics is an urgent practice in the field of public health and food hygiene.

Aim: The aim of the study is to determine the resistance of *S. aureus* isolated from food to different groups of antibiotics.

Materials and methods: The study used 35 food samples: 10 samples of raw cow milk and 25 – of different types of meat (minced meat and turkey). Commodity products were purchased at certified stores. Of the samples studied, 23 isolates of *S. aureus* were isolated, in particular 10 from milk and 13 from meat. The isolation of pure cultures of *S. aureus* was carried out using the culture method using the Breed-Parker medium in accordance with the international standard ISO 6888 part 1 and 3M Petrifilm Staph Express CountPlate. The resulting isolates were tested for antibiotics, such as methicillin, erythromycin, gentamicin, and tetracycline. Resistance to antibiotics was determined by the method of discodiffusion using «Himedia» disks with antibiotics, according to the guidelines.

Results: In the course of the study, the following results were obtained: resistance to methicillin and erythromycin was found in 13 (56.5%) and 5 (21.7%) of *S. aureus* isolates, respectively. It was found that resistance to gentamicin and tetracycline is the same for both drugs – 20 isolates (87%). Strains isolated from milk were most resistant to gentamicin (100%) and tetracycline (80%). During the degree of these isolates were resistant to methicillin (50%) and erythromycin (30%). Strains isolated from meat are resistant to tetracycline (92%) and gentamicin (77%). They were less resistant to methicillin (62%) and erythromycin (15%).

Conclusions: Thus, the study showed a high level of *S. aureus* resistance to various groups of antibiotics. The most resistant to antibiotic samples were gentamicin and tetracycline (87%). The most common combination of multiple drug resistance is gentamicin and tetracycline. The meat strains were the most resistant compared to milk strains.

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DYNAMICS OF INDICATORS OF BIRTH OF NON-BASED NEWBORNS IN SUMY REGION

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Introduction: The birth of children is prematurely a major health concern around the world. This is due to the high mortality, high-cost methods of the treatment of infants born prematurely. And in the future this contingent of children is the basis of the morbidity among the children's population.

Aim: Conduct an analysis of the birth of preterm infants with terms of gestation and weight category in the Sumy region for 2016–2017.

Materials and methods: Statistical data of preterm infants in the Sumy region for the period 2016–2017.

Results: In 2017, 213 children were born prematurely in the Sumy region, 256 infants in the same period in 2016. Of these, in 2017, the number of late preterm infants born between 34 and 36 weeks of gestation is 107 (50.23%); moderately preterm, born in the period of gestation from 32 to 34 weeks, – 49 (23%); deeply preterm, born between the 28th and 32nd weeks of pregnancy, – 48 (22.54%); extremely preterm, gestation period of up to 28 weeks, – 9 (4.23%). In 2016, the number of late premature infants was 133 (51.95%), moderately preterm – 67 (26.17%), deeply premature – 52 (20.31%) and extremely premature – 4 (1.56%). The obtained data testify to the growth of indicators of deeply preterm infants in 2017 compared with 2016 – at 2.23% and extreme prematurely – by 2.67%. Children born between the 34th and 36th weeks of gestation and moderately preterm were more in 2016 compared with 2017 at 1.72% and 3.17% respectively. Analyzing the distribution of children by weight category for 2017 increased the number of births in the weight category from 1,000 to 1499 g compared with 2016 by 0.4%. Babies born with weight less than 1000 g decreased by 0.2%, 1500–1999 g – decreased by 1.3%. No significant changes were found in other weight categories.

Conclusions: In 2017, in Sumy region, 43 children were born prematurely less than in 2016. The number of late-preterm infants and moderately preterm infants decreased by 1.72% and 3.17%, respectively, compared with 2016. Children born with weight less than 1000 g decreased by 0.2%, 1500–1999 g – decreased by 1.3%. This may indicate an improvement in the quality of medical care. It is necessary to concentrate efforts on providing affordable qualitative medical care in order to reduce the incidence of negligence and the number of premature births.

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GLOBAL EPIDEMIOLOGICAL FEATURES OF MELANOMA AND VITILIGO

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Introduction: one human life long supervision of melanoma morbidity and mortality illustrates significant changes, sometimes up to 10 times. Whatever how successful is antimelanomic campaign in the world, medicine made most part of success in early diagnostic but treatment was not developed as much. Even worse is situation with vitiligo. It's known, that melanoma never appears in vitiligo plaques. Mirror essence of this two diseases inspires on efforts to investigate them. Noticeable difference in melanoma and vitiligo prevalence depends on skin color, average UV radiation, state financial opportunities, other, sometimes unexpected factors.

Aim: to find tips for hypothesis of melanoma treatment or vitiligo etiology research vectors.

Materials and methods: statistic method, research of medical documents, online databases, open sources.

Results: statistical information shows relation of melanoma appearance in white rather more frequent, than in black population, up to 15 times differ. On the contrary, vitiligo appears more frequent in populations with darker skin (2 times more often). As well the negative relation is present in between of melanoma mortality rate and GDP of investigated state. On the other hand vitiligo prevalence does not have any relation to state financial opportunities - equal 0,5% of morbidity in countries with 27 times differ GDP. Also melanoma prevalence growth does not have any relation to GDP of the country and expands rather more quick than vitiligo morbidity does.

Conclusions: This fact shows, that factors of melanoma prevalence growing are more supple than such factors of vitiligo. At the same time dynamic change of vitiligo treatment success has minimal progress unlike the melanoma has. So, even countries with significantly higher GDP can't impact vitiligo epidemiology. We will take liberties to assume, that study of this two diseases together will help to discover new abilities of treatment.

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DIAGNOSTIC FEATURES OF ACUTE INTESTINAL INFECTIONS

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Introduction: Acute intestinal infections (AII) are one of the most important health problems. There are registered up to 4,7 million episodes of diarrhea all over the world.

Aim: to study etiological structure of acute intestinal infections and improve laboratory criteria for AII diagnosis.

Materials and methods: Clinical and laboratory examination of 70 patients with AII caused by opportunistic microorganisms (OM) and viruses, and 140 patients with salmonellosis (S) for the period from 2012 to 2017, whose average age was 41.14 ± 1.20 years, and 20 healthy individuals. To determine the etiology of AII objective examination of patients, collection of anamnestic data; laboratory tests: Clinical blood test, bacteriological / virological examination of feces, serological and ELISA blood tests were used.

Results: In etiological structure of AII dominated *Kl. pneumoniae* (31.4%), ($p < 0.01$). *S* are dominant strains of *S. enteritidis* (69.0%), *S. typhimurium* (31.0%), ($p < 0.01$). Indices of endogenous intoxication were calculated, its growth was fixed in all patients in the acute period, but its level depends on the pathogen and is more pronounced in salmonellosis ($p < 0,05$). Thus, leukocyte intoxication index (LII) of patients with AII increased by 5.1 times, in patients with *S* – in 6.5 ($p < 0,05$). Hematological intoxication index (HII) of the examined AII increased by 6.5 ($p < 0,05$), and in group *S* by 8,1 times ($p < 0,05$). In its turn, the index of leukocytes shift (ISL) increased equally, regardless of its etiology, by 2.3 – 2.4 times ($p < 0.05$). A significant decrease lymphocyte index (Ilymph) was found by 1.8 – 2.1 times ($p < 0.05$).

Conclusions: In the etiological structure of AII is dominant *Kl. pneumoniae*. *S* causes dominant strains: *S. enteritidis*, *S. typhimurium*. The level of endogenous intoxication in patients with *S* is higher compared to patients with AII.

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DISTRIBUTION OF PATIENTS ACCORDING TO THE DEGREE OF ARTERIAL HYPERTENSION, DEPENDING ON SALT SENSITIVITY

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Introduction: Among cardiovascular diseases, the prevalence of arterial hypertension (AG) ranks first. It belongs to the "diseases of civilization". Among the environmental factors, high salt consumption is currently considered the most important risk factor of hypertension. Thus, many studies have shown that high salt intake significantly raises blood pressure in some individuals, others do not show variation or even decrease their blood pressure. This heterogeneity is classified as salt sensitivity and salt resistance. Epidemiological studies show that a moderate salt restriction in patients with essential hypertension (EH) leads to a clinically significant decrease in blood pressure.

Aim: The aim of this study was to investigate the dependence of the increase in blood pressure in salt sensitivity and salt resistance patients with hypertension.

Materials and methods: The study included 150 patients with essential hypertension with a median age of 54 years (42-65). All patients with arterial hypertension had 24-hour blood pressure monitoring by of ABMP 50, Heaco (United Kingdom). Everyone also determined the sensitivity of the salt with a method of VI. Kharchenko. So, all patients were divided into 2 groups depending on the presence or absence of salt sensitivity. The group of salt sensitivity patients was 81 peoples (53.7%), salt resistance was 69 peoples (46%) ($p = 0.042$). In a group of salt sensitivity patients, the distribution of blood pressure was performed according to international recommendations. Among the salt sensitivity patients, patients with essential hypertension (EH) of the 1st degree had 23 patients (28.4%), and with essential hypertension (EH) of 2 degrees – 58 patients (71.6%).

Results: As a result of our research, it is possible to trace the relationship between salt sensitivity and increased blood pressure. Moreover, the risk of increasing the degree of hypertension is growing among salt-sensitive patients.

Conclusions: In conclusion, the evaluation of salt sensitivity in patients with arterial hypertension can be used to optimize the choice of individual anti-hypertensive therapy.

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MORPHOLOGICAL CHANGES IN PERIODONTAL TISSUES AT OCCLUSION TRAUMA OF TEETH

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Introduction: Introduction. Correct and proportional ratio between occlusion and periodontal disease are the basis for the health of teeth and oral mucosa. Malfunction of this ratio can lead to occlusal trauma. Occlusion trauma is considered as structural and functional changes in periodontal tissues caused by excessive loads.

Aim: The purpose of the research was to identify and study morphological changes in periodontal tissues in the teeth occlusion trauma.

Materials and methods: Materials and methods. Occlusion trauma in 18 rats of experimental group was simulated by increasing the height of the lower right second molars by 1 mm using photopolymer material. 3 rats formed the control group. Histological examination of periodontal tissues was performed after taking the animals out of the experiment on 5th, 8th and 15th days, by decapitation under general thiopental sodium anesthesia by intraperitoneal injection.

Results: Results. The inflammatory reaction in the gums near corresponding teeth was not observed in the control group of rats during the whole period of the experiment. The periodontal ligament had a constant width, and the fibers passed from cement to the periosteum of the tooth alveolus. In the experimental group of animals, on the 5th day, the periodontal ligament was in a state of capillary stagnation, and several giant multi-nucleated cells were observed in it, closer to the surface of the interdental and inter-root partitions of the alveolar ridge. On the 8th day, the number of fibroblasts in periodontium decreased. There were also multicore cells in the central part of the periodontal ligament. On the 15th day, lacunae in the cement of the tooth root and the tooth alveolus bone were observed as a result of their resorption. In these niches there were large multinucleated giant cells.

Conclusions: Conclusions. Our research showed that occlusion trauma causes quite significant morphological changes in periodontal tissues, which require further study.

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DENTISTRY

THE BEST TYPE OF PLATE FOR TREATMENT OF MEDIAL MANDIBLE FRACTURES FROM STANDPOINT 3D SIMULATION

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Introduction: Typically, in studies involving stress-deformed state of plates that fasten mandible fractures to determine the possibility of its application and comparison with other types of plates, only two parameters are used. These are contact area of a sheet and a bone and the maximum stresses in it. It should be noted that these parameters do not describe the stiffness of bone parts attachment. Their displacement relative to one another can significantly affect the rate of fracture healing.

Aim: The aim of our study is the creation of anatomic-functional plates. This includes the method development of optimal plates for osteosynthesis.

Materials and methods: We have used the computer tomography, 3D computer simulation in the ANSYS Workbench software program (Shape Optimization module), mathematical methods.

Results: During our studies, we have investigated the effectiveness of treatment of median mandible fracture by a segment plate and bone-shaped plates of two different types. Two mandible fractures fixed by the segment plate, were displaced one in relation to one in the vertical direction of 0,2 mm. There were only the inner parts of the bones in contact that produced the pressure of 7 MPa. The maximum stress in the plate was 532 MPa, which was more than the material yield point of plate, but these voltages were in the rounding places. Thus to reduce the stresses it is necessary to increase the radius of these rounding places. Two mandible fractures fixed by the bone-shaped plate of type 1, were displaced one in relation to one in the vertical direction of 0, 1 mm. There were only the inner parts of the bones in contact; they were producing the pressure of 6 MPa. In its turn, there was a gap of 0.03 mm in the front part. The maximum stress in the plate was 329 MPa, this value was less than the yield limit. Two mandible fractures fixed by the bone-shaped plate of type 2, were displaced one relative to one in the vertical direction of 0,2 mm. There were only the inner parts of the bones in contact; they were producing the pressure of 6 MPa. There was a gap of 0.025 mm in the front part. The maximum stress in the plate was 404 MPa, this value was less than the yield limit. Every plate works on bending and torsion relative to different axes.

Conclusions: The most rigidity of fastening is provided by the bone-shaped plate of type 1

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INCREASE OF MAGNETS CORROSION RESISTANCE FOR ORTHODONTIC DEVICES

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Introduction: In addition to conventional orthodontic devices the apparatuses with magnets can be used to correct the occlusion. In this case the magnets don't have a negative influence on surrounding tissues only if they have complete isolation from the oral cavity. Now in scientific literature there isn't sufficient information on the passivation methods of magnets used in orthodontic devices.

Aim: Investigation of Nd-Fe-B magnets corrosion resistance with different types of coatings deposited to their surface and comparative analysis such coatings.

Materials and methods: It was investigated Nd-Fe-B magnets with zirconium oxide coating and photopolymer coating in comparison with uncoated magnet. Analysis of electrochemical activity of the magnetic material and coatings was carried out by measuring their electrode potentials in electrochemical cell with 0.9 % NaCl quasiphysiological solution.

Results: The electrode potential of magnet without protective coating corresponds to the potential of alloys based on iron. Applying of zirconium oxide protective coating up to 1 μm thick does not change the situation essentially due to its discontinuity connected to the technological complexity of the coating deposition. When oxide thickness was increased in 10-12 times, the electrode potential of Nd-Fe-B magnet is significantly shifted to positive values. This fact and the value stability of the electrode potential during long time indicate continuity of the oxide coating not only on the planes of the magnet but also on its corners and edges. Another way to isolate the magnet surface is covering of its surface with a photopolymer material. When photopolymer layer 0.4-0.6 mm forms, the good surface insulation of the magnet is achieved and its electrode potential had practically the same values as sample made of photopolymer only. This indicates a high continuity of the coating both over the planes of the magnet, and on its edges and corners.

Conclusions: The passivation of permanent Nd-Fe-B magnets, which are used in orthodontic devices, can be carried out in two ways having approximately the equal efficiency. In the case where it is necessary to maximally preserve the dimensions of magnet, it is expedient to use a vacuum method of zirconium oxide film depositing. This coating demonstrates a sufficiently high quality of magnet surface passivation already at thickness of the order of 10 μm . If, however, there are no particularly stringent requirements for the thickness of the coating, it is more expedient to use a photopolymer material for surface insulation. This technology is cheaper and easier to implement, and coating thickness of 0.4-0.6 mm provides the necessary level of passivation of the magnet surface.

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EXPRESSIVENES OF INFLAMMATORY REACTIONS IN PATIENTS WITH GENERALIZED PERIODONTITIS DEPENDING ON THE HYGIENIC STATE OF THE ORAL CAVITY

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Introduction: In patients with generalized periodontitis (GP), micro-ecological biotopes of the mucous membranes of the oral cavity (OC) are broken. High levels of pro-inflammatory mediators products are an indicator of inflammation, while their inhibition is the basis for switching to the process of reparative tissue regeneration.

Aim: to investigate the changes of cytokines in the oropharyngeal secretion of patients with generalized periodontitis, depending on the hygienic state of the oral cavity.

Materials and methods: Under our supervision there were 37 patients with GP 2 degrees. The state of hygiene of the OC was studied according to the method of Fedorov-Volodkina: to 1.5 points – good, from 1.6 to 2.0 points – satisfactory, 2.1-2.5 – unsatisfactory, 2.6-3, 4 – bad and 3,5-5,0 points – very bad. The content of cytokines (IL-1 β , IL-2, IL-4, TNF α) in the oropharyngeal secretion (OPS) was performed using an enzyme-linked immunosorbent assay. The mathematical processing of the data was performed using the Microsoft Office 2007, Microsoft Excel Stadia 6.1 / prof and Statistica licensed software packages

Results: In patients with a poor state of PA, the TNF α content increased 10.05 fold (at normal (5.6 ± 0.35) pg / ml, $p < 0.001$); IL-1 β was 8.93 times (at normal (8.2 ± 0.6) pg / ml, $p < 0.001$), IL-2 – 4.81 times (at normal (10.2 ± 1.1)) pg / ml; $p < 0.001$). In the unsatisfactory state of PA, the TNF α content increased by 6.04 times ($p < 0,001$), IL-1 β – in 5,63 times ($p < 0,001$), IL-2 – in 2,17 times ($p < 0,001$). In patients with satisfactory and good hygiene status of OC, the level of TNF α increased 3.29 times ($p < 0.01$), IL-1 β was 3.46 times ($p < 0.01$), IL-2 was 2.42 times ($p < 0.01$). The content of IL-4 in unsatisfactory state of PA was (1.0 ± 0.2) pg / ml (at normal (1.2 ± 0.3) pg/ml, $p < 0.01$), in patients with bad the state of OC – (1.1 ± 0.5) pg / ml ($p > 0.05$). With satisfactory and good hygienic status of OC, the content of IL-4 increased by 1.5 times ($p > 0.05$).

Conclusions: In patients with generalized periodontitis, the cytokine profile of the oropharyngeal secretion was characterized by high levels of TNF α , IL-1 β , IL-2, against the background of relative IL-4 α deficiency, which prevents the implementation of local immunological mechanisms in conditions of impaired oral hygiene.

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ASSOCIATION OF BSMI-POLYMORPHISM OF THE VDR GENE WITH THE DEVELOPMENT OF CHRONIC GENERALIZED PERIODONTITIS IN INDIVIDUALS OF DIFFERENT SEX

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Introduction: Periodontal disease is one of the most common pathologies of oral cavity among the population regardless of age, gender or geographical belonging of the individual. Today believe that one of the causes of periodontal pathologies is endocrine disorders. In this context, the active form of vitamin D is actively studied. The biological effects of 1,25-(OH)2D3 are realized through its interaction with the nuclear receptor VDR, which regulates the transcription of more than 500 genes in the human body.

Aim: The aim of our investigation was research the relations between VDR polymorphism BsmI and development of chronic generalized periodontitis (CGP) in individuals of different sex.

Materials and methods: Venous blood of 116 patients with CGP and 67 healthy individuals (control group) was used for genotyping. Analysis of VDR polymorphism BsmI (rs1544410) was examined by PCR-RFLP with the following restriction fragment length analysis of the allocation of them by electrophoresis in agarose gel. The value of $P < 0.05$ was considered as significant.

Results: Gender-based analysis showed that the frequency of genotypes b/b, b/B and B/B in control group women was not significantly different from females with CGP ($P=0.765$). In the male group, the ratio of homozygotes for the main allele, heterozygote and homozygote for the minor allele in the control group was 58.7%, 37.9%, 3.4%, and among patients with HGP – 31.5%, 43.9%, 24.6% respectively. Thus, the distribution of genotypes in males with CGP significantly different in the control group ($P=0.014$).

Conclusions: VDR gene BsmI polymorphism is associated with chronic generalized periodontitis development in male group of the Ukrainian population.

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PREVALENCE OF INVASION OF ORAL PROTISTS IN PERIODONTAL POCKETS

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Introduction: In patients with periodontal inflammatory diseases, in addition to a diverse microflora, fauna also vegetates in periodontal pockets. It is represented by oral protists of two types: oral *Trichomonas* (*Trichomonas tenax*) and dental amoeba (*Entamoeba gingivalis*). Their role in the pathogenesis of periodontal disease is not fully understood, but they are not natural representatives of the oral cavity.

Aim: The aim of the research was to study the frequency of oral protists detection in patients with periodontitis.

Materials and methods: Protozoological studies were conducted in 120 patients with periodontitis and 40 persons with intact periodontium. The contents of periodontal pockets and gingival sulcus were collected. The protists were detected by microscopy in a crushed drop of a native preparation, a stained smear, and in a liquid nutrient medium. In the smear, the number of individuals in the field of vision was determined.

Results: *Trichomonas tenax* was detected in $55.0 \pm 8.9\%$ (CI95%=45.7-64.1) of patients, of which $53.9 \pm 5.5\%$ (CI95%=43.0-65.0) – women, $58.1 \pm 8.9\%$ (CI95%=39.1-75.4) – men ($p > 0.05$). The severity degree did not influence the frequency of *Trichomonas tenax* detection. Thus, with a light periodontitis period, they were found in $57.7 \pm 6.9\%$ (CI95%=43.2-71.3), with an average – $58.3 \pm 8.2\%$ (CI95%=40.8-74.5), with a severe – $41.7 \pm 8.2\%$ (CI95%=25.5-59.2) of patients. There were no reliable data on the effect of the age of patients on the frequency of protists detection in periodontal pockets ($p > 0.05$). Depending on the degree of disease severity, the number of individuals varied, at a light degree – 6.6 ± 0.2 , at an average degree – 11.6 ± 0.5 , at a severe degree – 18.7 ± 1.0 of trichomonads were detected in the field of vision of the smear. There were not detected trichomonads content of gingival groove in the group of patients with intact periodontium. *Entamoeba gingivalis* was revealed in 100% of patients with periodontitis, but it was not found in patients with intact periodontium.

Conclusions: Invasion of *Trichomonas tenax* in periodontal pockets occurs in more than half of patients with periodontitis. It does not depend on sex, age of patients and disease severity. With increasing the depth of periodontal pockets, the number of protists increases. *Entamoeba gingivalis* vegetates in the periodontal pockets of all patients and is absent in healthy individuals.

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BIOMATERIALS FOR MEDICINE**CYTOTOXICITY OF CHITOSAN-BASED HEMOSTATIC MATERIALS**

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Introduction: Intraoperative hemostasis of parenchymal bleeding in many cases needs to be applied hemostatic materials which remains in the body. These materials are bio- or synthetic polymers in different form: membrane, sponge, gel, glue, dispersion solution. All of them must be effective, non-toxic, biodegradable, biocompatibility, nonpyrogenic and non-allergic. Chitosan has hemostatic properties, a bacteriostatic effect, but some forms may have toxic effects.

Aim: The aim of our research was study of cytotoxicity of chitosan-based sponges.

Materials and methods: We used sponges were obtained from a 2 % solution of chitosan with a molecular weight 300 kDa. There were sponges of chitosan acetate, chitosan ascorbate, chitosan lactate, chitosan oxalate, the second set of samples were with tranexamic acid. To determine cytotoxicity culture of human fibroblasts have been used, that incubated in DMEM medium. Analysis of live/dead cells was performed using the combined method of staining cells FDA/PI.

Results: Studies of cytotoxicity of sponges after 3 days of cultivation indicated that the pure chitosan acetate was toxic but highly adhesive for cell culture. Sponges of chitosan ascorbate and oxalate had high toxicity, fibroblasts did not adhere completely on their surface. Chitosan lactate showed slight adhesive properties, however, it was toxic. The chitosan acetate sponge with tranexamic acid is non-toxic, highly adhesive and also contributes to the growth and spreading of fibroblasts on its surface. Sponges of ascorbate and lactate chitosan with tranexamic acid showed good adhesion, but had a moderate toxic effect, resulting in death from 35 to 45% of cell population. Chitosan oxalate with tranexamic acid was absolutely toxic and resulted in the complete death of cell culture. He also did not exhibit any adhesive properties.

Conclusions: Therefore only sponge of chitosan acetate with tranexamic acid can be the potential material for hemostatic sponge developing.

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EFFECT OF PH OF THE SOLUTION ON THE STRUCTURE OF NANOCRYSTALLINE HYDROXYAPATITE

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Introduction: The most promising materials for replacing lost bone tissue are calcium phosphates, for example hydroxyapatite (HA) – the main component of bones and tooth enamel. For a stoichiometric HA, the Ca / P = 1.67 ratio is typical, and its deviation indicates a structural disruption or the presence of concomitant calcium phosphates. Methods of synthesis of HA affect the structure, solubility and bioactivity of materials for implantation, which determines their behavior in conditions of a living organism.

Aim: The purpose of the work is to study the effect of the pH of the maternal solution on the structure of the synthesized material and the selection of the interval of pH values for the formation of stoichiometric HA.

Materials and methods: 50 ml of 0.1 M $(\text{NH}_4)_2\text{HPO}_4$ was added dropwise to the 50 ml 0.167 M $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$ for the further reaction. pH of the resultant solution was adjusted to 7; 9.4; 10.5; 12 by 10 ml of ammonia solution. The reaction was carried out at 80 °C for 10 min, followed by aging for 24 h. Then, samples were washed and the solid fraction was centrifuged and dried at 37 °C. To obtain the samples with the high enough crystallinity for the determination of the crystal structure parameters they were burnt at 900 °C. The X-ray diffraction studies were performed with diffractometer DRON-3 (LTD «Burevestnik»). $\text{CuK}\alpha$ radiation (wavelength 0.154 nm), θ -2 θ Bragg-Brentano focusing method was used. The scan was carried out in the continuous registration mode (1 °/min rate) and 2 θ range from 10° to 60°.

Results: According to the XRD data, the phase composition of the samples was determined, the parameters of the elementary cell were calculated, and the average crystallite sizes were determined by Selyakov-Sherrer formula. It is established that obtained HA corresponds to JCPDS 00-024-0033 card. In the synthesized at pH=7 samples the main phase was β -TCP (78.6 %), which corresponds to JCPDS 00-003-0681 card. For the sample synthesized at pH = 9 β -TCP content was 6.6%. The parameters a and c of the crystalline lattice, synthesized at pH = 10.5, correspond to stoichiometric HA, for which a = 9.42 Å, c = 6.88 Å. For samples synthesized at pH 7, 9.4 and 12 deviation of the a parameter is observed.

Conclusions: It was established that the HA obtained at the pH = 10.5 for the crystallographic database corresponds to JCPDS 00-024-0033, the ratio Ca / P = 1.67. The pH = 10.5 is defined as the optimal value for stoichiometric hydroxyapatite.

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DEGRADATION OF AJ62 MG ALLOY IN SBF

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Introduction: Nowadays biomaterials are widely used for trauma and orthopedic surgery. Magnesium alloys as biodegradable metals are advantageous materials for medical application as bone implants. Mg is an essential element, which demonstrates biocompatibility and a tensile strength that is much closer to that of natural bone. Mg alloy can stimulate the healing response of injured tissues at the molecular level. It completely resorbs in the time coinciding with bone healing period, what eliminates the necessity for secondary removal operation. However, fast and uncontrolled corrosion of Mg alloys is associated with hydrogen ion release. It remains a serious problem for healing process.

Aim: The aim of our study was to select Mg alloy with a steady resorption rate for achieving optimal healing within the body

Materials and methods: The study was conducted on AJ62 magnesium alloys. The chemical composition of this alloy is Mg, Al 6%, Sr 2%, Mn 0.34%. Alloy's biodegradability was measured by immersion tests in SBF (Simulated Body Fluid, pH=7,4) for 1, 3, 5 and 9 days at 37°C. Six sample's cubes 1*1*1 cm³ were immersed in 50 ml of test solution. The degradation of Mg-alloy samples was described by weight lost and pH changes in the medium. At the end of each time period, samples were removed from the test medium, cleaned in distilled water, dried in desiccator and then passed through a chromic acid solution to remove the corrosion products. Then they were washed and dried. The samples were weighed initially and after removal of waste products.

Results: The results of weight loss test demonstrate that the AJ62 alloy weight decreased by 11,5% during 9 days. And pH value was within 7,95 – 8,05. This result indicates effective corrosion resisting properties for the AJ62 samples over a long period of time. The obtained results show Mn positive influence on saltwater corrosion resistance within Al containing alloys. Moreover Al increases hardness, strength and castability. Minimum weight percent of these elements doesn't change the elasticity of alloy. All Mg-alloy cubes remained hard within 9 days. This finding demonstrates that AJ62 alloy can be tested with in-vivo researches. Minor changes could testify about the absence of toxic effects on the organism.

Conclusions: To sum up, the studied experimental AJ62 alloy showed suitable corrosion resistance for further in-vivo researches. This research contributes to the understanding of the corrosion mechanism of Mg-alloy by showing the influence of alloying elements on its properties.

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SPHERICAL/TETRAPODS ZNO NANOPARTICLES: ANTIBACTERIAL ACTIVITY AGAINST S. AUREUS

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Introduction: Different size ranges and shapes of nanoparticles have been reported to influence antimicrobial properties. ZnO-T are hydrophobic but if they are heated in an oxygen rich environment, they become more hydrophobic. On the other hand, if the tetrapods were illuminated by UV light, they turned to superhydrophilic. The hydrophobic and hydrophilic behaviors of ZnO-T under different treatments can be vary to develop their bactericidal activities.

Aim: Thus, investigation of antibacterial activity of differently treated Zinc oxide tetrapods (ZnO-T) nanoparticles and spherical ZnO NPs (ZnO-S) on the purified bacterial isolates, Gram positive bacteria (*Staphylococcus aureus*) was the aim of our research.

Materials and methods: A homogenized suspension was prepared by sonication ZnO nanoparticle in nutrient broth with ultrasonic device for 5 min. One part was treated with 30% solution of H₂O₂ for 90 min, rinsed with water and dried at 75°C. The other part was illuminated with UV lamp (254 nm wavelength) over night. Spherical ZnO NPs were not treated. Nutrient broths with final concentration of ZnO nanoparticles (spherical and tetrapods) 16, 8, 4, 2, 1, 0,5 µ/ml were prepared. Tubes were shaken at 300 rpm and 37°C for 12 h. This study was performed on isolates of *Staphylococcus aureus* which have been isolated previously from patients and standard strains. The minimal inhibitory concentration (MIC) of ZnO-NPs was evaluated using the broth dilution method.

Results: It can be observed that normal ZnO-T at a concentration of 2 and 1 µg/mL have totally suppressed the growth of *Staphylococcus aureus* for strains isolated from patients and standard strains respectively. The MIC value for spherical zinc oxide nanoparticles is taken as more than 8 µg/mL. Complete growth inhibition has not been found out even at 8 µg/mL of treated with UV illumination ZnO particles (both for patients and standard strains). Although lower concentrations (4 µg/mL) of the metal NPs which were treated with hydrogen peroxide have shown antibacterial activity against clinical and standard strains.

Conclusions: *Staphylococcus aureus* is found less sensitive to the treated with UV illumination ZnO nanoparticles compare to normal nanoparticles. Whereas spherical ZnO NPs kept down the growth of all isolates even at a higher concentration. H₂O₂ treated ZnO-T were shown to be more potent than UV illuminated ZnO nanoparticles. ZnO nano-microstructures have served as promising agents against bacterial infections.

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HYDROXYAPATITE/CHITOSAN COMPOSITE FORMATION UNDER THE INFLUENCE OF MICROWAVE RADIATION

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Introduction: Biomaterials, based on Chitosan (CS) and Hydroxyapatite (HA) are ideal scaffolds for tissue engineering, since they provide a three-dimensional (3-D) environment and morphology similar to the extracellular matrix (ECM) of native tissues. Polymer- containing functional groups CH₂, NH₂, OH provide great affinity to positive calcium ions and the nucleation of HA. The influence of MW irradiations promotes the HA crystallization process and provides in a short time a well crystallized HA powder with increased specific surface area, dispersity, high degree of crystallinity and yield as compared to the conventional precipitation methods.

Aim: The present study investigates the influence MW radiations of different power on the formation of CS/HA composite focusing on the structural features of new compounds in comparison with the conventional precipitation method.

Materials and methods: To 100 ml of 0.1 M CaCl₂, 10 M NaOH was added to reach pH = 12. To the resulting mixture was added 100 ml of 0.06 M H₃PO₄ containing 0.4 g of chitosan (M.M. 150 kDa). The resulting mixture was divided into 4 samples, three of which are exposed to microwave irradiation at different power levels of 300, 600 and 800 W, respectively, for 5 minutes, and the formed precipitates were separated by centrifugation. The samples were named MW300CS-HA, MW600CS-HA MW800CS-HA. The fourth control sample CS-HA was synthesized by the traditional deposition method, which included heating to 80 ° C and aging for 24 h.

Results: In obtained CS-HA composite HA corresponds to JCPDS 00-046-0905. Calculated by the Selyakov-Sherrer formula, the HA average sizes crystallites have shown that the rise of the MW power leads to an increase in the crystallites size. It is important that the formation of HA crystals under the MW influence occurs due to the rapid absorption of energy during the reaction, followed by dehydration of ions, which provides accelerated formation of the product for 10 minutes. For the swelling degree (SD) and porosity determination, the samples were dried at 37oC.

Conclusions: The CS-HA composite were obtained under MW radiation. The influence of MW radiation significantly shortens CS-HA formation. SD in the PBS increases in comparison with those obtained by conventional technology. The greater the MW power, the dehydration is more active and, consequently, the samples contraction increases and samples become denser. Therefore, with increasing of MW power during synthesis, the samples porosity decreases.

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FORMATION OF DRUG-CONTAINING HYBRID LAYER ON THE SURFACE OF TITANIUM ALLOY

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Introduction: Long-term metallic implants should exhibit high bioactivity, lack of cytotoxicity, as well as excellent mechanical properties and resistance to factors in the surrounding implant environment. One of the metal biomaterials is titanium alloy Ti-15Mo. The passive oxide layer formed on its surface is low biologically active. Hence, the surface is modified to increase its bioactivity and osseointegration. One of a method is plasma electrolytic oxidation (PEO). As an effect, porous oxide layer is formed with incorporated chemical compounds from anodizing bath. Poly(D,L-lactide-co-glycolide) PLGA is a fast degrading and harmless substance. It is blended with various antibiotics to prevent septic infections. Among drugs which are commonly used are doxycycline, amoxicillin, cefazolin.

Aim: The aim of the study was to obtain hybrid oxide-polymer layer composed of biological active substance on previously anodized Ti-15Mo alloy.

Materials and methods: Ti-15Mo samples were subjected to PEO process at voltage of 300V and current density 100 mA/cm² in 0.1M Ca(H₂PO₄)₂ solution for 5 minutes. The polymer-drug solution was applied by dip-coating technique. Scanning electron microscopy was used to characterize surface morphology. Degradation process was carried out in Ringer solution for 4 weeks. Degradation products were examined by ¹H NMR spectroscopy. Drug concentration was determined during the 12 hours of release to artificial saliva at 37°C. Biological investigations with MG-63 line cells and antibacterial tests (*S. aureus* DMS 24167, *S. epidermidis* ATCC 700296) were carried out.

Results: SEM images confirmed formation of porous layer on the Ti-15Mo surface that has been covered with the polymer-drug layer. ¹H NMR spectra confirmed fast degradation of PLGA. HPLC investigations showed that the amount of the drug is released in the first 30 minutes of experience. Biological investigations confirmed very good cytocompatibility. Moreover, the layers showed antibacterial activity and adhesion protection against tested bacteria strains.

Conclusions: Presented results confirmed the effectiveness of surface modification of the Ti-15Mo alloy by forming the oxide-polymer layer. The porous morphology enhance the proliferation of bone cells. The polymer layer was found as fast-degradable with minimum of drug released in very short time. The resulting hybrid layers showed biocompatibility with MG-63 cell line and antibacterial activity. The proposed system need further investigations, but it has the prospect of use in bone surgery.

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IN VITRO DEGRADATION OF AE44 MAGNESIUM ALLOY

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Introduction: Mg alloy is a prospective material for bone repair due to its biodegradability, biocompatibility, osteoconductivity and mechanical properties similar to those of natural bone. However, fast degradation of this alloy in the physiological conditions complicates its clinical application in orthopedics, because gas accumulation, hemolysis and osteolysis can appear during the healing at the implantation site. This problem can be solved with careful design of the Mg material. Researches have shown that small addition of Al, Mn and Zn contributes to the corrosion performance and improves mechanical properties, while not causing any toxic effects on biological tissues.

Aim: Using in vitro degradation tests, we aimed to select Mg based alloy with additional elements for further in vivo researches

Materials and methods: Biodegradability rate of AE44 alloy (Mg, Al 3.98%, Mn 0.35%, Zn 0.2%, Re 3.95%) was established by immersion of samples in SBF (simulated body fluid). This solution serves as a degradation media due to its ion composition and pH resembling physiological conditions. AE44 alloy was cut into 6 blocks (1*1*1 cm³), which were placed in 50 ml of solution with pH 7,4 and kept under the 37C up to 9 days. On 1st, 3rd, 5th and 9th days of degradation experiment, samples were cleansed with distilled water, dried in the desiccator and then passed through a chromic acid solution to remove the corrosion products. Their weight loss was determined by measuring samples before and after immersion test. pH changes of degradation media were also recorded on 1st, 3rd, 5th and 9th days.

Results: Minimum weight loss of AE44 alloy in 9 days of degradation was 3,6%, while pH changes were 7.75 – 7.96. According to the results, degradation rate was decreased due to the addition of such elements as Al, Mn, Zn to the alloy. Al increases hardness, strength and castability. Addition of Mn to magnesium alloys does not affect the mechanical properties, but improves their corrosion resistance. Zn improves the mechanical properties of magnesium alloys and does not show any side effects on the human body. There were no significant pH changes, which can contribute to the complication appearance during in vivo tests.

Conclusions: Studied AE44 Mg-based alloy demonstrates satisfactory biodegradable properties and corrosion rate during in vitro studies. It can further be used as an implant material for in vivo researches in order to evaluate biological responses and possibilities for future clinical applications.

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AG AND CU NANOPARTICLES: OBTAINING, PHYSICOCHEMICAL AND ANTIMICROBIAL PROPERTIES

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Introduction: Infection is remaining to be a major cause of morbidity and mortality worldwide. Nanotechnologies provide a basis for modifying physicochemical properties of numerous materials to create effective antimicrobials. Further investigations should be devoted to the study of nanomaterials and their combinations with other groups of antimicrobial agents against multi-resistant microorganisms.

Aim: The aim of our study is to find an optimal ratio of chitosan with Ag NPs and Cu NPs for gel composition (chitosan/Ag and chitosan/Cu) that would be active against clinical strains of MRSA (methicillin-resistant *Staphylococcus aureus*).

Materials and methods: Ag NPs were synthesized via chemical reduction method using green chemistry approach. For chitosan gel preparation, chitosan (200 kDa and 500 kDa) was used. Antimicrobial activities of the materials were determined according to the recommendations of NCCLS (National Committee for Clinical Laboratory Standards, 1999). Clinical isolates of MRSA were obtained from patients with acute respiratory infections. For the antimicrobial evaluations, 10 MRSA strains were used. Antimicrobial susceptibility testing was carried out according to the chart of NCCLS and by applying a broth macro dilution method. All the measures were triplicate.

Results: It was found out that Ag and Cu NP demonstrated antibacterial activity against MRSA. The Ag NPs in concentration 9.6 µg/ml performed antibacterial effectiveness against 100 % strains. The results also confirmed that Cu NPs perform antibacterial activity against 100 % of MRSA strains in concentration 0.35 µg/ml. The antibacterial activity of the chitosan gel with concentration 6 µg/ml was effective against 100% of MRSA. 500 kDa chitosan expressed higher antibacterial activity compared to 200kDa chitosan. It was found out that chitosan-Ag as well as chitosan-Cu gels demonstrate superior antimicrobial efficiency compared to their pure forms.

Conclusions: Green chemistry approach allows to obtain Ag and Cu NP of the same size within 5-20 nm that are stable in a chitosan solution. The effectiveness of Ag and Cu NP against MRSA was proved. Application of chitosan may facilitate NP's effectiveness along with decreasing of their concentration and, therefore, toxicity. The use of chitosan with lower molecular weight for composite solutions is more reasonable because of potentiating their antibacterial action.

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PUBLIC HEALTH

THE DEVELOPMENT OF METHODS FOR THE PREDICTION OF THE NUMBER OF MICROORGANISMS IN RAW MILK DURING REFRIGERATOR STORAGE CONDITIONS

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Introduction: There is growing trend to conduct using the artificial intelligence in food microbiology and safety. Currently, artificial neural networks (ANN) have been found to offer better modeling and predictive approach in microbial behavior in raw material and food. ANNs are currently accepted as informative, rapid and cost-effective tools for assessment of microbial number in food for food safety control, microbial risk assessment and for prevention of human foodborne diseases. According to the current requirements for food products, the main microbiological indicators are the total number of microorganisms and the number of bacteria from the family Enterobacteriaceae.

Aim: The aim of the work was to develop methods of prediction two major groups of microorganisms in raw milk (bacteria of family Enterobacteriaceae and psychrotrophic bacteria) during its storage in refrigerator conditions and to assess the predictive capacity of the ANN as an artificial intelligence.

Materials and methods: The developing of the method included next steps: to study the number of the Enterobacteriaceae and psychrotrophic bacteria depending on the composition of the raw milk, temperature and time of refrigerator conditions saving; to form a database of the experimental data obtained in research models with raw milk samples; to enter the received database into the ANN; to assess the effectiveness of the method for predicting the number of bacteria in raw milk during storage in refrigerator conditions.

Results: The created ANN consists of three layers: the input layer (5 input parameters: temperature of milk storage (4; 6; 8 and 10°C); period of milk storage (from 1 to 48 hours); acidity of milk (17 – 20°T); fat (3.2; 3.6; 4; 4.5 %) and protein (2.9; 3; 3.3 %) content in milk, the hidden layers (with 30 neurons) and the output layer (the predicted number of bacteria). Total of 1200 experimental data sets were used for ANN training and optimization. The results exhibited that growth prediction had average error 1.3% and the maximum error – 8.9%.

Conclusions: Thus, the use of ANN modeling technique can be used to predict bacterial number in the complex effects of environmental variable conditions in liquid food and to assess the predictive capacity of the ANN as an artificial intelligence for fast method of control the safety of food.

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DIARRHEAL INFECTIONS IN UKRAINE

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Introduction: Acute intestinal infections (AII) refer to diseases of major socioeconomic importance and stably maintain the second place in the structure of infectious morbidity and mortality in the world. During many years relevance of AII in Ukraine has not been decreasing.

Aim: The aim of the study is to specify the prevalence and etiological structure of AII on territory of Ukraine in modern conditions.

Materials and methods: AII morbidity in Ukraine was analyzed using the official statistical reports. The necessary calculations and analysis were performed on the capacities of Microsoft Office Excel.

Results: The epidemic process of AII in Ukraine during 2011- 2017 y.o.o. was characterized by: A decrease of shigellosis morbidity. Stable levels, without a tendency to decrease in AII cases caused by other established pathogens and AII of unknown etiology. An increase in sickness rate of salmonellosis. AII has a pronounced summer seasonality. During the period of financial crisis, intensive migration of the population and reform of public health services, social factors are becoming incredibly important in intensification of the epidemic process of AII. The highest rates of this process were reported in the areas adjacent to the Black and Azov Seas. As well as the most populated areas of Ukraine with high density of population. AII caused by other observed agents and AII of unknown etiology – prevail in the AII morbidity structure. Despite of the selectivity of rotaviruses research, rotavirus enteritis morbidity is the highest. Diarrheal infection outbreaks were registered throughout the territory of Ukraine. During 2014-2017 y.o.o. – 434 AII outbreaks were registered across the population of Ukraine citizens, as a percentage: 43.6 % – of salmonella etiology, 22.6 % – AII caused by opportunistic microorganisms, 20.0 % – rotavirus etiology, 12.4% – AII of unknown etiology, 0.9 % – shigellosis, 0.5 % – typhoid fever. The primary way of Disease transmission was implemented through foodstuffs. Almost 20.0 % of all AII outbreaks were registered in August.

Conclusions: AII epidemiology is characterized by uneven territorial distribution, opportunistic pathogens and virus dominance in the etiological structure. The AII situation becomes more complicated with increase of diarrheal infection outbreaks rate. Salmonellosis dominate in the nosological structure of outbreak morbidity.

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ANALYSIS OF CRIMINAL TRAUMA SITUATION IN SUMY

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Introduction: During last years (2016-2017) due to changes in social, political and economical situation on Ukrainian territory the portion criminal trauma among general number of trauma has raised. As a consequence of that appears a need for prediction of general situation and targeted advanced training of medical staff, education of medical students through analysis of clinical cases and also engaging public-health education work.

Aim: Work with archive of SRC EMC and DM (Sumy Regional Center of Emergency Medical Care and Disaster Medicine) in order to get statistic data about criminal trauma in Sumy.

Materials and methods: Data processing of A110form of ambulance departure carts. Data processing of information source.

Results: On the basis of analysis of A110 form was got information about age, sex, injury severity, location and type of trauma also strong correlation between social status of injured person and mental and behavioural disorders due to use of alcohol was observed.

Conclusions: Data obtained allowed to identify trends for interconnection of crime trauma, frequency and severity of craniocerebral trauma, trauma of chest and abdominal organs in case of criminal trauma, age and sex of status of injured victims. This gives opportunity for detailed and focused examination of patients on prehospital stage in order to identification of life-threatening trauma for further correct therapeutic tactics and hospitalisation.

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FOREIGN EXPERIENCE OF PREPARATION OF BACHELORS OF PHYSICAL THERAPY IS IN MEDICAL ESTABLISHMENTS OF CANADA

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Introduction: The analysis of scientifically-methodical and special literature showed that experience of professional preparation of bachelors of physical therapy in Canada was studied by such scientists, as Sinéad Patricia Dufour (2014), Jeffery Gabrush (2015), Andrea Passmore (2016). Foreign experience of professional preparation of specialists on physical therapy was thoroughly investigated the Ukrainian scientist A. M. Hertsyk is preparation of bachelors of physical rehabilitation in Canada Thus, actuality of the presented problem consists in possibility of the use of experience of the Canadian universities and colleges in preparation of future bachelors from physical therapy in Ukraine.

Aim: to define theoretical bases of forming of professional preparation of bachelors of physical therapy in Canada.

Materials and methods: The Canadian association of physical therapy (CPA) determines in the interpretation, that physical therapy is the professional industry of health protection, sent mainly to prevention and reduction of motive disfunctions. Development of professional profile for the studies of physiatrists in Canada became possible due to the collaboration of numerous organizations and individuals. It National Physiotherapy Advisory Group (NPAG) initiative was led by the of Canadian Alliance of of Physiotherapy Regulators (CAPR) and the of Canadian Council of of Physiotherapy University Programs (CCPUP). Research methods are an analysis of educational and methodical literature, synthesis, comparison, pedagogical supervision.

Results: Preparation of bachelors takes place in 450 establishments of Canada there are universities and colleges on the continuous 36-monthly program that consists of 120 credits and 5 blocks of fundamental and special disciplines and 1000 hours clinical practice. The program of studies on the bachelor of physical therapy envisages the study of such disciplines, as an anatomy and physiology of man, pathology, immunology and endocrinology, genetics, pharmacology, medical and additional therapies, biological theories of development of life, physicist, kinesiology, ecology, psycho-social sciences include culturology, psychology, social sciences, psychological theories, ethics and deontology, scientific researches. Clinical practice consists of five blocks: PT Movement Sciences, PT Therapeutics, Cardiorespiratory PT Practice, Musculoskeletal PT Practice and of Neurological PT Practice On completion of studies graduating students pass state examination for the have possibility to carry out professional activity.

Conclusions: Thus, results undertaken a study testify that in preparation of bachelors of industry of rehabilitation sciences, including physical therapy conducted in middle and higher educational establishments of Canada by two official languages: French and English.

STRUCTURAL DIVISION OF QUANTITY SESSIONS OF PLASMOPHERESIS IN THE TREATMENT COURSE OF DIFFERENT NOSOLOGY ON THE BASIS OF THE REGIONAL SUMY CLINICAL HOSPITAL

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Introduction: Today medical plasmapheresis takes a prominent place as a method of efferent therapy in the complex treatment of patients for prolonging the remission of certain chronic nosologies (chronic hepatitis, multiple sclerosis) and acute conditions (chemical poisoning, Rhesus conflict). The cost of each procedure is 50 \$, so the use of it is limited so much more sessions are necessary in the course of treatment.

Aim: to estimate the average, maximum and minimum number of plasmapheresis in the course of treatment of certain nosologies.

Materials and methods: The research was carried out by the Department of Public Health of the Medical Institute on the basis of Sumy Regional Clinical Hospital. The history of the disease was processed from 2009 to 2017, with the definition of the minimum, maximum and average number of plasmapheresis performed from the following nosological units: chronic hepatitis, multiple sclerosis, scattered encephalomyelitis, bronchial asthma and chronic urticaria.

Results: According to the age, patients were divided into the following groups: from 15 to 25 years old – 9(12%), from 26 to 35 years old – 14(18%), from 36 to 45 years old – 19(25%), from 46 to 55 years old – 21(27%), from 56 to 65 years – 10(13%), from 66 to 75 years – 4(5%). The average age of patients is 43.3 years. When processing the database of chronic hepatitis it was determined that the maximum number of carried apheritifs is 8, the minimum one is 3 and the average value is 4,57. The greatest proportion of the total number of plasmapheresis is due to multiple sclerosis, urticaria and bronchial asthma. The quantitative index for these nosologies is following: the maximum number of procedures for multiple sclerosis is 6, the minimum is 3 and the average is 4.14. For urticaria the maximum value is 4, the minimum is 2 and the median is 2,84. Evaluating the data from bronchial asthma is set: the maximum number of procedures is 5, the minimum is 5 and the average is 5.

Conclusions: Considering that the access to health care is a key factor in its delivery, it is necessary to include plasmapheresis in the protocols for the treatment of those diseases where the effect is achieved with a minimum number of sessions, such as urticarial and multiple sclerosis.

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INSUFFICIENT PHYSICAL ACTIVITY AS ONE OF THE RISK FACTORS FOR CARDIOVASCULAR DISEASE

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Introduction: Introduction. Insufficient physical activity (IPA) is one of the main risk factors (RFs) for developing diseases of the cardiovascular system, accounting for 2/3 of the total mortality of the population of Ukraine.

Aim: The purpose of the work. To investigate the prevalence of insufficient physical activity among men living in the city aged 40-64.

Materials and methods: Materials and methods of research. According to the results of a survey of a representative sample of men of urban population aged 40-64, an analysis of their physical activity was performed according to survey data, which was conducted using a unified questionnaire. Physical activity was considered insufficient if sitting time is 5 hours or more, and active leisure time in winter and summer, including time that they spent on the way to work and home is less than 10 hours a week.

Results: Results. A total of 501 inquiries showed that four of the ten surveyed men lead a sedentary way of life. Most of them (75.6%) significantly increase motor activity in the spring-summer season of the year, however, only one third of men aged 40-49 (30.8%), one in five in the age group of 50-59 (19.7 %) and every tenth (10.3%) compensate for the insufficient physical activity by regular physical activity (basketball, football, swimming) in the autumn-winter period. Among the 198 men who lead a sedentary lifestyle, 3.5% of the insufficient physical activity is an isolated risk factor. As the age increases, the proportion of people in whom IPA is combined with other risk factors. The associativity of the IPA with one RF is noted at 11.1%, and with the two RFs – 44.9% of the surveyed. In 25.8% of the examined men, the IPA registers in conjunction with three or more RFs. An analysis of the mean values of the underlying indicators that has been studied indicates that regular exercise reduces levels of cholesterol, triglycerides, low density lipoprotein cholesterol.

Conclusions: Conclusions. The received results, first of all, noted the significant association of the IPA with other RF, indicate that it is necessary to carry out preventive work aimed at increasing the physical activity of people who are in a sedentary way, in the future to carry out an explanatory work with them on the harmfulness of hypodynamia and the need engage in sports and other physical activities regularly to prevent the development of cardiovascular disease.

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PHYSIOTHERAPY PROGRAM FOR OBESITY WITH II DEGREE DIABETES

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Introduction: Important role in forming of index of morbidity of population during many years continue to play chronic uninfected diseases – basic factor the structure of senilism, disability and death rate of population. One of the important stages of overcoming of epidemic of uninfected diseases were development of the Global plan of actions by World Health Organization became from a prophylaxis and fight against them. A document includes nine voluntarily global aims, one of that is a stopping of growth cases of obesity and diabetes up to 2025.

Aim: make the physical therapy program for treatment and prophylaxis of obesity for persons with diabetes of II stage

Materials and methods: anthropometric, physiometric, somatological

Results: The program of obesity treatment with diabetes of II degree comes true by a doctor of endocrinology and specialists on physical therapy and ergotherapy. Treatment consists of diabetes – med, diet and training program of effective exercises of the moderate loading with power and aerobic direction and exercises of relaxation, that is executed 5 times for a week during a month. The dosage of volume and intensity of physical exercises is became determined amount of reiterations, rate of implementation, change of area of footing, use of long and short levers, change of initial position and methods of implementation of exercises, rational changing time of loading and resting, using of different equipment.

The features of types of exercises and character of loading are related to the stages of the training program. On the first stage (1 week) the investigated get theoretical skills from fundamental conceptions of obesity, mechanism of influence of physical exercises on the human's organism, learn facilities of correction of their weight, master the structure of employments and basic motions. Lessons on this stage consist of 15 min warm-ups with exercises in motion and in place; 30 min basic part with exercises of kinesiotherapy 2 blocks for 6-10 exercises in combination with breathing exercises, aerobically-cyclic exercises – 2-3 blocks of exercises during 5-6 min training. Intensity is controlled with the use a scale of estimation of loading after Borg (3-4); 10 min final part with exercises on renewal. On the second stage (II-III week) employments have the same structure: 15 min – 30 min – 10 min Basic part contains exercises of kinesiotherapy in 2-3 blocks for 6-10 exercises with the level of loading after Borg 5-6, fitball are used and dumb-bells, and also aerobically-cyclic exercises (2-3 blocks of exercises for 6-7 min).

On the third stage (IV week) basic part contains exercises of kinesiotherapy in 3-4 blocks for 6-10 exercises with the level of loading after Borg 7-8; aerobically-cyclic exercises (2-3 blocks of exercises for 7-8 min).

Conclusions: The physical therapy program is created for treatment and prophylaxis of obesity with diabetes of II stage and based on diabetes – med, optimization of food ration and introduction of the training program with exercises of the moderate loading and aerobic direction and on relaxing

THE USE OF YOGA THERAPY IN A COMPLEX PROGRAM OF PHYSICAL THERAPY FOR SCIATIC NERVE NEURITIS

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Introduction: Neuritis of Sciatic nerve (sciatica) is one of the most common neurological diseases that affects all age groups of the population. The etiology of this disease is diverse: infectious origin (flu, malaria, tuberculosis, sepsis, sifilisis, etc.), local and general hypothermia, metabolic disorders (diabetes mellitus, chronic alcoholism), occupational hazard (prolonged forced sitting posture), stress. Most often sciatica is manifest as a secondary disease in osteochondrosis of lumbar-icy area of backbone. Under data to the World Health Organization (WHO) the number of "affected" by sciatica is growing steadily all over the world. The number of patients ranges from 2% to 40%, most often people age from 25 to 45 years. The analysis of scientific and methodological sources shows that study of Neuritis of Sciatic nerve The analysis of scientific and methodological sources shows that study of Neuritis of Sciatic nerve by unconventional recovery means through yoga therapy were performed by Richard C. Miller,. Singh A.K , Singh O.P , Lohith B. A., Girish K.J at all.

Aim: Research objective to expose essence of including of yogatherapy in the complex program of physical therapy at Neuritis of Sciatic nerve.

Materials and methods: Literature review, synthesis, comparison, pedagogical observation.

Results: Yogatherapy as a branch of alternative medicine demonstrates an effective treatment of sciatic nerve neuritis. The study from University of Florida reports about several scientific evidences that explain the benefits of yoga therapy for sciatica. Yoga Biomedical Trust (2005, London) was conducted the study where groups of people with sciatica disease were engaged in yoga therapy. It was revealed that yoga therapy is more effective in comparison with traditional therapy methods for sciatic treatment and other vertebral disorders. Basic yoga exercises (Ardha Matsyendrasana I, Parivrtta Trikonasana, Eka Pada Rajakapotasana, Gomukhasana, Upavistha Konasana, Shavasana) provide the movement of the spine and femur in six natural directions such as: flexio, extensio, extendens me, abductio i adductio, pronatio i supinatio rotatio. These movements develop muscle strength and elasticity, increase mobility and stabilize joints.

Conclusions: At the end of the yoga therapy course the pain relief, improved mobility of the hip joints, and general well-being were observed.

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TOPICAL ISSUES OF THEORETICAL AND CLINICAL MEDICINE

ABSTRACT BOOK

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