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CLINICAL AND PREVENTIVE MEDICINE

CORRECTION OF ANDROGENIC STATUS OF MEN WITH INFERTILITY AND CONCOMITANT METABOLIC SYNDROME AND HIGH INDEX OF BODY MASS

Berezna T. V.

Key words: metabolic syndrome, pathospermia, androgenic status of a man.

The aim of this research was to estimate the influence of the integrated therapy of pathospermia against metabolic syndrome on the dynamics and positive changes in indices of androgenic status, improvement of indices of erectile function and normalization of the psychological state. Among the negative factors contributing to the reproductive health disorders of men excessive and unbalanced diet ranks one of the leading positions and is one of main causes of obesity. Treatment of men with pathospermia and concomitant metabolic syndrome depends on the values of the body mass index, the severity of the general manifestations of metabolic syndrome, its duration, as well as sexual dysfunction. The integrated therapy including human chorionic gonadotropin in order to improve the endocrine functioning of the testicles has resulted in significant health improvement assessed by the questionnaires for determining the androgenic status of men. The questionnaires included in particular the enquirers for detecting androgenic deficiency, the scale for assessing androgens decrease (by Morley), a questionnaire for assessing men's aging symptoms (AMS), scale for evaluating erectile dysfunction severity, Beck Depression Inventory.

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INFORMATION SUPPORT IN PUBLIC HEALTH MONITORING NOWADAYS

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Key words: public health, medical statistics, information technologies, e-medical records.

The improvement and reforming of public health services in Ukraine requires timely, full, reliable statistical information. Full-fledged monitoring of the public health status provides a qualitative information basis for the rational management of this field. The goal of this work was to identify the indicators of public health status in Ukraine, to analyze the methodology for collecting, storing and applying the information on the health status of the population. Materials and methods. The statistical materials of the State Statistics Service of Ukraine and the Medical Statistics Centre of the Ministry of Public Health of Ukraine, as well as methods of the systems approach, bibliosemantic, statistical, were used in the work. Results. The state of the health of the Ukrainian population is described as unsatisfactory that is pointed out by the low birth rate, increased mortality, and the high prevalence of socially significant diseases. The sources of morbidity registration are various kinds of records. The use of information technologies in healthcare is designed to solve the problem of collecting, storing, transferring personal and statistical information. Conclusions. The state of health of the population in Ukraine is characterized as unsatisfactory. Full and qualitative information on the health status of the population is crucial in the planning and implementing health policy, determining the scope of state guarantees, and in addressing the tactical and strategic objectives of health reform.

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OPPORTUNITIES FOR IMPROVING THE REHABILITATION OF PERSONS WITH DISABILITIES OF CARDIOLOGICAL PROFILE: MISSION OF PSYCHOLOGIST

Bondar V., Borisova I., Nechuy-Veter L.

Key words: psychologist, persons with disabilities, psychological rehabilitation, diseases of the cardiovascular system.

The aim of this work was to define the occurrence rate of cognitive dysfunctions and impairments of emotional and volitional sphere in persons with diseases of the cardiovascular system (disability of cardiological profile). This research was conducted on the basis of public utility enterprise "Kirovograd Regional Bureau of Medical and Social Expertise". Material of the study included medical and social histories and forms 088o (letters of referral to medical and social examination) of persons with disability, who were referred to pass through medical and social examination for the period 2015-2017 because of the diseases of the cardiovascular system. The results of the research conducted demonstrated that almost 80% of patients with cardiac disabilities have cognitive impairment (56%) and disorders in the emotional and volitional sphere (approximately 30%). Diagnosis of these disorders in this group of persons will enable health care workers to involve such patients into psychological rehabilitation programs aimed at preventing relapses and promoting social adaptation of the patients.

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FACTORS DETERMINING SEVERITY OF PNEUMONIA IN IMMUNOCOMPROMAISED PATIENTS WITH BLOOD CANCEROUS DISEASES

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Key words: pneumonia, immunity disorders, severity of pneumonia, factors of poor prognosis.

The aim of this research was to identify factors determining the severity of pneumonia based on the study of a complex of clinical, laboratory, anamnestic and immunological parameters of patients with severe immunity disorders and concomitant blood cancerous diseases. In order to achieve this goal, we formed a computer database including the findings of 451 cases of patients with blood cancerous diseases admitted to the hospital with pneumonia. The study was carried out at the haematological centre “Municipal general clinical hospital №4 (public utility company)”, a city of Dnipro, for 2010 – 2015. The study comprised 178 women and 363 men aged from 38 to 72. The results obtained have proven the course of pneumonia, its severity and prognosis is considerably affected by the nature of causative agent, presence of complications; age of the patient; number of chemotherapy courses, neutropenia, anemia. Immunodeficiency has been found out to contribute about 52% into the severity of the pneumonia course by identifying total dispersion that determines the possibility of unfavourable prognosis for patients with concomitant blood cancerous diseases.

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RESULTS OF ULTRASONIC DIAGNOSIS IN CLOSED ABDOMINAL TRAUMA

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Key words: closed abdominal trauma, diagnostic, ultrasound, free fluid, parenchymal organs.

Objectives: to evaluate the ultrasound results obtained in patients with closed injury of the abdomen. Methods. The study was conducted in the Chief Military Clinical Hospital of the Azerbaijani Armed Forces in the period from 2014 to 2016 and based on the analysis of the results of US scanning obtained in 288 patients with injuries of the abdomen. The age of victims ranged from 20 to 64 years, average age was $41,4 \pm 5.13$ years. There were 224 men (77,8%) and 64 women (22.2 %). Most of the injuries was due to road accident - 137 (47.6 %), due to pedestrian-motor vehicle collision - 67 (23,3%), due to catatrauma (falling from a height) - 49 (17,0%), a punch in the abdomen - 35 (12.1%). All patients underwent an ultrasound scanning. Results. In the group of the patients studied the closed abdominal trauma is often accompanied by a lack of internal injuries (110 cases). It has been revealed that of 80 (27,8%) victims with isolated injury of parenchymal organs, 15.3% of cases are the isolated injuries of the spleen, 10.4% of cases are the injuries of the liver, and the least share, 2.1% of cases, is made up by the injuries of the pancreas. On admission to the hospital free fluid was identified in 224 (77.8%) patients, the remaining 64 (22,2%) cases were found to develop it during the dynamic study the next day. 25 victims with isolated injury of hollow organs in the abdominal cavity were determined to have free fluid, representing exonerating homogeneous structure. Free fluid was visualized mainly in the hepatic fossa, between the loops of small bowel with injured liver, spleen. We could also visualize the dilated diameter of the loop of the small intestine. While examining 44 patients with isolated injury to the spleen in the first day of their admission, we visualized uneven, fuzzy contours, increased size, changes of the parenchyma. All patients were found to have fluid in left subdiaphragmatic space. The primary US scanning of 26 patients revealed oval hematoma with clear contours and irregular anechoic structure. The patients with liver injury were identified to have irregular contours of the organs, their discontinuity, heterogeneity of the parenchyma, non-echogenic structure. 6 patients with isolated injury of the pancreas showed increased size of the body, blurred contours, heterogeneity of parenchymal echostructure and the presence of free fluid. 110 (38.2%) victims showed the unimpaired integrity of internal organs in cases of abdominal wall contusions that was detected by ultrasound-free fluid, rounded and oval-shaped hematomas with jagged edges. Closed abdominal traumas in 38.2% of cases were accompanied by damage to internal organs. In 27, 8% of cases there

was isolated injury of parenchymatous organs, of which 15.3% of cases were made up by isolated injuries of the spleen, 10.4% of cases – by injuries of the liver, 2.1% of cases – by injuries of the pancreas. Free fluid was identified in 77.8% of cases on admission to the hospital, and in 22.2% of cases during the dynamic study the next day. In the first hours following the injury we often determined such features as the presence of free fluid, the roughness of the contour of the organ, inhomogeneity of the parenchyma. Conclusion. Ultrasound scanning is very accurate and non-invasive means for clear defining the nature and scope of traumatic injuries and for monitoring condition of the injured organ.

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STRATIFICATION OF EXOGENOUS (IgE-DEPENDENT) AND ENDOGENOUS (IgE-INDEPENDENT) ATOPIC DERMATITIS BY APPLYING CLINICAL CRITERIA IN ADULTS

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Key words: atopic dermatitis, phenotypes, IgE.

Objective: To study clinical criteria for the stratification of exogenous and endogenous atopic dermatitis in adults by using a cross-sectional study. Materials and methods. The study included 96 adult patients with atopic dermatitis. The control group included 90 healthy volunteers. The work was carried out as a cross-sectional study with an analysis of clinical indicators. Result: According to the cross-sectional study, it was found that the incidence of exogenous and endogenous atopic dermatitis were 35.4% and 64.6% respectively. The older age of the patients and the late onset of the disease were main clinical characteristics of endogenous atopic dermatitis compared to exogenous dermatitis. Clinical parameters such as the ratio between women and men, the severity of the disease (SCORAD index), quality of life (DLQI index), the duration of the disease, the number of exacerbations over the past year, heredity and the presence of concomitant diseases did not show significant differences between exogenous and endogenous atopic dermatitis. Conclusions: Additional clinical criteria for stratification of exogenous atopic dermatitis from endogenous one can be the age of patients and the age at which the disease began.

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FOLLOW-UP ASSESSMENT AFTER SURGICAL TREATMENT OF SPORTS HERNIA IN FOOTBALL PLAYERS

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Key words: sports hernia, inguinal canal, football players, follow-up, surgical treatment.

Sports hernia is one of the most common causes of groin pain in football players. According to the pre-sent knowledge laparoscopic and open surgical techniques are used worldwide for sports hernia treatment. The aim of this study was to carry out retrospective analysis of remote results after open surgical technique in football players with sports hernia. This retrospective study included 36 male professional and amateur football players (age ranged from 16 to 28 years). Follow-up was performed within the interval from 6 months to 12 years. Comparison of two groups was based on the athlete's return to play. The presence and intensity of pain were assessed during football games. In this study we confirmed that pain and restrictions of motion during sports were significantly lower after the plastic surgery of the posterior inguinal wall – the score value decreased from $7,38\pm 0,86$ to $1,66\pm 0,65$ ($p<0,001$) and from $7,53\pm 0,87$ to $0,84\pm 0,55$ ($p<0,001$) by VAS scale. The Lichtenstein's tension-free plastic surgery technique by using a mesh had significant advantages over techniques using stitching under tension. The results after surgical treatment predetermined future career achievements in professional football players with sports hernia. The obtained results in this article testify to the lack of a single point of view about the optimal surgery for sports hernia in football players. This article points out the necessity in further improvement of existing techniques and developing new plastic surgical techniques.

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UNSTABLE ANGINA IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE RESULTING FROM ACTIVATION OF INFLAMMATORY FACTORS DURING ADAPTATION CHANGES IN MICROBIOME OF AIR PASSAGEWAYS

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Key words: unstable angina, chronic obstructive pulmonary disease, microbiome, systemic inflammation, C-reactive protein, total fibrinogen, biofilm, minimal inhibitory concentration (MIC).

The aim of this study was to investigate the indices of systemic inflammation and microbiome features in chronic obstructive pulmonary disease (COPD) and concomitant unstable angina in comparison with COPD without concomitant ischemic heart disease. Two groups of patients were examined: patients with unstable angina and concomitant COPD (group I, n = 44) and patients with COPD without angina (group II, n=40). C-reactive protein and total fibrinogen as biomarkers of inflammation were evaluated. Qualitative assessment of serum C-reactive protein (CRP) level was carried out with ELISA reagents (DRG, USA). The content of fi-brinogen in the blood plasma was assessed by P.A. Rutberg. Microbiocenoses formed in COPD due to the production of virulence factors and inflammatory mediators affect other organs and systems, and in particular, there has been found out the relationship between COPD and destabilization of atherosclerotic plaques and the development of unstable angina. A special feature of the microflora of the respiratory tract in the patients with COPD and concomitant unstable angina is the predominance of Gram-positive

flora, especially β -hemolytic streptococci, an increased ability to form a biofilm that predetermines more pronounced antibiotic resistance.

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IMMUNOLOGICAL SUBTYPES OF MYASTHENIA GRAVIS AMONG ADULT PATIENTS IN UKRAINE

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Key words: myasthenia gravis, antibodies, acetylcholine receptors, muscle-specific tyrosine kinase.

The approaches to the diagnosis of myasthenia gravis that have been proposed before include a clinical examination, a proserin test, and electroneuromyography. At the same time, data on specific immunological tests as ones of the most relevant in the diagnosis and prognosis of the myasthenia gravis course are not commonly accepted in Ukraine. According to foreign literature, antibodies to acetylcholine receptors are detected in about 80-85% of patients with generalized form and in about 50% of patients with ocular form of myasthenia gravis. Among the "seronegative" patients, antibodies to muscle-specific tyrosine kinase can be detected in some patients. In Ukraine, the frequency of antibodies to acetylcholine receptors and muscle-specific tyrosine-kinase is not well studied and requires further in-depth investigation. The aim of this work was to study the immunological subtypes in adult patients with myasthenia gravis. Methods. Antibodies to acetylcholine receptors and/or antibodies to muscle-specific tyrosine-kinase in plasma in patients with myasthenia gravis were detected with ELISA tests. Results. 96 patients (56 women and 40 men) with myasthenia gravis were involved into the study during 2014 – 2016. 71 patients were diagnosed to have generalized and 25 were diagnosed to have ocular form of myasthenia gravis. The average age of patients was 50.5 ± 12.4 years; the mean duration of the disease was 4.4 ± 1.2 years. When analyzing the duration of the disease, 2 peaks of disease onset were detected: early onset (the first manifestations of the disease before the age of 40) was registered in 49 patients, and the late onset (the first manifestations of the disease at the age of over 60 years) was registered in 47 patients. In the group of patients with early onset, women dominated (37 women over 12 men), while in the late-onset group, men dominated (40 men over 12 women respectively). Antibodies to acetylcholine receptors were detected in 57 (80.3%) out of 71 patients with generalized form and in 13 (52%) out of 25 patients with ocular form of myasthenia gravis. According to our study, 6 (8.5%) patients with generalized myasthenia gravis were found out to have antibodies to muscle-specific tyrosine-kinase. In the case of an ocular form, these antibodies were not detected at all. In 8 (11.3%) patients with a generalized form of myasthenia and in 12 (48%) patients with ocular form of myasthenia antibodies were not detected. These patients can be attributed to the seronegative type of myasthenia. Conclusions. The main immunological subtype of myasthenia gravis, regardless of age, is myasthenia associated with antibodies to acetylcholine receptors and is observed in 80.3% of patients. Myasthenia associated with antibodies to muscle-specific tyrosine-kinase is relatively uncommon (8.5% of patients with myasthenia) and also does not depend on the age of disease onset. Patients with an ocular form of myasthenia gravis were revealed to have exclusively antibodies to muscle-specific tyrosine-kinase. In 21% of patients, antibodies were not detected either to acetylcholine receptors or to muscle-specific tyrosine kinase.

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HYPER ACUTE T-WAVES AS EARLY ECG SIGN OF CORONARY ARTERY THROMBOSIS IN PATIENT WITH INTIMA DISSECTION AND MYOCARDIAL INFARCTION

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Key words: acute coronary syndrome, electrocardiography, coronary angiography, coronary arteries, dissection.

In all cases of coronary artery disease (CAD) it is necessary to visualize the state of the coronary arteries (CA). It is advisable to make a correlation between the ECG manifestations of myocardial ischemia and the state of CA according to the results of coronary angiography in order to improve the diagnosis in outpatient settings and timely diagnosis of the disease. The aim of the study was to reveal the correlation between ECG changes and the results of angiography in patients with acute coronary symptom (ACS) to improve diagnosis and to optimize treatment of these cases. We examined 42 patients with acute myocardial infarction with ST elevation (STEMI) that was detected by angiography. Clinical examination of patients with ACS and thorough ECG analysis in most cases allowed us to identify the localization and the severity of CA damage. However, such risk factors as hypertension, diabetes mellitus, overweight, tobacco smoking, alcohol abuse, occupational hazards, as well as female sex complicate making clinical and ECG diagnosis of coronary artery disease due to the presence of cardiac neuropathy in these cases, requiring angiography or computerized tomography for detailed imaging. For example, we present a clinical case where myocardial damage developed during the exposure to toxic substances at patient's occupation; there were no ECG changes typical for ACS, in the presence of hyper acute T-wave as the equivalent for elevation of the ST segment. This was due to the toxic effect of tobacco smoke that damaged myocardium and CA and led to a deterioration of the processes of myocardial repolarization with the appearance of "giant" TV1-V4 waves (instead of ST segment elevation) and a shortening QTIII, aVR interval as an indicator of risk for sudden death. These changes were facilitated by the dissection of the LAD, which was apparently related due to occupational hazards and smoking. Conclusions. The presence of hyper acute T-waves on the ECG may sometimes indicate acute occlusion of CA and be the equivalent of ST segment elevation in the presence of STEMI, as in the described case requiring CT scan, and sometimes – procedure of immediate revascularization. The combination of several risk factors for CAD in the presence of concomitant illnesses and harmful lifestyle habits including occupational hazards often complicates the clinical and ECG diagnosis of ACS and requires more frequent use of visualizing techniques for the CA study, in particular ECG or CT scanning.

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DEVELOPMENTAL DISORDERS OF YOUNG CHILDREN BORN BY MOTHERS CONSUMING ALCOHOL

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Key words: young children, foetal alcohol spectrum disorder, development.

The main developmental domains (cognitive, motor, speech, socio-emotional, adaptive) were studied in 79 infants born by mothers consuming alcohol by using the KIDRCIDI-2000 scale. Among them there were 22 children with congenital defects caused by alcohol, 26 children with foetal alcohol syndrome and 31 children with partial foetal alcohol syndrome. It has been revealed that the development of children who have experienced prenatal exposure to alcohol undergoes changes during early childhood and demonstrated some peculiarities depending on the phenotype. Children with congenital defects caused by alcohol in the third year of life demonstrate the lag in

cognitive (100%), motor (84%), speech (59%), socio-emotional (77%), adaptive (77%) development. Children with foetal alcohol syndrome in their third year of life are characterized with lag in cognitive (54%), motor (38%), speech (58%), socio-emotional (38%), adaptive (46%) development. The children with partial foetal alcohol syndrome in the third year of life are found to have less pronounced lag in cognitive (10%), motor (23%), speech (42%), socio-emotional (55%), adaptive (32%) development compared with two groups mentioned above.

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THE STATE OF "HISTAMINE-HISTAMINASE" SYSTEM IN WOMEN WITH THE THREAT OF MISCARRIAGE

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Key words: miscarriage, premature labour, histamine, histaminase, biogenic amines.

Miscarriage and premature labour are among the pressing problems of modern obstetrics and gynaecology. According to modern conceptions, the pathogenesis of their development is quite complex. It encourages specialists to study it more thoroughly in order to prevent reproductive losses as well as the remote occurrence of obstetric complications. Biogenic monoamines, and in particular histamine, play an important role in the processes aimed at ensuring the normal pregnancy course and the woman's organism preparation for childbirth. It has been proven that the release of histamine from mast cells occurs as a result of their de-granulation with the action of numerous endogenous factors, including estrogens, catecholamines while interacting with α -adrenoreceptors. At the same time there are reports on endogenous stabilizers of mast cells, and namely catecholamines acting through β 2-adrenoreceptors and glucocorticoids. Decreasing biometrics β -adrenoreactivity and a decrease in the effectiveness of the catecholamines effect on β -adrenoreceptors have a stimulating effect of histamine on the myometrium. The question on the role of the "histamine-histaminase" system in pregnant women with the threat of miscarriage is not completely clear. Maintaining a balance between histamine and histaminase, its inactivation enzyme, is of great importance for uncomplicated pregnancy. It is known that a significant amount of histamine is synthesized by the placenta, which prevents the intake of excess histamine from the mother into the embryo bloodstream. The purpose of the research is to study the state of the "histamine-histaminase" system in women with different periods of miscarriage by evaluating the content of biogenic amine in the whole blood and the activity of enzyme inactivation in blood serum. 227 pregnant women were examined in Kharkov municipal perinatal center. 190 of them were found out to have clinical signs of premature labours at the 23-36 weeks of gestation. The formation of clinical groups was carried out depending on the pregnancy outcomes in the form of premature and mature childbirth. The criteria for including women in the survey groups were: young reproductive age, monocytosis, and absence of gestosis, acute and chronic gynecological and somatic diseases. Diagnosis of preterm labour was carried out by the presence of abdominal pain syndrome and structural changes in the cervix. Statistical processing of the obtained results was performed by using licensed standardized software packages of multivariate statistical analysis Statistical 6.1. Conclusion. The histamine level in whole blood and the histaminase activity in the blood serum exceed the ranges of reference values in women with a physiological course of pregnancy, which resulted in uncomplicated childbirth in the period of 38-41 weeks. This indicates an increase in the activity of the "histamine-histaminase" system with signs of a balance between the synthesis of the biogenic amine and its inactivation. The inadequacy of the system "histamine-histaminase" develops in women with early pregnancy miscarriage, which ended in childbirth in a period of 23 to 27 weeks, compared with women with a physiological pregnancy, which ended with uncomplicated childbirth in the period of 38-41 weeks. This is confirmed by a significant increase ($p = 0.000$) in the blood content of biogenic monoamine (8.5 times) against a significant decrease in

the inactivation enzyme activity (19.0 times). A significant ($p = 0.000$) increasing of histamine level in the blood (by 232% and 99%, respectively) with a decrease in histamine activity (by an average of 70%) compared to the control is detected in subgroups of women with miscarriage that ended in childbirth at the term of 31 -33 and 34-36 weeks. But the upper values of the reference ranges for these indicators increased in most patients of subgroups that indicates the activation of both histamine synthesis and the process of its destruction and is generally adaptive mechanism. Prospects for further research. It is important to continue a series of research aimed at studying the state of the "histamine-histaminase" system in women with the threat of miscarriage.

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MODEL OF PREDICTING AND PREVENTING DEVELOPMENT OF INTRAVENTRICULAR HAEMORRHAGES AND THEIR CONSEQUENCES IN PRETERM INFANTS WITH LOW AND EXTREMELY LOW BIRTH WEIGHT

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Key words: prematurely born child, severe intraventricular haemorrhage, percutaneous measures, therapeutic and diagnostic algorithms.

The proper management of preterm children involves timely diagnostic and treatment measures based on the effective communication between medical personnel. Therefore, in order to improve the quality of neonatal care and to save time for the analysis of the state of newborns, there is necessary to create and apply therapeutic diagnostic algorithms. The aim of this study is to identify reliable risk factors of severe intraventricular haemorrhages (IVH) and their complications based on the principles of evidence-based medicine; to develop algorithmic predicting models to choose the proper diagnostic and treatment tactics and to build up the management plan for preterm children with low and extremely low birth body weight who are at high risk of developing severe IVH. The study was based on the analysis of invariant materials for the provision of medical care to patients

in accordance with the Recommendations of the Committee of Ministers of the Council of Europe, previous investigations reported by foreign scientists, the results of the reviews of the Cochrane base and the findings of the authors' own research carried out during 2012-2017. The investigation of communicative interdisciplinary and interprofessional connections in neonatal hospitals of the developed countries was conducted. The researchers identified and associated the main risk factors that increase the incidence of severe IVH and contribute in the development of IVH-induced complications. Based on the I-PASS batch solution, the structural components of internal communication protocols have been developed that form a model for improving the delivery of pre-term babies with high risk of IVH and for infants who have already been diagnosed to have severe IVH. The checklist has been developed and implemented in routine practice that allows health care professionals to improve the interdisciplinary and interprofessional interaction at the neonatal department of the Perinatal Centre of the M.V. Sklifosovsky Poltava Regional Clinical Hospital.

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IRISIN AS A MARKER OF INSULIN RESISTANCE IN PATIENTS WITH ARTERIAL HYPERTENSION AND OBESITY

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Key words: arterial hypertension, obesity, irisin, insulin resistance.

This study devoted to the evaluation of the irisin content in blood serum of patients with arterial hypertension and concomitant obesity has established the correlation between the development and progression of insulin resistance. The study involved 105 patients: group 1 included patients with arterial hypertension and concomitant obesity (n = 70), group 2 involved patients with arterial hypertension and normal body weight (n = 35); the control group consisted of 25 healthy individuals. In the patients with arterial hypertension and obesity, the level of irisin was 1.19 ± 0.03 ng / ml, which is significantly lower than that in the control group (3.10 ± 0.08 ng / ml) and in the patients with normal body weight ($1, 91 \pm 0.06$ ng / ml) (p <0.001). Progression of insulin

resistance in the patients with arterial hypertension and obesity occurred against a decrease in the serum level of irisin from 1.96 ± 0.06 ng / ml to 0.55 ± 0.05 ng / ml.

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CHARACTERISTICS OF COGNITIVE IMPAIRMENT IN CRITICAL STATED DEVELOPED DURING DIFFERENT STRESS PROTECTION STAGES.

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Key words: critical states, cognitive impairment, stress, combat trauma, peacetime trauma.

Aim: To assess the impact of stress caused by surgical traumas and combat or peacetime traumas on the state of cognitive functions. **Materials and methods.** 16 patients were examined after elective surgical interventions (group 1), 37 patients who received polytrauma in peacetime (group 2) and 20 individuals who received combat wounds during warfare in the ATO zone (group 3). We detected severity of the status on admission to intensive care units (ICU) by the SAPS II, the assessment of the state of cognitive function with the CFQ questionnaire and the MMSE scale. **Results and discussion:** Due to the severity of the somatic status on ICU admission, the patients of all three groups did not differ statistically. There was also no significant difference between the groups in terms of the length of stay in the intensive care unit and the overall length of hospitalization. The initial level of cognitive function in the first group was somewhat lower than in the other two, which, in our opinion, is associated with age-related changes.

In the acute period the patients of all three groups demonstrated significant decrease in the level of cognitive function that exceeded 10% of the baseline and is considered as a clinical sign of cognitive dysfunction. Neither between groups nor in groups between stages of postoperative / post-traumatic period there were no significant differences in the dynamics of recovery of cognitive functions, although there was a significant difference with the baseline. **Conclusions:** Injuries cause cognitive impairment regardless of whether they were received during surgery, in warfare or in peacetime. Cognitive impairments that result from an injury are sustained for a long time.

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DIAGNOSTIC ASPECTS OF EVALUATING QUALITY OF LIFE IN PATIENTS AFTER CRANIOCEREBRAL INJURY

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Key words: craniocerebral injury; life quality; SF-36; MoCA; cognitive disorders

The consequences of craniocerebral injuries (CCI) are extremely diverse; they occur in 30-96% of cases of CCI and depend on the severity of the primary damage and on secondary injuries, as well

as on the course of the treatment period. Studying the quality of life of patients based on their subjective opinion about their psychological, physical, social status and spiritual well-being is an important diagnostic aspect of CCI consequences. The aim of this work was to study diagnostic aspects of evaluation of the quality of life in patients after CCI. The study comprised 60 patients with mild and moderate CCI (40 and 20 individuals, respectively) who were admitted to the neurological and neurosurgical departments of the Regional Clinical Hospital. The control group was made up of 15 healthy individuals of the relevant age. Clinical and neurological examination, psychodiagnostic methods, SF-36 and EQ-5D questionnaires were applied. The results were statistically processed. The results obtained have demonstrated the patients of all groups complained mainly of general weakness (96.25%); headache (94.38%); dizziness (92.5%); shaky walking (78.13%); apathy and sleep disruption (76.88%); deterioration of memory and attention (50.63%); attacks of unmotivated anxiety, palpitation, and shivering (45.63%). During the neuropsychological examination, the patients were found to have memory impairment and disorders of attention that correlated with the scores of the SF-36 and EQ-5D questionnaires. Thus, the quality of life of the patients who have had CCI depends on neurological and psycho-emotional disorders, and also on the severity of the trauma.

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RESULTS OBTAINED BY EVALUATING MOLECULAR BIOLOGIC TUMOUR MARKERS DEPENDING ON THE TYPE OF TREATMENT AND AGE OF PATIENTS WITH DISSEMINATED OVARIAN CANCER

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Key words: ovarian cancer, molecular biologic markers, polychemotherapy.

Molecular biological markers (MBMs) detected in tumour tissue can provide important diagnostic and predictive information about the biological behaviour of the tumour (its rate of growth, the ability to invade and metastasize, and resistance to chemotherapy). The prognostic value of markers for apoptosis, angio-genesis, proliferation and other for non-recurring and overall survival of patients is studied most actively nowadays. The purpose of the study is to compare the level of expression of molecular biologic tumour markers in patients with III-IV stage ovarian cancer, depending on the type of combined treatment and the age of patients. 75 patients with III-IV

ovarian cancer (T3a-cNxM0-1) were examined. We conducted immuno-histochemical studies with the determination of proteins p53, Bcl-2, Ki67 and VEGF. All patients were divided into 2 groups according to the type of treatment. The first group was 46 patients (61.3%) who had started treatment with non-adjuvant polychemotherapy (NPCT) with subsequent surgical treatment. The second group consisted of 29 patients (38.7%), who at the first stage got operative treatment followed by adjuvant polychemotherapy (APCT). As a result of the study, it was shown that the age of patients with a common ovarian cancer affects the level of expression of mt p53 and the presence of Bcl-2 and VEGF expression in the tumour. The dependence of the Ki67 expression level on the age of the patients was not detected. In patients with pre-existing pulmonary adenocarcinoma of both age groups receiving NPCT and in elderly patients who underwent operations, 54-64% of the cases did not have VEGF expression. In younger patients who were first operated, in 64% of cases there was a high expression of VEGF observed. The obtained data indicate the effectiveness of NPCT, especially in patients of young age. A high level of Bcl-2 expression was observed in 75% of patients treated with NPCT up to 50 years old, and in patients who did not have a NPCT, the positive and negative markers were observed in equal percentage of cases. In the groups of patients older 50 with different types of treatment, the negative marker of apoptosis occurred in 56% and 69% respectively. A high expression level of mt p53 was observed in 41-42% of patients in both age groups receiving NPCT. In patients treated for treatment, at the age of 50 years, in 67% of cases, the marker of apoptosis was absent, and after 50 years it was absent or was found in the range of 5 - 50% in 71% of patients. Thus, the type of treatment did not significantly affect the level of expression of mt p53. Data analysis showed that the non-histone protein KI-67 depended on the type of treatment. This is confirmed by its absence in 41% of cases in patients older 50 and in the absence or low proliferative activity (in the range of 4-40%) in 84% of younger patients receiving NPCT. In the 50-65% of patients in both age groups, which did not have NPCT, moderate expression (4-40%) of Ki67 was observed. The complete absence of tumour proliferative activity in this group was found only in 21% of patients.

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MORPHOMETRIC ASSESSMENT OF ANATOMICAL PROPORTIONS OF HUMAN EYE BALLS BY ULTRASOUND ORGANOMETRIC FINDINGS

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Key words: anatomy, eyeball, morphometry, organometry.

107 persons aged 17-20 years (32 men and 75 women) were divided into two groups: the first group involved 57 people with normal visual acuity; the second group included 50 persons with functional disorders (refraction disorders). Morphometric analysis, performed on the basis of the findings of the organometric study of the eye allowed us to obtain definitive indices and revealed the absence of significant differences between the groups according to the following morphometric parameters: the index of the eye anterior chamber (ranged from 14.0 ± 0.2 units to 14.7 ± 0.4 units), interpupillary distance (ranged from 61.1 ± 0.7 mm to 62.9 ± 0.6 mm), the radius of corneal curvature (ranged from 7.7 ± 0.1 mm to 7.9 ± 0.1 mm) and the thickness of the lens (ranged from 3.7 ± 0.1 mm to 3.7 ± 0.1 mm). The regularity of age-related changes and the variability of significant organometric parameters have been studied in healthy individuals. The data obtained enables us to suggest the most significant relative to the formation of functional disturbances in the organ of vision is the value of the antero-posterior axis and the depth of the anterior chamber of the eye.

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NEW SURGICAL APPROACH IN TREATMENT OF PATIENTS WITH EXTRASPHINCTERAL PARARECTAL FISTULA

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Key words: extrasphincteral fistula, Tahocomb, surgical treatment of anal fistula.

The article deals with a new method of surgical treatment of patients with extrasphincteral pararectal fistulas. The rectal fistulas make up 15.45% of cases in the structure of colorectal pathology. During the period of 2010 – 2017, 61 patients with various forms of rectal fistulas were examined. The age of the patients ranged from 24 to 72 years. The vast majority of patients (66.8%) were elderly and senile, their age was 61 -76. Based on clinical, laboratory and intraoperative findings, all fistulas of the rectum were divided into three types: intrasphincteral, trans-sphincteral and extrasphincteral. The number of recurrences of pararectal fistulas with the use of the ligature method can vary from 0 to 22%, and the incidence of postoperative anal incontinence ranges from 0 to 63%. The technique of dissection of the extrasphincteral fistula into the lumen of the rectum with the restoration of the sphincter fibres has been the subject of discussion of proctologists for several decades. In this regard, most authors prefer to apply the ligature method at IV stage or various plastic methods for I – III stages of fistula severity. This study has revealed that the most preferred treatment for extrasphincteral fistulas is an operation with the use of Tachocomb. The advantages of the plastic methods include the following: 1) minimal trauma of the rectal closing apparatus, 2) decreased risk of anal incontinence, 3) prevention of intestinal flora penetration into the postoperative wound that enables to reduce relapses of the disease, 4) less timing of postoperative wound healing compared with standard techniques. The results obtained allow us to conclude that: 1) the proposed method of surgical treatment of patients with extrasphincteral anal fistulas is an operation of a choice; 2) the developed techniques enables to prevent the development of anal sphincter insufficiency both in the early and in the long terms of the treatment; 3)

application of the new technique makes it possible to reduce the number of relapses of the disease up to 2.8%.

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STUDY OF SOME BIOCHEMICAL PARAMETERS ASSOCIATED WITH PATHOLOGY OF THE VASCULAR SYSTEM IN METABOLIC SYNDROME

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Key words: metabolic syndrome, homocysteine, fibrinogen, microalbuminuria, creatinine, uric acid, renal function.

The aim of this study is to investigate the concentration of homocysteine, microalbuminuria, fibrinogen and their correlation with renal dysfunction against metabolic syndrome in patients of different age groups. 364 patients with newly diagnosed metabolic syndrome aged from 20 to 80 years, (200 men and 164 women) were prospectively examined. The assessment of homocysteine, microalbuminuria, blood fibrinogen, and creatinine and uric acid levels was performed by an enzyme immunoassay on the BS 200 E auto-matic analyzer (China-USA) using standard diagnostic kits. The highest average homocysteine values ($17.9 \pm 3.5 \mu\text{mol/L}$) found out in the patients of the third group were significantly higher than the values in the second and the first groups, respectively ($15.4 \pm 7.2 \mu\text{mol/L}$ and $9.9 \pm 0.67 \mu\text{mol/L}$), $p < 0.001$. Fibrinogen was of high values in patients of the third group ($3.9 \pm 0.36 \text{ g/l}$) that significantly exceeded the values of the second and first groups of the patients, respectively ($3.68 \pm 0.3 \text{ g/l}$ and $3.3 \pm 0.33 \text{ g/l}$), $p < 0.001$. In the individuals of the second group, this index was higher than in the representatives of the first group ($3.68 \pm 0.3 \text{ g/l}$ relative to $3.3 \pm 0.33 \text{ g/l}$), $p < 0.001$. In the third group, the mean microalbuminuria value was $199.2 \pm 44.2 \text{ mg/l}$ that is significantly higher than in the second group ($169.3 \pm 24.2 \text{ mg/l}$). Besides microalbuminuria, other manifestations of the kidneys function are presented by values of creatinine and uric acid. Both parameters had the highest values in the third group ($107.7 \pm 2.6 \text{ mmol/L}$, and $8.0 \pm 1.9 \text{ mmol/L}$), exceeding those in the first two groups, $p < 0.001$. The patients with metabolic syndrome demonstrate that an increase in fibrinogen, homocysteine and microalbuminuria changes unidirectionally with changes in parameters manifesting functioning and functional state of the kidneys.

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ANALYSIS OF HE-4 AND CA-125 INDICES IN PATIENTS WITH RECURRENT OVARIAN MALIGNANT TUMOURS

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Key words: ovaries malignant tumours, recurrence, tumour-associated markers, HE-4, CA-125.

Timely diagnosis of recurrence of ovaries malignant tumours (OMT) can improve the results of its treatment. According to the National Cancer Registry of Ukraine, ovarian cancer ranks seventh position in the structure of the overall incidence among the female population and makes up 5.0%, the fifth place in the structure of mortality from malignant tumours and makes up 6.2% and second in the structure of mortality from oncogynecologic pathology, cancer of the cervix. In 62.3% of cases, the disease is diagnosed in advanced stages, and every third patient dies within a year after the diagnosis (27.2%). The mortality from ovarian cancer is strictly dependent on the stage of the disease: a 5-year survival period is observed in 70% of women at the first and second stages and decreases to 40% and 20% in the third and fourth stages. The purpose of the study was to determine the feasibility of using the tumour marker HE-4 in the event of a recurrence of ovarian malignant tumour (OMT). Materials and Methods. The paper presents the results of the study of the HE-4 and CA-125 tumour markers' levels in 29 patients with confirmed recurrence of ovarian malignant tumours depending on the timing of its appearance – up to 12 months (n = 9), 13-24 months (n = 11) and after 24 months (n = 9). Results and Discussion. The mean and median values of the tumour-associated HE-4 marker were decreased during the recurrence compared to initial expression levels. When analyzing medians of the HE-4 serum, their significant difference was revealed only in the event of recurrence in the period of up to one year (1207.00 pmol/l) from

median recurrence rates in the periods of 13-24 and of over 24 months (567.00 and 655.50 pmol/l, respectively). Conclusion. After analyzing the obtained data, we can draw the following conclusions: The average indices and medians of expression levels of tu-mour markers HE-4 and CA-125 for recurrence of the disease in 2, 1-2, 4 times lower in comparison with the initial data. The later the recurrence occurs, the average value of expression level of HE-4 and CA-125 and median CA-125 is higher. Median values of HE-4 practically do not change depending on the timing of recurrence – 159-198 pmol / l. The initial mean values of HE-4 correlate with the duration of remission – the lowest values were observed in the group of recurrences that occurred within a period of more than 24 months. Only the initial level of the median of HE-4 expression is prognostically significant for determining the timing of malignant ovarian tumours recurrence – an excess of 500 pmol/l indicates a prolongation risk of up to 1 year. Prospects for further research: increase the effectiveness of diagnosis of ovarian malignant tumours and predicting their recurrence by using the tumour marker HE-4; to develop recommendations for using tu-mour-associated marker HE-4 as an additional objective criterion for selecting a sequence of treatment measures in the planning of combined treatment for patients with OMT.

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CRATAL IN INTEGRATED TREATMENT OF PATIENTS WITH STABLE ANGINA

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Key words: cratal, hawthorn, Leonurus, nettle dog, taurine, stable angina pectoris.

This work presents study on the evaluation of the effectiveness of Cratal included into the integrated treatment of patients with stable angina pectoris. For this purpose, we selected 80 patients aged 58 – 65 years who had confirmed stable angina pectoris without history of myocardial infarction at the Poltava clinical cardiologic dispensary. Half of them took cratal in a dose of 1 tablet three times a day for 1 month, three courses with intervals of three months through a year. The main active ingredients are: extract of hawthorn fruit (*Crataegiae fructus extractum spissum*) in terms of dry matter - 43 mg; a motherwort herb extract (*Leonuriae herba extractum spissum*) in terms of dry matter - 87 mg; and taurine per 100 % dry substance - 867 mg. Hawthorn fruit possesses antioxidant properties, lowers cholesterol, relaxes spastic vessels, increases myocardial sensitivity to cardiac glycosides, leads to normal blood coagulation, reduces blood pressure, inhibits nerve stimulation, normalizes heart rate, perfectly tones up and strengthens the body. The herb of the wild boar (dog nettle) stabilizes the heart rhythm and strengthens the myocardium, exhibits antispasmodic and anticonvulsant effects, lowers blood pressure, blood glucose, pyruvic acid and lactic acid, stabilizes protein metabolism and removes excess fats. Taurine plays an important role in the process of trapping and assimilating fats and lipids. It is one of the main components of bile, in small quantities contained in various tissues of the body, mainly in the muscles. Taurine promotes digestion and production of bile in the liver, promotes cholesterol digestion. In addition, it improves the function of the gallbladder by the formation of bile acid taurocholate, which contributes to the more effective removal of cholesterol with bile. Taurine is a key component of bile acids, and it plays a significant role in providing the optimal liver, it is necessary for the elimination of toxic substances and products of metabolism from the body. Indications for oral administration are cardiovascular disease and cardiac glycoside poisoning. According to the results of this work, all representatives in the test group noted that the general condition was significantly improved, attacks were less frequent than before; their intensity decreased, and the duration became shorter. In 21 of 40 patients, the functional class of angina decreased by one grade. 19 of 40 showed decrease in all the symptoms and the number of attacks, their need for short-acting nitrates declined as well; the distance that the patient can overcome became longer for 100-150 m; dyspnea decreased. In the control group, 9 out of 40 individuals reported a slight improvement in the general condition, 23 individuals noted that their condition remained unchanged, 8 presented deterioration manifested by increasing frequency of compression pain in the chest, increased shortness of breath at exertion. Biochemical blood examination the representatives of the test group demonstrated decreased level of total cholesterol due to low density lipoprotein and triglycerides by 21-48% compared with that at the beginning of the therapy. Blood examination of the control group revealed the decrease maximum by 14%. According to the results of coagulograms no pathological abnormalities were detected in the test group, while in the control group of 24 people increased coagulability was found out. The results described have proven the effectiveness and appropriateness of the appointment of Cratal for the integrated treatment of stable angina, since it

has good antianginal, hypolipidemic and antiplatelet effects, potentiates the therapeutic effect of most cardiologic drugs that provide a positive influence of the general health of patients.

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CYTOKINE STATUS OF PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE AND COMORBID DIABETES MELLITUS TYPE 2 DURING INTEGRATED TREATMENT INCLUDING S-ADENOSYLMETHIONINE

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Key words: non-alcoholic fatty liver disease, treatment, adiponectin, FNP- α , interleukin-6, C-reactive protein.

The prevalence of non-alcoholic fatty liver disease (NAFLD) is becoming higher, but at its initial stages of development it can be characterized by having a benign course. With progressing and left untreated, this disease leads to fibrosis and cirrhosis of the liver and possibly to hepatocellular carcinoma. This study included 45 patients with NAFLD and comorbid diabetes mellitus type 2 (20 cases of steatohepatosis, 25 cases of steatohepatitis). In order to identify the diagnosis of NASH, clinical laboratory, biochemical and instrumental studies were applied. The results of the treatment showed a significant improvement in the subjective state of patients, decreased complaints of discomfort in the right hypochondrium, general weakness, and nausea. The following ultrasound study of the NASH patients revealed the redistribution of the number of patients towards the decrease of severity stages of hepatoses. All the patients showed that cytolysis, mesenchymal inflammatory syndrome significantly decreased. Indicators of the cytokine profile revealed an increase in the adiponectin content in the group 1 in 1.18 times, and in the group of NASH patients

in 1.44 times; the level of FNP- α - at stage I of hepatitis decreased in 1.46 times; and in the II stage - in 1,64 times; in III - in 1.26 times. The content of IL-6 decreased in the patients with the corresponding stages I, II and III - in 1,30; 1.35 and 1.45 times respectively, with fatty hepatoses - in 1.06 times. At the same time, the index of content of C-reactive protein at stages I, II and II decreased in 1.26 times, in 1.24 times and 1.22 times; while in the group 1 - in 1,09 times. Thus, the application of S-adenosylmethionine in the treatment of patients with non-alcoholic fat liver disease has demonstrated high efficiency towards the normalization of the cytokine blood profile.

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FLAIL CHEST: GENERAL CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS

Panasenko S. I.

Key words: flail chest, clinical and epidemiological research, traumatism, mechanical genesis of trauma.

Nowadays up to 11% of Ukrainians who received traumas become handicapped, moreover, injury mortality up to the age of 70 significantly exceeds that value in developed countries. Understanding the epidemiology of injury allows us to analyze risk factors, to develop a treatment strategy, to reduce disability rate and prevent deaths, including patients with blunt thoracic trauma associated with flail chest. The purpose of this study was to verify the traumatism structure, to study the mechanical genesis of chest trauma and its effect on survival and mortality rates. Materials and methods. During the clinical and epidemiological research, the main aspects of intra-group distribution and inter-group relationships of the revealed types of traumatism, traumatic mechanisms, survival rates and mortality were studied and analyzed in 64 clinical cases of closed combined trauma with flail chest. Automated methods for processing statistical data in an object-relational electronic database were used in this research. Results. Having analyzed 64 cases of combined blunt thoracic trauma with flail chest we revealed the influence on the gender distribution, survival and mortality of the basic trauma indicators and mechanical genesis of this type of injuries. The results of the study has also demonstrated that traumatic injuries resulted from traffic accident in 62.5% of cases were the cause of trauma with the development of the flail chest phenomenon, and men suffer three times more often than women. The highest mortality (18.8%) is observed in traffic accidents, while survival rate twice exceeds the mortality rate. Among the whole range of complex trauma mechanisms that lead to flail chest, the most frequent ones are traffic injuries with pedestrians (28.1%) and drivers (21.9%). The survival and mortality rate in cases of body compression was 7:1, in accidents with drivers 4:1, and in case of accidents with pedestrians and passengers, this ratio was 2:1. The type of trauma and its mechanical genesis is of a great significant impact on gender and resulting factors in patients with flail chest that are closely interconnected.

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PRINCIPLES OF PRP-THERAPY IN THE COMPLEX OF PRE-OPERATIVE PREPARATION TO AUTODERMOPLASTY DURING THE COURSE OF CHRONIC WOUND TREATMENT

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Key words: autodermoplasty, chronic wounds, plasma enriched with platelets, PRP-therapy.

Introduction. Treatment of patients with chronic wounds often requires surgical interventions to replace the defect with skin of their own origin, i.e. autodermoplasty (ADP), the success of which depends on the correctly established term of the operation. Materials and methods. The results of treatment of 71 patients with chronic wounds of various genesis were analyzed. In the patients of the main group (38 patients) the preoperative preparation complex was complemented with PRP-therapy measures. The method of closing the wound defect with ADP with a split perforated flap was used in 32 patients of the main group and in 30 patients of the comparison group. Both study groups were divided into subgroups, depending on the etiological factor of chronic wound (CW) occurrence. The subgroups IA and PA included patients with CW against the background of arterial pathology (14 and 12 patients, respectively). Subgroups of IP and IIB were formed by the patients having CW of venous aetiology (12 and 11 patients, respectively). Patients with CW of aetiology (post-burn, bedsores, postoperative) made up the subgroups of IP and IIS (12 and 10 patients). Results and discussion. Applying PRP-therapy in the complex of preoperative preparation for ADP shortened the period of preoperative preparation of the wound, allowed us to increase the area of the autograft, which took well by 15.2%, to reduce the postoperative staying in 1.48 times. Conclusion. Combined use of PRP - therapy in the complex of preoperative preparation for surgical restorative intervention has been proven to be clinically effective. The applied method allowed us to statistically improve the results of treatment of patients with CW. An important role in the success of ADP is played by careful preoperative preparation of the wound defect aimed at stimulating the formation of granulation tissue and epithelisation.

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GENOTYPES OF VEGF, TNF-A AND TNF-B GENES IN PATIENTS WITH BLADDER CANCER IN T2N0M0 STAGE AND THEIR ASSOCIATION WITH TUMOUR NEOPLASTIC GRADE

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Key words: bladder cancer, genotype, growth factor, necrosis factor, polymorphism, differentiation.

The aim of this study was to determine the polymorphism of genotypes of VEGF, TNF- α and TNF- β genes in patients with bladder cancer in T2N0M0 stage and their relation to the grade of neoplasia G. The test group involved 30 patients (20 men and 10 women) with bladder cancer in T2N0M0 stage. The age of men was 50.3 ± 6.1 , of women - 59.3 ± 5.0 years. 50 healthy individuals made up a control group; gender characteristics and age were identical to those of the test group. The grade of neoplasia G1 in the patients with bladder cancer in the T2N0M0 stage was detected in 3 (10%) patients, G2 grade - in 21 (70%) patients, G3 grade - in 6 (20%) patients. The ratio of GG / GC / CC

gene of the VEGF gene in the patients with bladder cancer in the T2N0M0 stage is 53.3% / 26.7% / 20% respectively, in healthy subjects was 43,3%/46,7%/10%, respectively. The ratio of GG / GA / AA genotypes of TNF- α gene in the patients with bladder cancer in the T2N0M0 stage was 53.3% / 46.7% / 0%, in the control group (healthy), respectively, 48%/50%/2%. The ratio of TT / TC / SS genotypes of TNF- β gene in patients with PCM in the T2 stage was 10% / 53.3% / 36.7%, in the control group, respectively, 13.3% / 50% / 36.7%.

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FUNCTIONAL STATE OF ENDOTHELIUM AND INDICATORS OF HAEMOSTASIS IN PATIENTS WITH HYPERTENSION OF II STAGE, OBESITY AND NON-ALCOHOLIC STEATOHEPATITIS

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Key words: non-alcoholic steatohepatitis, hypertonic disease, obesity, endothelial dysfunction, perfusion, vasodilatation.

The aim of the study was to determine the characteristics of the functional state of endothelium and ho-meostasis indices in patients with non-alcoholic steatohepatitis (NASH) and comorbidity of

obesity I-II degree and essential hypertension (EH) of the II stage. Material and methods. 140 patients were examined: 60 patients were diagnosed to have NASH and obesity of the I degree (1 group), 60 patients had NASH and comorbid EH of the II stage and obesity of the I degree (group 2) and 20 patients with EH II stage and obesity of I degree (3 group) and 20 healthy people. All groups of patients were randomized according to age, sex, degree of obesity. The results of the study have demonstrated that the aggravation of the endothelial dysfunction in the patients with EH against NASH and obesity is an important link in the pathogenesis of vascular disorders. The growth of vascular resistance indices in the bed of the common hepatic artery, which is compensated by NO hyperproduction and leads to vasodilation of the venous link of the liver blood circulation, promotes the development of venous stasis, sludge of blood cells, develops the conditions for thrombotic formation. These changes result in chronic persistence of the state of "ischemia – reperfusion" of the liver parenchyma under the conditions of compensation for the hyperkinetic type of blood circulation under NASH. This contributes to the endothelial and hepatocyte damage and progression of NASH.

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THE FUNCTIONAL STATE OF ENDOTHELIUM AND INDICATORS OF HEMOSTASIS IN PATIENTS WITH HYPERTENSION OF 2ND STAGE, OBESITY AND NON-ALCOHOLIC STEATOHEPATITIS

Khukhlina O. S., Antoniv A. A., Mandryk O. Ie., Kuzminska O. B., Kopchuk T. H., Domanchuk T. I., Yurniuk S. V.

Key words: nonalcoholic steatohepatitis, hypertonic disease, obesity, endothelial dysfunction, perfusion, vasodilatation.

The aim of the study was to determine the features of the functional state of endothelium and homeostasis indices in patients with non-alcoholic steatohepatitis (NASH) on the background of obesity of the I-II degree and hypertonic disease of the II stage (HDII). Material and methods. 140 patients were examined: 60 patients with NASH and obesity of I degree (1 group), 60 patients with NASH and comorbid HD of II stage and obesity of I degree (group 2) and 20 patients with HD of II stage and obesity of I degree (3 group) and 20 practically healthy people. All groups of patients were randomized according to age, sex, degree of obesity. As a result of the research, it was found that the deepening of the endothelial disfunction in patients with HD on the background of NASH and obesity is an important link in the pathogenesis of vascular disorders. The growth of vascular resistance in the basin of the common hepatic artery, which is compensated by hyperproduction of

NO and leads to vasodilation of the venous link of the liver blood circulation, promotes the development of venous stasis, slurry formation of blood cells, creates conditions for thrombotic formation. These changes lead to chronic persistence of the state of "ischemia-reperfusion" of the liver parenchyma, under the conditions of compensation for the hyperkinetic type of blood circulation under NASH, which contributes to the strengthening of endothelial and hepatocyte damage and progression of NASH.

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INTENSITY OF COLD SHIVERING IN DEVELOPMENT OF POST-OPERATIVE INCIDENTAL HYPOTHERMIA

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Key words: postoperative hypothermia, convection heating system, anaesthesiology, intensive care

The article is devoted to modern principles of prevention and treatment of unintended postoperative hypothermia. There was a significant decrease in the severity of postoperative tremor on the BSAS scale in the group of patients with convection heating (0.88 ± 0.73 points) compared with passive warming (6.23 ± 1.42 scores) ($p < 0.05$) that indicates the effectiveness of the convection heating system of patients in preventing the development of severe cold shaking. The duration of time to achieve normothermia was significantly lower when using convection heating system (2.98 ± 1.05 hours) compared with the group of patients who exposed to passive warming (6.23 ± 1.42 hours) ($p < 0.05$) Post-operative tremor, besides discomfort for the patient, can be a potential serious complication by increasing the oxygen intake of the body and causing significant systemic changes. The use in the postoperative period of the convection heating system allows medical team to restore the normothermia effectively, as well as to reduce the severity of postoperative cold tremor.

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RESULTS OF THE TREATMENT OF ARTERIAL ANEURISMS OF MEDIAL CEREBRAL ARTERY IN POST-OPERATIVE PERIOD

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Key words: arterial aneurysm, medial cerebral artery, surgical treatment, brain.

The purpose of the work was to identify the factors, which have a significant impact on the outcomes of treatment of patients with arterial aneurysm of the median cerebral artery in the postoperative period in order to improve surgical tactics and treatment outcomes. The work was based on 186 cases (100%) of operated individuals with arterial aneurysm of the median cerebral artery. The patients took the course of treatment in the State Institution "Acad. A. P. Romodanov Institute of Neurosurgery, National Academy of Medical Sciences of Ukraine" in the period from 2012 to 2015. There were 95 men (51%), and 91 women (49%). The age of the patients ranged from 32 to 72 years, the mean age was 49.3 ± 2.5 years. Most of the patients, 164 (88.2%) were operated in the acute period of the discontinuity of arterial aneurysm of the medial cerebral artery. Among them there were 164 (88, 2%) of cases operated during 14 days since the hemorrhagic event, 22 (11, 8%) patients were operated in so-called "cold" period of the observations. In 112 (60.2%) cases, clipping of the arterial aneurysm of the middle cerebral artery was performed; 74 (39.8%) cases required the endovascular surgical interventions. The results of the surgical treatment of 186 (100%) patients at the time of discharge from the hospital were assessed by the Glasgow outcome scale (GOS): 143 patients (76.8%) demonstrated good results; 26 (14.1%) patients were assessed as having moderate disability; 6 (3.2%) patients had severe disabilities; fatal outcomes were in 11 (5.9%) cases. The results of treatment of patients with arterial aneurysms of the medial cerebral artery during the postoperative period are significantly influenced by the patient's age, severity by the Hunt and Hess stroke scale, degree of consciousness repression, extent of intracranial haemorrhage, presence of concomitant angiospasm, history of arterial aneurysm rupture, intraoperative arterial aneurysm discontinuity. Compliance with the principles of patient-centred indications based on choosing an optimal method for surgical treatment of patients with arterial aneurysm in the medial cerebral artery (endovascular, microsurgical), taking into account the risk factors of unsatisfactory results, can improve the outcomes of the surgical treatment in the postoperative period.

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METABOLIC SUPPORT OF PATIENTS WITH MYOCARDIAL INFARCTION AND LIVER DYSFUNCTION

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Key words: myocardial infarction, liver functioning, lipid peroxidation, quercetin, systolic and diastolic function.

The purpose of this work was to improve the existing therapeutic programs for myocardial infarction (MI) by differentiated approach to the therapy, depending on the presence or absence of liver dysfunctions. Comparative clinical and laboratory investigation of 107 patients with MI and liver dysfunction and 42 patients without liver dysfunction has revealed that the patients of main group were characterized by more expressed central and peripheral hemodynamics disorders, which could lead to the liver dysfunction and abnormality of lipid metabolism. At the same time, we observed excessive activation of lipid peroxide processes, suppression of antioxidant system, enhancement of pathological processes in the heart and liver. Liver disorders in the patients with myocardial infarction significantly impair the clinical course of the underlying pathological process; result in the systolic and diastolic dysfunction of the heart thus contributing of MI complications. Applying bioflavonoid quercetin in the integrated therapy of the patients with MI provided the improvement of hemodynamic parameters and liver function, contributed to the reduction of MI complications.

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EXPERIMENTAL MEDICINE AND BIOLOGY

PECULIARITIES OF LIPID PEROXIDATION PROCESSES AND ANTIOXIDANT DEFENCE SYSTEM IN GUINEA PIGS' LUNGS IN THE LATE PERIOD OF EXPERIMENTAL ALLERGIC ALVEOLITIS AND THEIR CORRECTION WITH THIOTRIAZOLIN

Baida M. L.

Key words: exogenous allergic alveolitis, allergy, inflammation, lipid peroxidation, catalase, thiotriazolin.

We have analyzed the results obtained by investigating the changes in indices of pro-oxidant (conjugated diene and malonic dialdehyde) and antioxidant (catalase) systems in guinea pigs' lungs in progressing experimental allergic alveolitis (EAA). The investigation was conducted on 40 female guinea pigs weighing 180-220 g. Experimental allergic alveolitis was induced by the method of O.O. Orekhov and Y.A. Kyrylov. Prior, the animals had been immunized with Freund's complete adjuvant (0.2 ml intramuscularly into a hind leg). In 2 weeks, 0.2 ml of 1% BCG solution was introduced intravenously every 10th day. Later, the animals were decapitated; the level of lipid peroxidation processes and activity of antioxidant system enzymes were detected in lung homogenate on the 44 th and the 54th days after EAA. The content of conjugated dienes was determined by the method of V.B. Havrylov and M.I. Myshkorudina, malondialdehyde – by E.N. Korobeinikov method, catalase activity – by R. Holmes. The findings obtained were statistically processed using arithmetical mean (M), margin of error of arithmetical mean (m), and Student's criterion "t". The calculations were performed by using statistical and graphic analysis of Microsoft Excel electronic tables (Microsoft office programs). Results with $P \leq 0.05$ were regarded as statistically reliable. The results of experimental investigation showed that a significant increase in conjugated diene and malonic dialdehyde level in animals' lungs was observed in the late periods of EAA progression as compared with the control group, indicating the activation of this marker. Oxidative stress can arise from overproduction of reactive oxygen species by metabolic reactions that consume oxygen and shift the balance between oxidant / antioxidant statuses in favour of the oxidants. Significant decrease in catalase activity in lung tissue was observed in response to growing free radicals during EAA development compared with the indices in the intact animals. Attempts to correct oxidant / antioxidant imbalance showed that applying antioxidant thiotriazolin produced a corrective effect on all indicators. Reduction of conjugated diene and malondialdehyde contents and elevation of catalase activity have been reported in animals subjected to the disease modelling. This could reverse catalase deficiency and stop oxidative damage to lung tissue.

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ANATOMICAL AND TOPOGRAPHIC PECULIARITIES OF TESTICLE DRAINAGE SYSTEMS

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Key words: neural-vascular structures, spermatic cord.

The main pathogenetic factors of male infertility include numerous regional hemodynamic and lymphody-namic disorders. The purpose of this research was to study anatomical and topographic peculiarities of neu-ral and vascular structures of a spermatic cord at the different levels in order to identify an optimal site for surgical interventions for pathology of a vaginal sprout of the peritoneum. Histological and morphological study of the spermatic cord samples was carried out on the three levels: fragment of a spermatic cord in the region of deep ring of the inguinal canal, in the middle third and distal part of a spermatic cord. Having ana-lyzed total area of vessels from different parts of a spermatic cord, we noted that area of arteries and veins was the largest in the proximal department. Their specific gravity from the total area of all arteries, which was revealed in 6 preparations ($81.7542 \times 10^{-3} \text{ mm}^2$), made up 62.9% (51.3805 from $81.7542 \times 10^{-3} \text{ mm}^2$) in the proximal region., In the middle region 19.1% of arteries were detected, in the distal region 18.0% of arteries were detected. About 48.9% of the veins area was carried out in the area of a deep ring of the inguinal canal. The obtained results of histological and morphological findings of the spermatic cord samples testified that blood vessel were located in the proximal part of a spermatic cord, the biggest on a size, and the less significant by a quantity. The nerves, which diameter was objectively smaller than diameter of the nerve trunks, were visualized in a direction of the distal part of a spermatic cord. This investigation can contribute to the development and implementation on the practice of the minimally invasive and less traumatic methods of surgical correction for diseases of

a testicle carried out in children, which focused on the maximal preservation of the men genital gland.

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BIOCHEMICAL CHANGES IN THE FUNCTIONAL STATE OF THE LIVER IDENTIFIED IN BLOOD SERUM OF RATS AFTER ADMINISTRATION OF OXALIPLATIN CYTOSTATIC DRUG AND THEIR CORRECTION WITH LIOLIV LIPOSOMAL DRUG

Barder E.G.

Key words: liver, rats, biochemical markers, hepatotoxicity, aminotransferase, Oxaliplatin, hepatoprotectors, Lioliv.

The article examines the laboratory evaluation of hepatotoxicity of Oxaliplatin against the Lioliv hepato-protective drug administered to rats. The rats of control groups (n=10) were injected with physiological sa-line, the rats of group I (n = 10) were injected oxaliplatin, the group II (n=10) was introduced Lioliv oxaliplatin, the group III (n = 10) was first introduced Oxaliplatin then followed with Lioliv. On the 14th day of the experiment, alanine aminotransferase and alkaline phosphatase in the I group of animals nearly doubled (in 2.1 times), aspartat aminotransferaze increased in 1.5 times, the albumin content decreased in 1.6 times, gamma-glutamyl transferase increased in 5 times, lactate dehydrogenase increased in 3.5 times. The II group demonstrated the only increase in aspartataminotransferaze in 1.26 times, hypoalbuminemia, gamma glutamyl transpeptidase increased in 2.21 times and lactate dehydrogenase in 1.86 times. The group III showed increase of alanine aminotransferase in 1.7 times, and increase of aspartat aminotransferaze in 1.6 times; alkaline phosphatase grew in 1.77 times, lactate dehydrogenase – in 2.4 times, albumin content decreased in 1.41 times. In the 1st group, for 21 days, alanine aminotransferase was increased in 2.1 times, aspartat aminotransferaze –in 1.9 times, alkaline phosphatase doubled, albumin decreased in 1.6 times, gamma-glutamyl transferase increased in 6.8 times, lactate dehydrogenase grew in 3.6 times. The II group demonstrated the least pronounced changes on the 21 days of the experiment: the activity of alanine ami-notransferase was nearly unchanged (increased in 1.4 times), gamma-glutamyl transferase doubled. In the group III, the activity of alanine aminotransferase and aspartat aminotransferaze increased in 1.6 and 1.3, respectively, gamma-glutamyl transferase increased in 2.8 times, lactate dehydrogenase – in 1.9 times, alka-line phosphatase – in 1.5 times, and albumin reduced in 1.4 times. Thus, the most pronounced hepatopro-TECTIVE effect was observed when Lioliv was administered before the introduction of Oxaliplatin.

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BONY PELVIS AND ITS CHARACTERISTICS IN SEXUAL SOMATOTYPES OF ADOLESCENT FEMALE ATHLETES DOING FREESTYLE WRESTLING AND PANKRATION

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Key words: female wrestlers, bony pelvis, adolescence, sex somatotypes, freestyle wrestling, pankration.

The article presents the results of the investigation devoted to studying the features of the structure, sizes and types of bony pelvis in adolescent female athletes doing freestyle wrestling and pankration. The aim of this work was to assess and analyze the values of variables obtained that reflect the changes in the development and structure of the bony pelvis and relevant anatomical and morphological parameters in the athletes of both groups. It has been found out that 9 (56.25%) female athletes engaged in freestyle wrestling have a gynecomorphic type of sexual constitution, 5 (31.25%) athletes have a mesomorphic sexual somato-type, and 2 (12.5%) female athletes have andromorphic sexual somatotype that can be regarded as an un-favourable sign of endocrine or

reproductive disorders. 13 (81.25%) of the female wrestlers showed anatomically narrow pelvic structure; 8 (50.00%) wrestlers were found to have pelvic narrowing of the I-II degree of constriction. This may be a risk factor for obstetric pathology and labour. All athletes have their bone maturity confirmed. Moreover, it was found that only one athlete doing pankration was found to have andromorphic sex somatotype 1 (8.33%), 7 female athletes have a mesomorphic somatotype (58.33%), 4 athletes have a gynecomorphic sexual somatotype (33.33%). 5 (41.67%) female athletes were referred to gynecomorphic and mesomorphic sexual somatotypes; 4 (33.33%) and 1 (8.33%) athletes have the pelvic normal size. The transverse-narrowed pelvis was found out in 6 (50.00%) athletes, a simple flat pelvis was detected in 1 (8.33%), "indistinct" forms of the pelvis – in 4 (33.33%), I degree of narrowing of the pelvis – in 5 (41.67%), II degree of narrowing – in 2 (16.67%) athletes.

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EXPERIMENTAL STUDY OF ANALGESIC ACTION OF SOME 8-AMINO-SUBSTITUTED OF 3-METHYL XANTINE

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Key words: 8-substituted of 3-methylxantine, analgesic activity, metamizole, diclofenac sodium.

An urgent issue of experimental pharmacology and modern medicine is searching for new effective, safe drugs aimed at eliminating the pain syndrome. The aim of this research was to study the dependence of an-algesic activity on the structure first synthesized 8-amino-substituted 3-methylxanthine. A comparative evaluation of the analgesic action of new 8-amino- substituted 3-methylxanthine was carried out on rats sub-jected to the chemical peritoneal stimulation induced by

acetic acids. The pronounced analgesic activity was shown by the compound of 5 – 7-(3-p-ethoxyphenoxy) propyl-8-diethylamino-theophylline, which reduced the development of experimental cramps in the rats by 44.1%. The analgesic activity of the compound 5 exceeded the efficacy of the reference preparation metamizole by a factor of 1.3 and was comparable to that of diclofenac sodium.

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MECHANISMS OF CONNECTIVE TISSUE DISRUPTION IN PERIODONTIUM RATS DURING SYSTEMIC INFLAMMATION

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Key words: systemic inflammation, connective tissue, collagenolysis, proteoglycans, sialoglycoproteins, periodontium.

The purpose of the work was to reveal the mechanisms of connective tissue disruption in periodontium of rats under modeled systemic inflammation (SI). The study was carried out on 20 Wistar white male rats weighing 180-220 g, divided into 2 groups: the 1st group included intact animals, the 2nd group was made up of the animals with SI induced by intraperitoneal administration of Salmonella typhi lipopolysaccharide (Pyrogenalum) in a dose that stimulated rise

in temperature by 1.5 °C according to the scheme: during the first week, 4 minimum pyrogenic doses (MPD) of 0.4 µg/kg of rat mass were administered 3 times a week. During the following seven weeks of the experiment, rats were given 4 MPD/kg of body weight once a week. The animals were decapitated with ethereal anesthesia. Soft tissues of periodontium (gum, periodontal ligament) and bone tissue of the alveolar processes of the jaws were the objects of the study. It has been found out the SI modeling led to the changes in the biochemical components of the connective tissue such as collagen, proteoglycans and sialoglycoproteins both in soft periodontal tissues (the content of their monomers were observed to grow up – free hydroxyproline increased by 66.2%, $p<0.01$, glycosaminoglycans increased by 66.8%, $p<0.05$, N-acetylneuraminic acid increased by 62.9%, $p<0.001$), and in the bone tissue of the alveolar process (free hydroxyproline concentration increased by 69.9%, $p<0.001$, glycosaminoglycans grew up by 72.4%, $p<0.02$, N-acetylneuraminic acid doubled, $p<0.01$). The calculation of the molar root exposure index indicates an increase in the resorption of the alveolar process during the SI condition.

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BIOCHEMICAL MARKERS OF CONNECTIVE TISSUE IN THE BLOOD SERUM OF RATS AFTER IMPLANTATION OF A BIOPOLYMER BASED ON POLYLACTIDE

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Key words: polylactide, rats, implantation, biopolymers, glycoproteins, chondroitinsulfates, alkaline phosphatase.

This article highlights the changes in biochemical markers of blood serum in rats to evaluate the peculiari-ties through the course of bone tissue regeneration following the implantation of polylactide-based biopoly-mer. The experiment was conducted on 38 male rats, aged 4.5 months.

The animals were implanted with L-poly(lactic acid) pins in the femoral bone. During each observation period, rats (n=7) were taken blood for examination, i.e. in the 15, 30, 90, 180, and 270 days after the implantation. The control group of animals included intact rats (n=3). The content of glycoproteins in blood serum of rats on the 15th day following the implantation was found out to be increased by 23.0 %, on the 30th day – by 15.9%, and on the 90th day – by 14.3 % compared with the control group. The chondroitin sulfates content went up by 53.8% compared with the control group only on the 15th day after the implantation; the findings obtained at later periods of the observation did not differ from the control group. The alkaline phosphatase activity elevated compared with the control group in 15 and in 30 days by 53.9 % and 25.2 % respectively. Increased activity of alkaline phosphatase in 15 and 30 days was also associated with increased osteoblast activity in the initial stages of regeneration. The chondroitin sulphates content increased due to inflammatory and regenerative processes in the bone tissue after implantation, but on the 30th day it was found within the normal range, indicating the normal course of bone regeneration after the polylactide-based biopolymer implantation. Thus, changes in biochemical markers of connective tissue in blood serum of rats after the polylactide-based biopolymer implantation correspond to the process of postoperative recovery and regeneration of damaged bone tissue.

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ANGIOLIN AND MILDRONATE INFLUENCE ON INTEGRATIVE PARAMETERS OF BODY STABILITY, PROTEINS LEVEL, MORPHOMETRIC MARKERS IN MYOCARDIUM OF RATS IN CHRONIC CARDIAC INSUFFICIENCY

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Key words: angiolin, mildronat, chronic cardiac insufficiency, integrative parameters of organism stability, morphometric markers, proteins content.

The aim of this study was to determine the effect of angiolin on integrative indicators of body status, protein content and morphometric markers in the myocardium of rats with chronic heart failure in comparison with the effect produced by mildronate. The integrative parameters produced by metabotropic agents (angiolin and mildronate) include their effect on the viability of animals, including the percentage of surviving animals, the number of motor acts within 3 minutes, the number of animals with high symptoms of chronic heart failure, and also the identification of body weight in the first day and on the 35th day of the experiment, heart mass on the 35th day, heart mass index (the ratio of heart weight to body weight) on the 35th day of the experiment. The experiments were performed on white mongrel male rats with doxorubicin chronic heart failure. Angiolin was administered intragastrically in a dose of 100 mg / kg, mildronate was induced in a

dose of 250 mg / kg for 14 days in combination with doxorubicin, and then for up to 35 days. It was found out that 65% of animals died of the experimental chronic heart failure; the number of motor acts within 3 minutes decreased, the heart mass index increased due to the increase in the nuclei of apoptotic and destructively altered cardiomyocytes. There was also a drop in protein content in the cytoplasm and mitochondria of cardiomyocytes. Angiolin has shown more marked potential compared with mildronate in restoring integrative indicators of the body resistance to chronic heart failure, protein content and morphometric markers in the myocardium of rats.

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BIOCHEMICAL MARKERS OF BLOOD SERUM IN RABBITS AFTER IMPLANTATION OF PLATES BASED ON POLYLACTIDE, HYDROXYAPATITE AND TRICALCIUMPHOSPHATE ONTO FEMUR DIAPHYSIS

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Key words: rabbits, implants, polylactide, tricalcium phosphate, hydroxyapatite, glycoproteins, chondroitinsulfates, alkaline phosphatase, toxicity.

The article is devoted to the analysis of the blood biochemical markers in rabbits after the placement of the plates based on polylactide, hydroxyapatite and tricalciumphosphate onto femur diaphysis of the femur to evaluate the implant's impact on the organism of animals. In 30 days following the implantation, the glycoproteins content in the blood of rabbits was increased by 87.5 %, chondroitin sulphates nearly doubled (in 2.5 times), alkaline phosphatase grew up by 31.7 % compared with the control group. In 90 days, the content of chondroitin sulphates and alkaline phosphatase was found to be by 22.5 % and 9.2 % lower than in 30 days. In the second group of

rabbits in 30 days, the serum glycoprotein content increased by 30.4 %, chondroitin sulphates increased by 72.1 %, alkaline phosphatase activity increased by 15.9 % compared with the control group. In 90 days after the implantation, the content of glycoproteins was identical to that of the control group level. The content of chondroitin sulphates increased by 26.2 %, and the alkaline phosphatase activity did not change. The content of glycoproteins in I group of animals on the 30th day of observation was higher by 43.8 % compared with II group, chondroitin sulphates were higher by 47.6 % and alkaline phosphatase activity was higher by 13.7 % than that in the second group. On 90th day, the content of glycoproteins did not differ from those in I and II group, but the content of chondroitin sulphates was higher in I group by 55.8 %, alkaline phosphatase activity – by 15.9 % compared to the II group of the rabbits. The biochemical markers of liver and kidney in both groups have not been changed. The dynamics of biochemical markers indicates a faster recovery of damaged bone tissue at the site of implantation of the plates made of polylactide, hydroxyapatite and tricalcium phosphate.

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PROPERTY OF RED BLOOD CELLS WASHED AFTER QUICK FREEZING-THAWING IN MEDIUM WITH SUCROSE AND 1,2-PROPANEDIOL

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Key words: erythrocytes, freezing, morphology, ATP.

Transfusion of red blood cells freeze-preserved for a long period of time does not always result in normal haemodynamics and can cause post-transfusion systemic inflammation. These negative consequences are associated with a decrease in the level of ATP and 2,3-DPG erythrocytes freeze-preserved for long period of time. Massive transfusion of such processed erythrocytes can lead to a fatal outcome associated with the development of post-transfusion systemic inflammation in severe trauma and heart surgery. This inflammation is initiated by iron ions, which are released upon destruction of freeze-preserved erythrocytes in macrophages, followed by stimulation of the synthesis of pro-inflammatory cytokines. Freezing and storing erythrocytes in liquid nitrogen (-196°C) enables to prevent serious side effects, including the development of inflammation. However, even during autotransfusion of erythrocytes after their freezing in a medium with glycerol followed for a short period time (up to 7 days), the post-transfusion value of cell survival within 24 hours is 70-75%. Destruction of erythrocytes after the transfusion is determined by their damage during freezing, according to literature data. The solution of the problem of preventing cell damage during freezing may consist in the development of combined cryo-preserved, containing a significant fraction of the non-penetrating cryoprotectant. It was found out earlier, that the rapid freezing of erythrocytes in a medium containing non-penetrating and penetrating protective components ensures the preservation of cell resistance to the action of osmotic stress during rapid thawing. Moreover, erythrocytes frozen in these media differ slightly in osmotic and morphological characteristics of intact cells. This paper has shown that the freezing of erythrocytes in a medium containing sucrose (10%) and 1,2-propanediol (1,2-PD, 22%) with a low NaCl content (0,27%) ensures the preservation of the osmotic and morphological characteristics of cells. In addition, cellular ATP is maintained at a level of 77% of control that is necessary for the implementation of red blood cells regulation of vascular tone. It can be assumed, the effectiveness of the combined cryo-protectants is due to the fact that in the freezing stage the penetrating cryoprotectant (1,2-PD) counteracts the "critical" cell contraction, a significant contribution to which is made by the concentration of sucrose. At the same time, when thawing sucrose prevents an excessive increase in

the volume of cells. In sum, there is weakening of hypertonic and osmotic stress on cells that causes the preservation of osmotic and morphological characteristics.

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PECULIARITIES OF CHANGES IN TRACE-ELEMENT COMPOSITION OF LUNGS IN YOUNG RATS UNDER MODELLED ALLOXANE-INDUCED DIABETES

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Key words: lungs, trace elements, alloxane-induced diabetes, natrium, potassium, calcium, magnesium.

A well-known fact about the high percentage of people with type I diabetes is a manifestation of a "breakdown" in the endocrine system displayed by the presence of chronic hyperglycemia and glucosuria. Today, the cause of type I diabetes has not been found out yet, but leading diabetes experts attribute it to autoimmune diseases, indicating the role of protective genotypes in conjunction with environmental factors. The most thorough and detailed attention is paid to the study of the impact of diabetes mellitus on the changes in cardiovascular, nervous, urinary, and digestive systems. The pathomorphogenetic effect of chronic hyperglycemia on the respiratory organs is still remaining unclear. As for disorders in the trace-element composition, the bone tissue has been studied very well. There are a lot of evidenced that patients with type I diabetes have an increased risk of pathological bone fractures. It has been reported that in case of "experienced" diabetes, glycosylation products and the parallel effect of blood vessels and nerves contribute more actively to reducing the mineral density of bone tissue (29% decrease in tensile strength and 50% density). This work was aimed at analyzing the chemical composition of pulmonary tissue in young rats subjected to modelled alloxane-induced diabetes and comparing them with the control intact group. To model hyperglycemia caused by absolute insulin insufficiency, we used alloxane. Following a 24-hour fasting, animals were subcutaneously injected with a solution of dihydrate aloxane in a dose of 20 mg per 100 g of weight in 0.1 M citrate buffer (pH 4.0). We used the following methods to the study lung tissues: chemical analysis, glucose oxidase test to determine the level of glucose in venous blood and the level of glycosylated haemoglobin (HbA1c) in 90 days of the experiment to confirm the presence of hyperglycemia in animals. All the received numerical indices were subject to statistical processing. In experiment, we investigated the pulmonary tissue of advanced age rats, which were in the experiment from 90 to 180 days. These were white, non-breeding rats of both sexes. Samples taken from the right lung were dried, subjected toozonation, and then dissolved in acids before evaluating the content of trace-elements. Analyzing data on the content of calcium, potassium, sodium, and magnesium in the lungs of experimental animals, and comparing these parameters with age control, we can argued that chronic hyperglycemia increases the inadequacy of the content of the main trace elements of the central organ of the respiratory system that is directly proportional to the duration of the experimental alloxane-induced diabetes.

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MODERN CONCEPTIONS ABOUT SPATIAL STRUCTURE OF THE PERIPHERAL ZONE OF HUMAN PROSTATE AND DIFFERENCES IN ITS NOMENCLATURE

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Key words: prostate gland, stereomorphology, prostate ductile, nomenclature.

The purpose of this research was to investigate three-dimensional structure of individual prostate glands and their ducts in different glandular zones, and in particular in their peripheral zone as well as the coordination and elimination of anatomical nomenclature discrepancy. Materials and methods. We studied 5 total preparations of the prostate taken from young individuals in accordance with the WHO classification. We investigated a series of 4- μ m thick histological paraffin sections to analyze the structure of the prostate and the architectonics of its ductules. We

made two-dimensional photo reconstructions and three-dimensional plastic reconstructions of the ductules and their branching in the peripheral zone of the prostate gland. Results. Linear analysis of a series of histological sections in depth within the peripheral zone of the prostate, as well as the study of its two-dimensional photo reconstruction and three-dimensional plastic reconstructions, made it possible to identify the following tubular components directly related to the urinary secretion: 1) terminal excretory ductules (first receiving the secretion excreted by glandulocytes of terminal portions); 2) lateral excretory ductules representing 2-3 consecutive dichotomous lateral branching of the central ductules up to the terminal ductules; 3) central ductules located centrally in each of the individual gland in the peripheral zone; 4) major ductules were identified to have no lateral branching; 5) rarely a common excretory duct was formed by the confluence of several major ones. All these aspects mentioned above determine the difference in their numbers. Presented gradation of the prostatic ductules allows us to determine individual prostatic glands, not glandular lobules, as morphological units. Conclusions. Each individual gland of the peripheral zone of the human prostate has an extensive system of complex branching of the excretory ductules including terminal, lateral, central, major and sometimes common excretory ducts.

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INFLUENCE OF MODERN ANTISEPTICS ON BIOFILM FORMATION BY GRAM-NEGATIVE PATHOGENS DURING INFECTIOUS AND INFLAMMATORY COMPLICATIONS AFTER DENTAL IMPLANTS PLACEMENT

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Key words: biofilm, sensitivity to antibiotics, Gram-negative bacteria, dental implantation

Gram-negative non-fermenting microorganisms occupy a significant place among biofilm-forming micro-organisms that take part in the development of severe diseases in patients with immunodeficiency. Infections, which are caused by these pathogens, are characterized by chronic long-term course and significant difficulties of their ethiotropic therapy as they develop additional resistance to antimicrobial agents. The purpose of this study was to investigate the influence of modern antiseptic agents on biofilm formation by clinical strains of gram-negative microorganisms, which were isolated during infectious and inflammatory complications after dental implants placement. Materials and methods. 25 strains of gram-negative microorganisms were isolated from the examined patients there were the bacteria of the genus *Pseudomonas* spp. (n = 13) and *Acinetobacter* spp. (n = 12). Evaluation of sensitivity to antiseptics was carried out by means of double serial dilutions method using the standard procedure approved by the Order №167 of the Ministry of Public Health of Ukraine on “On Approval of Training Guidance “Assessment of the sensitivity of microorganisms to antibiotics”, dated by April, 5, 2007. Biofilm-forming properties of clinical strains were studied by using the spectrophotometric method of G.D. Christensen (MtP test “microtiter plate test”). The properties of microorganisms to form biofilms were evaluated by the degree of absorption of the dye in units of density (UD). Results. The sub-bacteriostatic concentration of decasan suppresses the formation of biofilms of *P. aeruginosa* clinical strains during the first 24 hours of cultivation. Clinical isolates of *P. aeruginosa*, which are in the formed biofilm form, show the high sensitivity to the sub-bacteriostatic concentrations of antiseptics of

decamethoxin (decaetan, hosten). The presence of antiseptic agents does not affect the formation of biofilms by clinical strains *A. baumannii* in the first day of cultivation, however, the sub-bacteriostatic concentrations of decasan, horosten and chlorhexidine significantly suppress the two-day biofilm forms of *A. baumannii*. Conclusion. Gram-negative non-fermenting bacteria that colonize the peri-implant site in cases of complications following dental implant placement, have high biofilm-forming properties. Modern antiseptic agents influence the formation of biofilms at different stages of this process.

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AGE AND INDIVIDUAL ANATOMICAL VARIABILITY OF PROSTATE GLAND AND SEMINAL VESICLES IN FOETUSES

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Key words: prostate gland, seminal vesicle, morphogenesis, foetus, human.

The peculiarities of the variants of the external structure, shape and size of certain organs as well as organ complexes depend on their spatial-temporal relationships and on the state of the functional activity of a certain organ in the prenatal period of human ontogenesis. Fragmentation of data on variant anatomy of the prostate gland (PG) and seminal vesicles (SV) during the foetal period of human ontogenesis determines the topicality of the problem and the need to search for its solution. The study aimed at determining the forms of anatomical variability of the external structure of the PG and SV during the foetal period of human ontogenesis. To achieve the goal the research involved 115 samples of human prefoetuses and foetuses without external signs of anatomical malformations or anomalies of development. The series of histological and topographic anatomical sections of human prefoetuses, as well as samples of certain male urinary and genital organs of foetuses of different age from the Museum of M.H. Turkevych Department of Human Anatomy of Higher State Educational Institution of Ukraine “Bukovinian State Medical University” were also used for the study. In 4-6-month-old foetuses, the height of PG predominates over its width and thickness, and starting with 7-month-old foetuses, the width of the PG is greater than the height and thickness of the organ. It should be noted that in most of the studied foetuses, the length of the right SV prevailed over the length of the left one, while the width and thickness of the left SV are larger than those of the right one. The following forms of SV: cone-shaped, cylindrical, spindle-shaped, elongated-oval, pear-shaped, pyramidal, and pimple-like have been identified on the basis of the given research. It is noted that in early foetuses cone-shaped SV prevail, and at the end of the foetal period, the SV are usually characterized by spindle-shaped and cylindrical forms. PG in 4-month-old foetuses are mainly round-oval, in 5-month-old – conical in shape, in 6-month-old foetuses they are spherical, in 7-month-old – conical and spherical, in 8-month-old – pyramidal and at the end of

the foetal period, PG acquires chestnut shape. The stimulating factors in determining the dynamism of the process associated with embryotopography of PG and SV are the anatomical peculiarities of the structure of adjacent organs and structures, in particular, the urinary bladder, sigmoid colon and rectum. Conclusions. Syntopic interactions are intensively manifested in the foetal period of human ontogenesis, as evidenced by the variability of the external shape and size of the prostate gland and seminal vesicles in the fetuses of different, and the same age group, and sometimes in the same foetus. Prostate gland in 4-month-old foetuses is mainly round-oval, in 5-month-old it is conical, in 6-month-old foetuses it is spherical, in 7-month-old – conical and spherical, in 8-month-old – pyramidal and at the end of the foetal period the gland acquires chestnut shape. Cone-shaped SV prevail at the beginning of the foetal period of human ontogenesis, and at the end of the foetal period they are usually characterized by spindle-shaped and cylindrical forms. In 4-6-month-old foetuses, the height of prostate gland predominates over its width and thickness, and starting with 7-month-old foetuses, the width of the prostate gland is greater than the height and thickness of the organ. In most of the studied foetuses, the length of the right seminal vesicle prevails over the length of the left one, while the width and thickness of the left seminal vesicle are larger than those of the right one.

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INFLUENCE OF ACUTE AND COMBINED HYPOXIA ON LIVER MASS INDICES AND ANTHROPOMETRIC INDICES IN RATS DURING THE PERIOD OF POSTNATAL ONTOGENESIS

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Key words: rats, liver, postnatal period, hypoxia.

The aim of this research was to study the liver mass indices and anthropometric data of infant rats on the 1st, 14th and 35th days of their postnatal ontogenesis under the influence of acute postnatal and combined hypoxia. The experiment was conducted on the WAG and “black hooded” infant rats subjected to mountain hypoxia modelling. During the first 24 hours of the postnatal period the mass and length of the infant rats’ body in the combined hypoxia group decreased by 7,73% and 8,35% respectively compared with the control group. By the 14-th day the mass and length difference between the control and experiment groups reached 7,38% and 4,4%. On the 35-th day after the birth these indices in the combined hypoxia group in general reached their lower limits in the control group. The group of infants subjected to combined hypoxia showed the compensatory enlargement of absolute and relative liver mass that remained unchanged on the 1st, 14-th and 35-th days on life. On the 1st day of the experiment the acute hypoxia group showed moderate growth of liver mass indexes.

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DENTISTRY

INDICES OF BLOOD SERUM IMMUNOLOGICAL MARKERS AND LEVEL OF ORAL FLUID MINERAL METABOLISM IN PATIENTS WITH CHRONIC HERPETIC INFECTION DURING THE ASSESSMENT OF THERAPEUTIC AND PROPHYLACTIC COMPLEX FOR DENTAL IMPLANT PLACEMENT

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Key words: chronic herpes infection, dental implantation, osteointegration enzymes marker, interferon status.

This article presents the results of the evaluation of the effectiveness of therapeutic and prophylactic complex by detecting and assessing marker enzymes of osteointegration and the interferon status of patients with chronic herpes infection requiring dental implant placement. Applying this therapeutic and prophylactic complex reduces insufficiency in the interferon system that in turn leads to the development of an appropriate immune response to HSV1/2-type interference and helps to reduce the earliest inflammatory body response during the entire postoperative period in the patients with chronic herpetic infection following the procedure of dental implant placement. According to the results of the study, it has been established that the level of the activity of such osteointegration markers as acid phosphatase, calcium and phosphorus significantly reflects the positive dynamics of osteointegration. The developed complex can be proposed as a sufficiently effective measure to prevent the occurrence of possible relapses in patients with chronic herpetic infection during the procedure of elective dental implant placement. Application of this complex makes it possible to

reduce the likelihood of the development of such complications as exacerbation of herpetic stomatitis or perimplantitis.

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EVALUATION OF ORAL HEALTH LITERACY IN PARENTS OF PRESCHOOL CHILDREN SUFFERING FROM MUSCULOSKELETAL DISORDERS

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Key words: 3-6 year old children, dental caries, musculoskeletal disorders, oral health literacy.

Keeping good oral hygiene is one of the most important measures to prevent dental caries. However, there are a number of reports demonstrating that a significant share of population is not able to care for their teeth properly and have a low level of oral health literacy. Therefore, the purpose of the study was to assess the level of oral health literacy among the parents of preschool children having musculoskeletal disorders. Parents' awareness of the basic rules of oral hygiene was assessed by analyzing their answers to 20 questions presented in the developed structured questionnaire. Questions concerned the time and reasons for their child's first visit to the dentist; the age at which the child began to brush teeth; multiplicity and duration of teeth cleaning; criteria for choosing items and oral hygiene products, and others. 150 mothers of five-year old children who visited kindergartens with specialized groups for children with MSD agreed to participate in the survey. The analysis of the data obtained was carried out by calculating the mean values and the percentage of each answer to the questions. It was found that the first child's visit to the dentist in order to get preventive dental check-up was undertaken only in cases of $11.91 \pm 2.64\%$ of children, at the same time for $88.09 \pm 2.64\%$ of children a toothache was a reason for such a visit. Only a half ($50.67 \pm 4.07\%$) of interviewed parents consider treatment of deciduous teeth as obligatory, compared with $46.00 \pm 4.07\%$ of those parents who do not consider it necessary. Parental answers about criteria for choosing toothbrushes and pastes for their children were distributed as follows: $32.67 \pm 3.83\%$ of parents answered that they followed the advices of advertising; for $46.00 \pm 4.07\%$ of parents the main criterion was the price of toothbrushes and pastes and only $21.33 \pm 3.34\%$ of parents followed recommendations of the dentists. Thus, the survey revealed a low parental level of oral health literacy. Therefore, it is advisable to maintain large-scale oral health promotion activities in pre-school institutions in order to raise parental and children awareness on oral hygiene and to improve the oral status and the general health of children.

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INFLUENCE OF DETOXICATION THERAPY ON SERUM CYTOKINE PROFILE IN CHILDREN WITH ACUTE ODONTOGENIC OSTEOMYELITIS OF MANDIBULAR BODY

Dobroskok, V. A.

Key words: children, acute odontogenic osteomyelitis, blood serum, interleukins, treatment.

Inflammatory diseases of the maxillofacial area are quite common in childhood, as this period of life is described as having more favourable conditions for the development of odontogenic diseases that is determined by the functional and anatomical structural features of children's' organs and tissues.

At present scientists are increasingly focusing on the study of the cytokine regulation in protective reactions of the body, as the inflammatory process is known to develop by involving pro-inflammatory and anti-inflammatory cytokines synthesized directly in the inflammation focus. The

purpose of this work was to study the effect of the plasma-replacing preparation "Reosorbilact" on the serum cytokine profile in children with acute odontogenic osteomyelitis of the mandibular body.

The article presents the results of the integrated treatment of 18 children aged 7 – 12 years with acute odontogenic osteomyelitis of the mandibular body who were divided into 2 groups for comparative analysis. It has been established that the group of the patients who got infusions of "Reosorbilact" as an additional component of the integrated therapy demonstrated more pronounced positive dynamics in normalizing levels of pro-inflammatory (IL-1 β , IL-6, IL-8) and anti-inflammatory (IL-4, IL-10) interleukins in the blood serum that can be regarded as an evidence of its pathogenetically directed physiological efficacy.

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INTEGRAL INDICES OF HYPOXIA IN SMOKERS HAVING GENERALIZED PARODONTITIS

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Key words: tobacco smoking, generalized parodontitis, partial blood gases, heart rate.

This study aimed at investigating the dynamics of integral indexes of hypoxia in the blood of smokers diagnosed to have generalized parodontitis. Taking into account negative impact of tobacco smoking, it was reasonable to find out the quantitative indices of hypoxia of the macro organism in comparison with the parodontal status of smokers. The article presents the results obtained by assessing integral indicators of hypoxia (partial oxygen pressure (PO₂), haemoglobin saturation with oxygen (SaO₂) and heart rate (HR)) in smokers with generalized parodontitis. It has been found out the individuals under the study had the values of PO₂ and SaO₂ significantly lower, and the heart rate was higher than those of non-smokers with intact parodontium or non-smokers with affected teeth-supporting apparatus, where $p, p_1 < 0.05$. The dynamics of the impact of tobacco smoking on the integral indices of hypoxia in 10 and 60 minutes in the patients with different severity of generalized parodontitis was analyzed that made it possible to evaluate the adaptive and compensatory responses in this group of the subjects. The analysis of mean integral indices of hypoxia demonstrated again that in the increasing hypoxia the course of parodontal diseases is characterized by aggravating of the destructive signs, which are associated with more severe affection of teeth supporting tissues.

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ORAL HEALTH LITERACY AND LEVEL OF ORAL HYGIENE IN OVERWEIGHT CHILDREN

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Key words: oral hygiene, educational knowledge, children, overweight, gingivitis.

Hygienic oral care for the most school age children is still found out as inadequate that contributes to the development of common dental diseases. The purpose of this study was to assess the state of oral hygiene and to evaluate oral health literacy in overweight children. Materials and methods: The state of hygiene of the oral cavity was analyzed by the Fedorov-Volodkina index in 278 overweight children, 89 obese children and 292 children with normal body weight, who made up a control group. The age of patients ranged from 12 and 15 years. Results. According to the survey, $35.41 \pm 2.87\%$ of overweight children kept regular hygienic oral care that was 1.76 times less compared with the children of the control group and 1.48 times less than in children with obesity. The most of 12-year-old overweight and obese children were found to have satisfactory oral hygiene and good oral hygiene state, and only in 15-year-old overweight children demonstrated good oral hygienic state. The value of the Fedorov-Volodkina index in the overweight children with

gingivitis was higher and corresponded to the unsatisfactory hygienic state than that of their peers without gingivitis.

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VALUE OF DIAGNOSTIC MEASURES AT STAGES OF EXAMINING PATIENTS WITH LATERAL NECK CYSTS

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Key words: neck cysts, dermoid, epidermoid, lateral, extrusive salivary glands, phased examination, diagnostics.

In the clinical practice of oral surgeons, cysts of the lateral surface of the neck are quite often detected that makes up 25% of all cysts of the soft tissues within the maxillofacial region. Difficulties during their diagnosis, a high rate of relapses and postoperative complications in the treatment of cysts of the lateral surface of the neck are closely related to the peculiarities of their

topographic and anatomical localization. This situation becomes more complicated due to the lack of well-planned diagnostic measures at the survey stages that often leads to the detection of the disease only in case of its pronounced clinical manifestations. Therefore, in order to improve the effectiveness of surgical care for patients with this pathology, an important place is given to the use of modern diagnostic methods through all the stages of the clinical examination to create the possibility to identify the cysts in order to choose the proper tactical measures and build up a treatment plan. The aim of this work was to summarize our own clinical experience and observations by using additional and special survey methods, retrospective analysis of archival material described in the case histories of patients who took the treatment at the Maxillofacial Surgery Inpatient Department of M.V. Sklifosovsky Poltava Regional Clinical Hospital for 2007 to 2017. A phased examination of 158 patients with the lateral cysts of the neck made it possible to establish that the value of puncture biopsy and morphological studies differ significantly in their various nosological forms. Comparison of the diagnoses made during the initial examination and the results of studying histological structures of all cystic formations allowed us to conclude that the discrepancy between them made up 42.8% that causes alarm and requires more sophisticated application of the spectrum of special investigation methods at the pre-hospital stage in order to care more objective assessment of the clinical picture in each case.

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PHYSICAL DEVELOPMENT OF CHILDREN FROM BOARDING SCHOOLS WHO HAD MALOCCLUSIONS

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Key words: malocclusions, prevalence, children from boarding schools.

According to numerous reports, one of the most important parameters of the children's health and their adequate social well-being is indicators of physical development. Impacting on the children's body in certain period of its development and growth, adverse factors may cause or even aggravate the formation of dental pathologies, and in particular orthodontic ones. The study of the correlation between the physical development and the condition of the dentofacial system in children staying in boarding schools are of great importance. The purpose of the study is to assess the correlation between physical development and dental anomalies in children of boarding schools. The article presents the indices of physical development obtained in 528 children aged of 7, 9, 12, 15 years from the boarding schools (test group) and in 122 children of the same age of the secondary school who lived at home (control group). The results were statistically processed by using Student's criterion. According to the results of the research, it has been revealed that the average rates of height and body weight in the children from boarding schools are somewhat different from those of peers who live at home. Thus, the average indices of height and body weight the surveyed children of boarding schools are 140.48 ± 1.41 cm and 34.80 ± 1.16 kg that is considerably less in relation to the children from general schools: $147.84 \pm 1,26$ cm and 39.07 ± 1.38 kg respectively. Thus,

significantly lower physical developmental indices, namely, height and body weight in the children from boarding schools indicate a certain deviation in their physical development compared to the relevant indices in the children from general schools. It has been established that the children of boarding schools without dentofacial anomalies had higher indices of the height and body weight compared with their peers having orthodontic pathology. The analysis of body mass did not reveal significant deviations from the normal indices, but, in general, both the children from general schools and children of boarding schools without malocclusions had higher, and therefore, better index values.

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HUMANITARIAN AND SOCIAL PROBLEMS OF MEDICINE, TEACHING IN HIGHER MEDICAL SCHOOL

SOME MOTIVATIONAL ASPECTS OF DEVELOPMENT OF FUTURE NEUROLOGY PROFESSIONALS

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Key words: cross-disciplinary tasks, step tasks, development of clinical thinking.

The issue of motivation is attributed to the fact that self-regulatory and self-management mechanisms have been activated while construction of student's identity and formation of his/her commitments are still on-going. The prerequisite for the students to be interested in studies content and self-learning includes an opportunity to demonstrate intellectual independence and leadership

supported by sound theoretical back-ground. The students evaluate teaching and learning activities in the higher educational settings through the lens of their own needs, aims, goals, values, which, in most cases, differ from the main objective consisting in training a professional. The students' priority is an achievement (pragmatic point). First of all, they are focused on the outcome of a certain level. Performing educational tasks is important for them only due to its correlation with the outcome (to be well-rated, to pass exams, to get a degree). It is beyond any doubts that any educator has to face the problem of making students positively motivated in learning particular disciplines. The opportunity to solve complex clinical tasks autonomously using novel technologies can be provided only through a synergy of teaching efforts by all educators. Adoption of cross-disciplinary tasks can improve achievements in basic knowledge and clinical sciences rising to modern social challenges. Solving this problem requires recalling the knowledge gained and, consequently, its reinforcement through further deployment.

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STRUCTURAL TYPOLOGY OF EPONYMS IN MEDICAL ENGLISH

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The present paper focuses on the issue of typologization of medical eponyms in English. The authors analyzed the existing structural, thematic and etymological classifications of eponyms in the English language of medicine, and developed their own structural typology, intended for medical setting. Eponyms are largely used in medical language, and their significance in medical discourse is undeniable. The advantages of eponyms in medical terminology consist in their international nature, unambiguity, brevity and conciseness. Eponymic names disclose the evolution of medical research and practice, provide continuity of scientific knowledge and contribute to the formation of terminological competence of medical students. The use of medical eponyms contributes to a deeper understanding of the development of clinical thinking and diagnostics, unveils the history of medicine evolution, and increases the intellectual level of the physician. It has been emphasized that eponyms can be tricky and confusing on the pragmatic level, since they can be easily misspelled, erroneously used or misunderstood. The authors point out that careful examination and structural categorization of English medical eponyms in academic setting is essential. The suggested typology will promote a better understanding and deeper memorizing of eponymic terms, which in its turn will prevent possible errors when using these lexical units in the process of mastering ESP. The phenomenon of eponymy in the English medical discourse requires further study, in particular, in the light of synchronous and diachronic aspects. The prospects for research include the in-depth study of English eponyms and their structure in the specific areas of medical knowledge (both clinical and theoretical medicine).

Key words: discourse, medical terminology, eponym.

Problem statement and its association with scientific and practical tasks. Eponyms constitute an extensive layer of medical terminology [8; 11], and therefore have always been and remain the continual focus of linguists' interest. The undeniable advantages of eponyms in medical terminology are obvious: eponyms are international, unambiguous, laconic and concise [3]. Furthermore, eponymic names (1) disclose the evolution of medical research and practice; (2) provide continuity of scientific knowledge and (3) contribute to the formation of terminological competence of medical students [10]. The use of medical eponyms contributes to a deeper understanding of the development of clinical thinking and diagnostics, unveils the history of medicine evolution, and increases the intellectual level of the physician [2]. It is beyond doubt that all these benefits render eponyms an essential part of medical terminology. However, eponyms can be very tricky and confusing on the pragmatic level: they can be easily misspelled, erroneously used or misunderstood [10]. Therefore, these terms require careful examination and systematization.

Analysis of recent research publications on the subject. Eponymic terms have already been extensively studied in almost all national languages. Hence, eponyms were by M.L. Osadchyk (English terminology), A.V. Varnavska (Spanish terminology), H.D. Benkendorf (German terminology). Ukrainian eponymic terms were analyzed by M.V. Dmytruk (veterinary terminology), L.D. Malevich (hydro-ameliorative terminology). S.V. Ovseychyk (environmental terminology), M.M. Dziuba (scientific terminology), L.M. Konoplianyk (physics). Medical eponyms were extensively analyzed by O.M. Bieliaieva [1], V.G. Synytsia [2] (Latin medical

terminology), G.I. Bezhenar (French medical terms), N.I. Bytsko (endocrinology), N.D. Kondratiev (Russian medical terms), I.M. Hnatyshyna (Ukrainian medical eponyms), R.I. Stetsyuk (cardiology), N.V. Misnyk (clinical medical terms), T.V. Lepekha (forensic terminology) and others.

The objectives of the article are analyze the existing classifications of eponyms in medical English and to develop a new structural typology, intended particularly for medical setting. The suggested typology will promote a better understanding and deeper memorizing of eponymic terms. This will prevent possible errors when using these lexical units in the process of mastering ESP, which renders the present research relevant. The material of the study is the corpus of open access research papers, registered in the electronic database of medical publications "PubMed" [13].

The principal data of the study. The scientific efforts on structural, thematic and etymological typologization of eponyms in medical English have already been made [6; 7]. Barbara Cappuzzo [6] provides the classification of eponyms by their thematic content. Hence, the eponymous terms in medicine are used to refer to (1) pathological conditions (e.g., Pellegrini's disease); (2) groups of symptoms (e.g., Alder's syndrome); (3) injuries (e.g., runner's knee); (4) medical equipment (e.g., Beck's cannula); (5) anatomical structures (e.g., Gartner's canal); (6) theoretical knowledge (e.g., Golgi's law); (7) laboratory examinations (e.g., Kober's test); (8) techniques (e.g., Neumann's method); (9) microorganisms (e.g., Abel's bacillum); and (10) drug-induced conditions (e.g., Southworth's symptom complex).

Further, the scholar develops the additional classification according to the origin of medical eponyms [6]. In this context, eponymous names can be:

(1) Proper names of people who have studied a particular disease or condition (e.g., Down syndrome). These are eponyms where a generic name (e.g., diseases, syndromes, procedures, brain areas, signs, instruments) is preceded by the name of the scientist(s) who first described the phenomenon. This category is the largest, embracing 70% of diseases or syndromes included in the 26th edition of Stedman's Medical Dictionary (1995) [6].

(2) Common names of professions (e.g., coal miner's knee) or classes of individuals (e.g., housemaid's knee or golfer's elbow).

(3) Names of mythological and literary characters (e.g., Oedipus complex; Munchausen syndrome).

(4) Toponyms (for instance, Coxsackie virus was named after a place in New York where the virus was first identified; Lassa fever was named after a village in Nigeria where the fever was first reported; Lyme disease was named after Lyme, Connecticut, where the disease was first described; Ebola virus was named after a place in Zaire, Africa).

(5) Proper names of patients who have suffered from a particular disease or condition (also termed "autoeponyms"). For example, Christmas disease was named after the first known patient with this disorder, a ten-years-old boy Stephen Christmas; Lou Gehrig disease was named after a baseball

player who was first diagnosed with it in 1939; Musset sign was named after a French poet Alfred de Musset (1810–1857) who had this condition.

John Dirckx [7] suggests a detailed and well-grounded structural classification of medical eponyms depending on their morphological structure:

(1) The synthetic genitive with “’s”: Hodgkin’s disease, Poupart’s ligament, Hutchinson’s teeth, gamekeeper’s thumb, housemaid’s knee, pigeon-breeder’s lung, obstetrician’s hand, hangman’s fracture, etc.

(2) The analytic genitive with “of”: the circle of Willis, the foramen of Monro, a crypt of Lieberkühn, the sinuses of Aschoff and Rokitansky.

(3) Substantival adjunct (proper noun used as an adjective without change of form): Colles fracture, Jones criteria, Hering-Breuer reflex. This is the form regularly used with compound (hyphenated) proper names referring to more than one person (Pellegrini-Stieda disease). It is also standard for eponyms referring to surgical instruments or devices (Kocher clamp, Levin tube, Velpeau bandage), methods or techniques (Gram stain, Papanicolaou smear, Pfannenstiel incision), and genetic factors or familial disorders (Christmas factor, Duffy blood group, Hartnup disease), as well as terms based on the names of literary characters (Achilles tendon, Munchausen syndrome, Oedipus complex) and toponyms (Lyme disease, Madura foot, Murray Valley encephalitis). In addition, this form is often chosen for proper names ending in “-s” (Colles fracture, Graves disease) [7].

(4) Truncated form (isolated proper noun, used in place of substantival adjunct + principal noun): a positive Babinski [sign], to insert a Foley [catheter], the one-minute Apgar (the Apgar score one minute after delivery). These abridged terms are widely used primarily in spoken language [7].

(5) Formal adjectives: cushingoid facies, eustachian tube, graafian follicle, rolandic fissure.

(6) Derived nouns: bartholinitis, chagoma, descemetocoele, parkinsonism.

(7) Derived verbs: to bovie, to créde, to kocherize, to pasteurize.

As one can observe, the structural typology, suggested by John Dirckx, is very detailed indeed. However, it is our belief that this typology is intended primarily for linguists, versed in grammar theory, and may be inappropriate for medical specialists. Therefore, it is essential to develop the structural typology of English eponyms specifically for medical students and staff who study ESP.

We suggest classifying medical eponyms as follows: (1) simple (one-word) eponyms, otherwise termed as deonyms; (2) affixal eponyms; (3) compound eponyms; (4) composite eponyms; (5) truncated eponyms. Let us focus on each of these groups in more detail.

The group of deonyms (one-word eponyms) includes terms whose structure coincides with the inventor’s name. In medical discourse, this group is represented primarily by units of measure, i.e., roentgen, weber, volt, ampere, gray, for example: “Exposure of mice to total physical doses of 0.2 gray <...> resulted in structural injury to the coronary vessels” [13].

Affixal eponyms are formed by adding an affix, or combination of affixes, to the root, which coincides with the proper name, e.g., eponym + suffixes “-ia”; “-osis”; “-itis”; “-ism”, “-ella”; “-oma”, etc. This tendency reflects the relevance of Latin in the modern terminology [4; 9]. The examples of such eponyms are Rickettsia and rickettsiosis (named after Howard Taylor Ricketts); Theileria and theileriosis (after Sir Arnold Theiler); Scopolia (after Giovanni Scopoli); Babesia and babesiosis (after Victor Babeş); Listeria and listeriosis (after Joseph Lister); brucellosis (after David Bruce); Bartholinitis (after Caspar Bartholin the Younger); Parkinsonism (after James Parkinson); Escherichia and escherichiosis (after Theodor Escherich), Salmonella and salmonellosis (after Daniel Elmer Salmon); Pasteurella (after Louis Pasteur); Schwannoma (after Theodor Schwann), etc.

Compound eponymous terms are made up of several lexical units: galvanoscope, galvanocaustics, galvanopalpation, galvanotherapy (after Luigi Galvani); roentgenograph, roentgenography, roentgenologist, roentgenology, roentgenoscopy, roentgenotherapy, roentgenogram (after Wilhelm Roentgen), etc.

Composite eponyms are terminological collocations, consisting of several words. They are used to denote diseases, phenomena, processes, methods and the like: Heymann's antibodies, Schatzki's ring, Gay-Lussac's law, Pfannenstiel's syndrome, etc.

Truncated eponyms are formed by means of reduction or abbreviation: Pap smear (from Georgios Papanikolaou); HeLa (a cell line, derived from cervical cancer cells taken from a patient named Henrietta Lacks); BCG (bacillus of Calmette and Guérin), etc.

Conclusions and perspectives of further research in this direction. Eponyms are largely used in medical language, and their significance in medical discourse is undeniable [10]. We believe that careful structural categorization of English medical eponyms will promote their better understanding and deeper memorizing, which in its turn will prevent possible errors when studying ESP [5; 12]. The aforementioned material has already been integrated into the 1st edition of Medical English for Academic and Teaching Purposes (by Yu. Lysanets, O. Bieliaieva, M. Melaschenko: currently in press). The prospects for research are in the in-depth study of English eponyms and their structure in the specific areas of medical knowledge (both clinical and theoretical medicine). It is our belief that the phenomenon of eponymy in the English medical discourse requires further study, in particular, in the light of synchronous and diachronic aspects.

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PECULIARITIES OF TEACHING PAEDIATRIC ORAL SURGERY DURING ECTS IMPLEMENTING

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Key words: teaching, ECTS, paediatric oral surgery.

The article highlights the management and experience obtained in teaching “Paediatric oral surgery” discipline during ECTS at the Department of Paediatric Stomatology, Ivano-Frankivsk National Medical University to develop professional competence and encourage clinical thinking. The goal of introducing Bologna process into medical education is to enhance training of competent professionals for medical and pharmaceutical industries as well as related spheres of the public life. The goal of our investigation was to analyze the teaching experience in the “Paediatric oral surgery” discipline for 4th and 5th year students of Stomatological faculty, Ivano-Frankivsk National Medical University. The Paediatric Oral Surgery is a part of Paediatric Stomatology taught during the 4th and 5 years. The students have to gain the skills in diagnosis by learning the clinical manifestation and treatment of inflammatory processes, trauma and tumours of maxillo-facial area in children. The study is based on theoretical knowledge of anatomy, pathological anatomy, physiology, chemistry, microbiology, and pharmacology by using skills obtained during the courses of general paediatrics, general dentistry and oral surgery. The «The Paediatric Oral Surgery» at IFNMU is conducted according to the curriculum through the VII, VIII, IX and X semester. It has proved to be beneficial in achieving good knowledge by students. The curriculum in Paediatric Oral Surgery consists of 6 credits (180 hours) and contains 2 modules and 6 content modules. Every practical class begins and finishes with introductory and final test controlling. The discussion on theme-related issues lasts around 15-20 minutes. The practical part takes approximately 50% of all teaching time. The students are supervised by tutors in taking histories, carrying clinical examination of children, prescribing additional investigation and making diagnosis in out-patients clinic, hospital and oral surgery units. This promotes the development of clinical thinking and motivates self-learning. The article also describes the methodology of conducting practical and extracurricular activities, as well as the peculiarities of training students to pass their final module controls in the discipline. Comprehensive applying active forms of training on the "Paediatric oral dentistry" discipline, the presence of high quality control of the training process creates the conditions for widening the professional outlook of students when making the correct diagnosis and choosing therapeutic tactics for children with surgical pathology, increases the motivation of the teaching staff towards more effective pedagogical search and continuing professional development.

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SPECIFICS IN TEACHING GENERAL SURGERY IN ACCORDANCE WITH IMPLEMENTING BOLOGNA DECLARATION

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Key words: ECTS, general surgery, teaching technique, educational process, optimization.

Integration into the European education environment and ECTS implementing approach provides a new approach to the training of future health care professionals. The paper presents the results obtained by analyzing the experience in delivering "General surgery and Nursing" discipline in accordance with ECTS demands. The article highlights the obstacles complicating the introduction of the novel curriculum, gives the examples of solving key issues. Much attention has been also paid to the modern training tools, interactive software and methodological support. As a result, it has been discovered that the independent activity of students plays a crucial role in fostering them as future specialists. The article also focuses on some pressing problems of professional training in modern medicine, teaching of clinical disciplines. The bedside training and a systematic approach to developing the theoretical knowledge and acquiring practical skills are cornerstone in this aspect. The Department of General Surgery has performed a structured, multifactorial planning of the educational process using various forms of step control. The systemic approach to the training of future physicians determines the tasks of integrated research work, conducted at the department. We consider it is at the beginning of the educational phase of university clinical training, the preference should be given to teaching methods that would contribute to the development of student's personal abilities, the ability to think logically, to apply theoretical knowledge in their daily medical practice. According to the Bologna convention, students have to spend most of their time studying on their own. If a student does not master the skills of independent work taking into account motivation and desires, the process of self-education in this case is not a way.

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MEDICAL AND BIOLOGICAL PHYSICS IN DEVELOPING PROFESSIONAL COMPETENCE OF FUTURE DOCTORS

Fediv V.I.

Key words: medical and biological physics, doctor's competence, cause-effect relationship.

The analysis of the quality of knowledge and practical skills of medical students has revealed serious shortcomings in understanding the causal relationships between the processes studied; therefore one of the main tasks of medical education updating is the construction of an integrated learning environment. It is important that interdisciplinary integration and theme integration within a discipline through the professional training of doctors should be provided by a competency-based approach, involving, first of all, the general theoretical and professional training on the disciplines of the medical-biological cycle. The article determines the role of medical and biological physics as an integral component of the whole natural scientific worldview of a doctor. An integrated approach to the teaching of this discipline in medical university is substantiated. This discipline is the foundation for the development of students' clinical thinking through understanding the cause-effect relationships in medical practice. In order to confirm this opinion, the article provides

examples of understanding the causative relationships of safe and effective use of ultrasound techniques, X-ray, direct current, magnetic field, and some clinical issues regarding the risk of developing atherosclerotic plaques and why aneurysm is classified as a urgent condition in medical practice.

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DISTANCE (ONLINE) COURSES AS THE BASIS OF INDEPENDENT WORK FOR STUDENTS UNDER ECTS IMPLEMENTING

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Key words: higher education, distance courses, independent work, motivation.

The steady decrease in the classroom time on the one hands, and the development of information technologies on the other rouses the necessity to improve and to modernize the independent students' work. Purpose: to evaluate the application of distance (online) courses as a form of independent work and a method to motivate students' learning. Material and methods included the analysis of the relevant scientific and methodological literature and own experience in applying distance courses. Students of the Zaporizhzhya State Medical University were the object of the study.

Results and discussion. The main motivating factor in organizing students' independent work should be focused on using profession-centred material and obtaining new experience. Distance education does not only expand opportunities in getting a quality education, but also provides an opportunity to diversify the learning process, which is known as one of the factors stimulating the interest in disciplines. The development and introduction of distance (on-line) courses in various disciplines in the educational process is actively used in the Zaporizhzhya State Medical University. This allows the student to gain access to novel additional material, which they can use directly during training or in their future practice. Conclusion: implementing distance (online) courses in the learning as a basis for independent work is effective tool that increases the students' motivation to enhance learning. The choice of disciplines, self-pace and convenient access to training makes this model in demand among students and teachers.

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CLINICAL CASE

APPROACHES IN TREATMENT OF PATIENTS WITH IMPACTED MAXILLARY CENTRAL INCISORS CAUSED BY SUPERNUMERARY TEETH

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Key words: retention

Impaction of maxillary central incisors is a special problem associated with aesthetic, morphological and functional aspects of malocclusion. Provision of complex orthodontic correction involves a combination of surgical, instrumental, functional and prosthetic methods. That is why searching for ways to reduce timing of orthodontic treatment in order to eliminate this pathology is an urgent problem of orthodontics. The aim of the study was to increase the effectiveness of complex treatment of patients with impaction of permanent maxillary central incisors caused by supernumerary teeth during periods of mixed and permanent dentition by developing our own approaches to the correction. The treatment results of five patients (aged 7, 8, 9, 10 and 15 years) with delayed eruption of maxillary central incisors were analyzed. According to the findings obtained during clinical examination and additional investigations (photometric facial analysis, study of diagnostic models of jaws and orthopantomograms, 3D computer tomography), impacted central incisors, supernumerary teeth, which blocked their eruption, were diagnosed. Orthodontic treatment was carried out with various designs of orthodontic devices including prosthetic devices with screws, vestibular arches with hooks, clasps, artificial central incisors. Additionally, four patients (8, 9, 10 and 15 year old) underwent surgical exposure of crowns of the impacted teeth, brackets were attached onto their surface and process of orthodontic correction with elastic bands was initiated. In all cases, access to the central incisors was made from vestibular side of the alveolar process. On the second stage of the treatment, removable orthodontic appliances were used during mixed dentition to place central incisors into the correct position in the dental arch and dental braces were used in permanent dentition. Results. The results of complex treatment are positive. The impacted tooth (tooth 11) was erupted independently in a 7-year-old patient in a month after the treatment with removable orthodontic appliance. The period of orthodontic relocation to the dental arch of impacted central incisors in an 8-year girl lasted 3 months (tooth 21), in a 9-year boy - 3 months (tooth 21), in a 10-year boy - 9 months (teeth 11, 21) and in a 15-year boy - 14 months (tooth 11). Conclusion. Firstly, orthopantomogram is a modality to confirm or to refute the tooth impaction, if there are no central incisors in the dental arch after the period of their physiological eruption. Secondly, 3D computer tomography is strongly recommended to be carried out to determine accurate position of the tooth and only after these stages it is possible to choose a proper method of the treatment. Early diagnosis and removal of supernumerary teeth, which cause the impaction of maxillary central incisors enables to avoid complications and significantly shortens the duration of surgical and orthodontic treatment.

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MEDULLARY THYROID CARCINOMA WITH METASTASIS TO CERVICAL LYMPH NODES

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Medullary thyroid carcinoma (MTC) is a rare disease, which makes up approximately 4-5% of all thyroid can-cers and originates from the calcitonin-screening parafollicular C cells. MTC is a malignancy, which frequently spreads to cervical lymph nodes. The condition may be sporadic or hereditary, and the latter one constitutes 20-25% of all cases. We report a case of metastatic MTC manifested with cervical lymphadenopathy in a 67-year-old woman. Our patient underwent a total

thyroidectomy. Final histopathology tests revealed medullary thyroid carcinoma. There were found two lymph nodes of 6 group and two lymph nodes of 2, 3, 4 groups in left side with MTC metastasis. In this article we also provided a general review of the classification, pathology, and clinical management of MTC. Our patient through 9 months after the operation was observed to have no MTC recurrence or residue. In 75-85% of cases the prognosis for patients with MTC is favourable with a 10-year survival rate. About 50% of the patients with MTC have the disease restricted with the thyroid gland only, and 95% of them have a 10-year survival rate. Approximately, one-third of the patients present locally invasive tumours or metastasis to the regional lymph nodes. The survival rate of patients with regional disease makes up 75%. Distant metastases may be detected in 13% of the patients at the initial diagnosis and can be regarded as signs of poor prognosis, when a 10-year survival rate is reached by only 40% of patients. Prognosis is better in patients with MEN 2A compared to sporadic MTC, because sporadic carcinoma is usually diagnosed later, when the disease is in its advanced stage. Thus, MTC is a rare thyroid malignant tumour, its management differs from that for differentiated thyroid cancers. Early diagnosis offers a higher likelihood of cure and long-term survival. Total thyroidectomy plus central compartment neck dissection is the modality of the treatment. All patients must pass through regular follow-up to avoid recurrence.

Key words: medullary thyroid carcinoma, metastasis, sporadic, total thyroidectomy, neck dissection, calcitonin.

Introduction

Medullary thyroid carcinoma (MTC) constitutes around 4-5% of all thyroid cancers [7]. MTC usually arises from parafollicular C-cells that normally secrete a number of peptide hormones such as calcitonin, serotonin, and vasoactive intestinal peptide; thus, it is widely accepted as a neuroendocrine tumour. As opposed to the more common papillary and follicular thyroid cancer subtypes, MTC represents a rare and under-characterized form of cancer, and may cause death if untreated [3, 20].

MTC can be sporadic, usually isolated to one thyroid lobe, or familial, the latter one is defined as part of the cancer syndrome known as Multiple Endocrine Neoplasia type 2 (MEN2) [17]. MEN2 is the result of an autosomal dominant, missense, gain-of-function mutation in the RET (Rearranged during Transfection) proto-oncogene [5]. Comparing the occurrence rate of sporadic and familial forms, we have found out the sporadic form make up 70% of the cases and familial form 10-20% of the cases [4]. In the majority of cases, the preoperative diagnosis is requires, based on the results of thyroid fine-needle aspiration cytology (FNAC), serum calcitonin level assessment, and RET proto-oncogene testing [12]. In approximately 10–15% of cases, diagnosis of MTC is made only after thyroidectomy. Histologically, tumours appear containing hyperplastic parafollicular C-cells, and predominantly present bilaterally. Sporadic MTC generally presents as a single tumour confined within one thyroid lobe [17].

The prognosis of MTC is worse compared with differentiated thyroid cancers, a 10-year survival rate is reached in 95.6% in cases restricted by the thyroid gland only; 40% for those present metastasis [20]. In this article we describe the case report of a patient with sporadic MTC.

Case Report

A 67-year-old woman found an anterior neck mass. She was referred to endocrinologist. An ultrasound examination of her neck showed a 1, 5 cm solid hypoechoic nodule of the left thyroid lobe and an additional nodule in the lower pole of the same lobe. A suspicious neck mass that appeared to be metastatic lymph nodes was noticed. The right thyroid lobe and the isthmus appeared to be normal. Serum levels of free triiodothyronine, free thyroxine, and thyrotrophin were within normal limits, and anti-thyroperoxidase / anti-thyroglobulin auto antibodies and anti-thyroglobulin antibody were negative. A preoperative calcitonin serum value was elevated, 240 ng/L. She had normal serum levels of calcium, phosphorus, and parathyroid hormone. FNA biopsy of the nodule was consistent with a diagnosis of medullary thyroid carcinoma. Our patient underwent a total thyroidectomy with neck exploration. An enlarged thyroid gland with a prominent left lobe were detected during the operation (Figure 1)

Figure 1. Specimen showing total thyroidectomy in the patient

Figure 2. Medullary thyroid carcinoma with nesting proliferation of neoplastic parafollicular cells with stromal amorphous material deposition. Hematoxylin and eosin (H & E) staining. x200.

Figure 3. Medullary thyroid carcinoma. Polygonal cells with eosinophilic cytoplasm and little mitosis. Hematoxylin and eosin (H & E) staining. x200.

A neck dissection yielded six regional lymph nodes of 6 group, twenty lymph nodes of 2, 3, 4 groups in left side and eighteen lymph nodes of 2, 3, 4 groups in right side. Surgical specimens were fixed in 10% buffered formalin, embedded in paraffin, and then stained with hematoxylin and eosin. For immunohistochemical studies, sections were incubated with the following primary monoclonal antibodies: chromogranin A, thyroglobulin, and calcitonin (Dako Corporation, Glostrup, Denmark). Appropriate positive and negative control sections were processed in parallel. The light microscopy identified two lesions. The tumour was limited by thyroid capsule. The nodules consisted of a sheet-like pattern of growing cells with round nuclei and clumped chromatin with scant amphophilic cytoplasm. Mitotic activity was low. The stroma contained a homogeneous and pink ground substance. Tumor cells were immunoreactive to calcitonin, chromogranin A, and were negative for thyroglobulin. There were found two lymph nodes of 6 group and two lymph nodes of 2, 3, 4 groups in left side with metastasis of medullary carcinoma. Pathologic findings in thyroid gland are shown

in the figure 2 and figure 3 that demonstrate neoplastic proliferation of parafollicular cells in nesting pattern with amorphous eosinophilic material depositions in the stroma.

Discussion

Medullary thyroid cancer (MTC) is a neuroendocrine tumour of the parafollicular C-cells of the thyroid gland and makes for approximately 4-5% of thyroid carcinomas [7]. Sporadic MTC is usually diagnosed in aged patients over 50 and is somewhat prevalent among women. Hereditary MTC is, however, more common in the younger age group, of which multiple endocrine neoplastic type 2A (MEN 2A) and familial thyroid cancer usually arise when patients are in their 30s, and MEN 2B is typically detected in those who are over 20. Hereditary forms are transmitted as an autosomal dominant trait either alone as familial MTC (FMTC) or as part of MEN 2A or 2B [12]. Germline mutations of the RET proto-oncogene (RET) found on chromosome 10q11 are responsible for FMTCs and may be present in more than 95% of the hereditary MTCs and in about 25% of the sporadic MTCs [5].

The prognosis of MTC is better compared with the prognosis of poorly-differentiated, malignant, anaplastic thyroid cancer, but is worse than the more well-differentiated and benign papillary and follicular thyroid tumors [9]. Therefore, early diagnosis is necessary prevent recurrence and enhance survival rates of these patients [20].

The most common presentation of sporadic MTC is a painless solitary thyroid nodule, and multifocality and bilaterality are the features of the hereditary forms. Cervical lymph node metastasis is approximately found in 50% of the cases at the time of diagnosis, whereas distant metastases are present in 10% of the cases; higher incidence being those with large tumour size or multifocal tumours [18]. The literature states that MTC included the encapsulated type, follicular type, oncocytic type, squamous type, cribriform type, rosette formation, osteogenic sarcoma type, and pseudopapillary types [22]. The histology did not seem to influence the course of the disease. In our study, the female patient presented with multiple nodules, and cervical metastases were found out.

Calcitonin is the most sensitive and specific tumour marker at the preoperative diagnosis and during the post-operative follow up. Calcitonin values lower to the normal limits after the resection of the tumour and regional involvement is regarded as complete tumor regression. Thus, according to the American Thyroid Association, it is not routinely recommended and hence preoperative normal calcitonin value can not exclude the diagnosis of MTC [19]. Another biomarker, CEA, is also produced by the neoplastic C-cells, and it has been useful in predicting the prognosis for MTC patients, more importantly when preoperative serum calcitonin values are negative [16]. CEA may be found in over 50% of the MTC patients, and levels above 30 ng/ml strongly indicate a poor prognosis. It is also seen that CEA values higher than 100 ng/mL are found to be associated with extensive lymph node involvement and distant metastasis [25]. Here, our patient had significantly raised levels of serum calcitonin which regressed to baseline following the surgery, but CEA did not.

Neck ultrasound should be performed as the conventional approach in thyroid examining. Although MTC has no classical ultrasound specifics, this technique can be helpful in visualizing the nodule characteristics, enlarged lymph nodes, if any, and to guide FNAC from the suspicious nodules. FNAC is usually the first line of investigation for diagnosing thyroid nodules [8]. In our case, classical features of MTC in FNAC were seen including plasmacytoid appearance of cells and multiple spindle-shaped cells with the presence of amyloid.

Total thyroidectomy along with central compartment neck dissection is the treatment of choice for the patients with medullary thyroid carcinoma. The incidence of central neck metastasis can be as high as 81% in patients with palpable tumours and thus, central compartment neck dissection provides a better survival and cure rate than total thyroidectomy alone [23]. Since there is a huge risk of neck metastasis, even in tumours <1 cm, few surgeons do recommend bilateral lateral neck dissection in all patients with MTC [24].

In the 2009 American Thyroid Association (ATA) guidelines for the surgical management of MTC, the extent of calcitonin preoperative elevation guides the selection of preoperative imaging studies, which in turn influence the extent of the surgery [10]. A majority of guideline authors agreed to a consensus view that sporadic MTC in adults should be treated, at a minimum, with total thyroidectomy and central node dissection. In the consensus ATA view, ipsilateral level II–V dissection is best justified by suspicious lymph nodes on examination, ultrasound, or other imaging or intraoperative findings [11]. A prophylactic approach to ipsilateral neck dissection is favoured by some authors because the incidence of lateral node metastases in macroscopic MTC is roughly 80% [6].

All those patients who present the disease limited to the thyroid gland without neck node involvement tend to have a low recurrence rate and rarely die of their disease [13]. However, since a lot of patients with MTC have nodal disease at the time of presentation, they are at a greater risk for developing recurrent or persistent disease. Thus, they must adhere to a strict postoperative follow-up and monitoring. The postoperative follow-up should begin 2-3 months after operation and it is based on serum calcitonin and CEA levels. For localization of the recurrence or residue of the MTC, various scintigraphic methods are applied with using the radio-labelled molecules [14]. Our patient through 9 months after operation was observed to have no recurrence or residue of the MTC.

The prognosis for patients with MTC is favourable when a 10-year survival rate is achieved by 75-85% [20]. About 50% of the patients with MTC have disease restricted to the thyroid gland, and have a 10-year survival rate is achieved by 95% of the patients. Approximately, one-third of the patients present local invasive tumours or metastasis to the regional lymph nodes. The survival rate of patients with regional disease made up 75%. Distant metastases may be seen in 13% of the patients at the initial diagnosis and is of a poor sign for prognosis, when a 10-year survival rate is achieved by only 40% of patients. Prognosis is better in patients with MEN 2A compared with sporadic MTC, because sporadic carcinoma is usually diagnosed later when the disease is far gone.

Radio-active iodine therapy seems to have no role in MTC as the tumour originates from parafollicular C-cells, which do not accumulate iodine [21]. Both radiation therapy and conventional chemotherapy have limited effect in the treatment of patients with MTC [15].

Conclusion and perspectives

MTC is a rare thyroid malignancy; its management differs from that for differentiated thyroid cancers. Early diagnosis offers a higher likelihood of cure and long-term survival. Total thyroidectomy plus central compartment neck dissection is the modality of treatment. All patients must adhere to regular follow-up to avoid recurrence of the condition.

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METHODOLOGY OF ROOT CAUSES ANALYSIS OF ADVERSE EVENTS IN MEDICINE REPRESENTED BY CLINICAL CASE IN ANAESTHIOLOGICAL PRACTICE

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Key words: patient safety, anaesthesiology, adverse event, root cause analysis, standard.

The staggering statistics of medical errors and adverse events in medicine prompts the search for ways to solve the problem. One of the most common methods used in developed countries to identify the root causes in breach of patient safety in order to adequately manage and prevent the incidents in the future is root cause analysis. The aim of the research is to establish the basic attributes of the root cause analysis method and to demonstrate the algorithm of its practical application in medicine presented by a fatal incident taken from clinical practice. Materials and methods. We applied content-analysis of scientific medical literature to identify key characteristics of the root cause analysis method and algorithms for its application in clinical practice and an expert evaluation of the medical record of patient with hypertrophic cardiomyopathy, who unexpectedly died on the operating table during a thyroid gland elective operation in one of Kyiv hospitals. Results. It has been established that the focus of root cause analysis is "what?" (an unfavourable event) and "why?" (the system), but not "who?" (the worker), and the ultimate goal is not search and punishment of the person to blame, but searching for ways and the development of specific solutions to be implemented to improve the system and eliminate the likelihood of an adverse event re-currence in the future. Some of the most common technologies for using the method in practice are given. Based on the root cause analysis methodology, an expert evaluation of an anaesthesia case of the patient's intraoperative death has been carried out using the "five why's analysis" technology. A corrective intervention of a strong effect, in the form of standards for perioperative management of patients with hypertrophic cardiomyopathy has been developed to eliminate the established underlying cause of death. Conclusions. The root cause analysis is one of the main tools for identifying the causes of adverse events in various areas of human activity. The example of its practical application for the analysis of an unfavourable event in anaesthetic practice, which is

outlined in the article, has demonstrated its great potential in post-incident management of problematic cases in medicine.

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LITERATURE REVIEW

PRE-ECLAMPSIA IN CONTEMPORARY OBSTETRIC PRACTICE

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Key words: pre-eclampsia, pregnancy, birth.

This review article highlights the analysis of recent literature data on the development of pre-eclampsia during pregnancy. Pre-eclampsia is one of the most serious problems in modern obstetrics. The incidence of pre-eclampsia makes up 2-8% and does not tend to decrease. Despite a large number of studies, the etiological factors of pre-eclampsia are still remaining unknown. Nowadays, the placental theory that explains the occurrence of pre-eclampsia as a result of pathological placentation is considered to be the most acknowledged. The main risk factors for the development of pre-eclampsia are chronic kidney diseases (58.6%), vascular pathology (51.7%), endocrine pathology (38.0%), metabolic syndrome (24.0%), and heart disease (22.0%), diseases of the gastrointestinal tract (20.7%). Despite the ongoing prevention and multiple attempts to select therapy, there have been little results in reduce the incidence of pre-eclampsia. Today, the only radical treatment for severe preeclampsia is pre-term delivery. Analysis of modern literature has shown that the problem of pre-eclampsia is extremely relevant in obstetric practice, and, in particular, the problem of severe pre-eclampsia, as a potentially life-threatening condition for the mother and child. A significant frequency of this complication dictates the necessity to implement active preventive and curative measures for patients at risk of developing pre-eclampsia.

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INNOVATIVE METHOD OF DIGITAL X-RAY VISUALIZATION: LOW-DOSE TOMOSYNTHESIS

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Key words: tomosynthesis, digital radiography, linear tomography, computer tomography

X-ray diagnostics due to its high accuracy and accessibility occupies a leading place among the methods of primary diagnosis. But such a drawback of the investigation as aggregation of images of all the layers of the patient's body significantly reduces the effectiveness of the method. Linear

tomography has no this disadvantage, but it allows health care professionals to receive only one section of the layer needed. Therefore, this technique gave way to a computer tomography, which has high resolution and the possibility of multi-layer scanning. The disadvantage of CT examination is its high cost and considerable radiation burden on the patient. Today, in clinical practice, the new method of X-ray imaging, known as tomosynthesis, is becoming increasingly popular. When examining a patient by applying tomosynthesis, X-rays are used at different angles to obtain a large number of patient's tomographic sections. All information is transmitted to a computer, which synthesizes the three-dimensional image of the body researched. The possibility of obtaining a large number of distinct sections of the researched body gives tomosynthesis essential advantages over traditional X-ray and linear tomography. This allows tomosynthesis to compete with computed tomography, since with comparable informaton value of diagnostic images, the equipment for tomosynthesis is cheaper, and the radiation load on a patient is less than that during computer tomography. It is clear that tomosynthesis is not a substitute for computed tomographic examination, but in some cases data obtained by two these techniques are almost completely comparable. At the same time, the mode of tomosynthesis significantly expands the possibilities of X-ray diagnostics. Such examinations reduce the timing of receiving tomograms as well as reduce the dose burden on patients with sufficient amount of diagnostic information provided.

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EXPERIENCE OF APPLYING LASER TECHNOLOGIES IN ORTHODONTIC PRACTICE AND SOME ASPECTS OF THEIR MODIFICATION

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Key words: laser, orthodontic interference, tooth movement.

The issue to improve the laser techniques during orthodontic tooth movements, and namely the regulation of the output values of the laser apparatus, the duration and frequency of its operation, and the possible modification of these parameters in order to improve the results of iatrogenic orthodontic interventions remain unresolved in current dental practice. The purpose of the study was to analyze the results of the laser therapy used in orthodontic practice, particularly in cases of controlled teeth movement on the basis of published data and to substantiate the appropriateness of further modification of the above-mentioned method in order to improve the process of complex treatment. The study of the laser effect during orthodontic movement of teeth can be divided into three interrelated aspects: the direct impact of the laser on the acceleration of the teeth movement; the effect of laser to get relief of pain during orthodontic treatment; the effect produced by laser to

prevent relapses of orthodontic pathology. It is obvious that the variability of the indicators of the efficiency of laser influence in order to accelerate the orthodontic movement of teeth can be related to the summation action of a number of factors. Among such determinants there are the initial conditions and the type of laser apparatus. The results of previous studies indicate that the change in the wavelength range, power and intensity affects not only the range of the final positive result, but also, the ability to achieve such result. Data of previous systematic reviews point out the quality of the evidence obtained during the analysis of randomized controlled trials carried out to study the appropriateness of using laser therapy for relieving pain during orthodontic treatment and for preventing relapses of orthodontic pathology is not sufficient to formulate unambiguous findings, although compared with placebo groups we can find some positive effect of laser therapy. According to preliminary studies, the level of acceleration of orthodontic teeth movement with additional application of laser can reach 30-100%. For the final introduction of laser technologies in orthodontic practice, it is necessary not only to provide further research on the influence of the laser on the tissues of the body, but also finally to determine the role of the output parameters of the laser on the clinical effectiveness of the method. This is possible only in conditions of continuous improvement of laser devices, the development of original approaches and algorithms for their application. In terms of the further development perspective, the most original model of the laser device was described in the publication of Sevchenko O.V. (2017), in which the author proposed a new clinically effective and portable structure of the system, characterized by a number of original upgraded implementations that enable not only to expand the application of laser technologies in dentistry in general, but also to take into account the dynamic development of the technical components of these devices with the ability of their periodic improvement and replacement at the stage of choosing modified patient-centred treatment algorithms, based on available evidence base of provided systematic research.

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MOLECULAR MECHANISMS OF FLUORIDES INFLUENCE ON MAMMALIAN ORGANISM

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Key words: fluorides, molecular mechanisms, organs and systems, mammalian organism

The article reviews the literature in order to generalize current data on the effect of fluoride ions on the human and mammalian organism. We concluded that fluoride ions can have a positive effect on the bone system and tooth enamel, the molecular mechanism of which lies in the formation of a more acid-resistant fluoroapatite. However, their positive effect is possible only in micromolar doses. At the same time, even in these concentrations, the generation of free radicals and, as a consequence, activation of MAPK-dependent pathways of apoptosis grows in all other organs and systems. In addition to apoptotic changes in various organs and tissues, there is an intensification of the processes of lipid peroxidation. The functioning of nitric oxide cycle shifts towards the activation of inducible forms of NO-synthase, reducing the arginase dependent pathway of L-arginine metabolism. Fluoride can cause simultaneous development of several types of hypoxia. The development of some of the most threatening effects of fluoride is dose-dependent and requires millimolar concentrations. Taking into account the data of the last decade, the question of effectiveness of water fluoridation as a means of preventing dental diseases arises as discussible. Therefore, studies of the molecular mechanisms of fluorides effects, in spite of the investigations have been already conducted, are a promising direction for broadening the understanding of general mechanisms of fluoride-associated diseases development.

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THE MOST COMMON NON-MELANOMA SKIN CANCERS

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Key words: Non-melanoma skin cancers, basal cell carcinoma, squamous cell carcinoma, skin cancer treatment.

Aim. Non-melanoma cancers are the most common group of malignant neoplasms of the skin. The purpose of this work was to provide a literary review and generalize current knowledge in this field. In addition to the clinical picture, dermoscopic analysis of tumours structure is important as it increases the correctness of diagnosis by 46-90%, and the therapeutic tactics is not limited by excision. The most common variants of skin cancer are squamous and basal-cell carcinomas. Squamous cell carcinoma is subdivided into intra-epidermal and invasive forms. The intraepidermal form includes Bowen's disease and erythroplasia of Quey-rat. An invasive squamous cell carcinoma

can be exophytic and endophytic. There are several subtypes of basal-cell carcinoma: ulcerative form, pigmented form, cystic form, morphea form, superficial form, fibroepithelioma of Pincus, Gorlin's syndrome. Treatment of non-melanoma skin cancers can include surgery (surgical cutting, cryotherapy, laser ablation, Moses surgery) and conservative approach (drug treatment, photodynamic therapy). Recent studies of non-melanoma skin cancer pathogenesis describe using molecular-based therapy as an alternative to traditional chemotherapy. Conclusions. Squamous cell and basal cell carcinomas of the skin are the most common non-melanoma skin cancers. Eighty percent (80%) of tumours develop on the scalp, 20% - on the body trunk. Early diagnostics enables to treat patients with the least sequelae, and the global trend is aimed at finding new treatments.

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APPLYING MATRIX METALLOPROTEINASE IN DIAGNOSIS AND PROGNOSIS IN ONCOGYNECOLOGY

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Key words: matrix metalloproteinases, tissue inhibitors of matrix metalloproteinases, ovarian tumours, uterine tumours, diagnostics, prognosis.

The results of our own research and the review of literature data on the role of matrix metalloproteinases (MMPs) and their tissue inhibitors (TIMPs) in the processes of carcinogenesis are presented. The main focus is on changes in the expression of MMP and TIMP in patients with malignant diseases of the female genital area – ovarian, cervical and uterine cancer. Possibilities of their use in oncogynecology as biomarkers for diagnostics and prognosis of the course of malignant diseases are considered. In our own studies, changes are shown in the expression of the MMP-2, MMP-7 and TIMP-1 key indices in the blood serum, and MMP-9 in the tumor in patients with recurrence of uterine sarcoma, as compared with the patients in remission. We can conclude the further research of matrix metalloproteinases and their inhibitors in uterine malignant tumours for monitoring and evaluating the effectiveness of antitumor therapy and the prognosis of the course of the disease seems to be very promising.

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DIABETIC FOOT SYNDROME: ITS CAUSES AND DIAGNOSIS

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Key words: causes, diagnostics, diabetic foot syndrome.

This article is devoted to the analysis of scientific literature on the definition of the term "Diabetic foot syndrome" and identifying the causes of its occurrence. Considerable attention is paid to the disorders of innervations, circulation in the lower limbs and the degree of bone and joint damage in diabetic foot. According to the opinion of the majority of specialists, diabetic foot syndrome results from not only blood circulation impairment, but disorders of lower extremity innervations. Therefore, there is a division into neuropathic, ischemic and mixed forms of the syndrome. Diagnostic possibilities of modern methods used to examine diabetic patients are described in details. Particular attention is paid to the peculiarities of implementing instrumental investigation techniques in diagnosis of diabetic foot syndrome: rheovasography, thermograph, radionuclide angiography, laser flowmetry, angiography, computer digital subtraction angiography, assessment of transdermal oxygen tension, duplex ultrasound diagnosis, pain threshold detection, and temperature and vibration sensitivity. The article also presents the analysis of the indications prior the application of each of the diagnostic methods and the interpretation of the results obtained. The most advantageous of a large number of existing diagnostic methods are those that combine maximum information value with minimal invasiveness. It has been proved that the optimal methods for diagnosing the state of arterial blood flow in the lower extremities of patients with diabetic foot syndrome is the use of ultrasound and radiographic examination, with assessment of the transdermal oxygen tension. This allows doctors to get a complete picture of the pathological changes and to choose the proper treatment tactics.

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SYSTEMIC CAPILLARY LEAKAGE SYNDROME IN PATIENTS IN CRITICAL CONDITION

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Key words: systemic capillary leakage syndrome (SCLS), systemic inflammatory response syndrome (SIRS), endothelial dysfunction

The syndrome of systemic capillary leakage is pathognomic sign of critical conditions and diseases accompanied by the development of the systemic inflammatory response (SIRS). The syndrome of systemic capillary leakage is to some extent always present in the overwhelming majority of critical cases. It is the most pronounced in conditions of sepsis and shock.

The systemic capillary leakage syndrome (SCLS) is a loss of intravascular fluid towards the interstitial sector of extracellular body water. SSCC is understood as a progressive pathological increase in capillary permeability observed under critical conditions. It leads to the loss of the liquid

part of the blood into the interstitial sector of the extracellular water space with the subsequent development of hypovolemia, hypoperfusion of organs and tissues, a decrease in oxygen transport and the rapid formation of multiple organ dysfunctions. The crucial role in its development is due to the disruption of the functions of a vascular endothelium and the associated immune responses, as well as to a number of inflammatory mediators. According to modern conceptions, the endothelium is a monolayer of cells that lines the inner surface of the vessels. It is an autocrine, paracrine and endocrine organ with numerous regulatory functions. Endothelium is involved in the regulation of vascular tone, haemostasis, immune response, migration of blood cells to the vascular wall, the synthesis of inflammatory factors and their inhibitors, and performs barrier functions. In SIRS, which is an integral part of any critical condition, regardless of the cause; when accumulating, inflammatory mediators act on the leukocytes and the endothelium of the vascular wall. Biologically active substances, which are released by activated leukocytes, change the structure and function of the endothelium and interstitial space. The consequences of this influence result in structural and functional changes, which are characterized by sequential stages of SCLS. Subsequent increase in the capillary permeability of the protein and impairment of the structure of the interstitial space leads to a stable accumulation of fluid in the interstitial space, which is considered as a poor prognostic sign.

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EXPERIENCE EXCHANGE

RESECTION AND TRANSPOSITION OF BUCCAL FAT PADS: INDICATIONS AND CONTRAINDICATIONS FOR OPERATION

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Key words: Bichat buccal fat pad removal, glabella-gonial angle.

Operations aimed at Bichat fat pads transposition or resection of are becoming very popular nowadays, but, unfortunately, they do not always bring positive effect, and the results obtained can be estimated differently by patients. A number of female patients were not satisfied or even

disappointed with the results of the surgeries performed. They noted that after resection of Bichat fat pads, the tissues in the lower part of the cheek lost the turgor and when smiling the skin became folded. As it turned out, when predicting the result, the proportions of the face are of fundamental importance. When analyzing the performed operations in our medical centre, we noticed that patients with narrow and broad faces evaluated the operation results according to different criteria. But, the length between the most prominent points of the malar eminences in this evaluation scale turned out to be less significant. More important criteria were the length of the face and the width between the angles of the lower jaw. In order to simplify the measurements and create a single objective criterion, we proposed using one indicator that correlates the relationship between the length of the face and the distance between the angles of the lower jaw. This is a glabella-gonial angle. Using the glabella-gonial angle suggested by the authors considerably simplifies preoperative analysis. In the group of patients with an angle of more than 75 degrees, the results are naturally better. Evaluation of the results after the resection of Bichat fat pads was carried out based on two criteria. The first one concerned the patient's subjective evaluation of the result of the operation. The second one was based on medical analysis. It included the examination at rest and with a maximum teeth baring. In the test group, the positive result of the operation was noted by the patients in 94% of cases, while in the control group in 68% of cases.

The second angle between glabella-gonion-glabella is applicable for the selection of patients for the transposition of fatty pads. The operation for Bichat fatty pads transposition is indicated to patients who have this angle less than 80 degrees.

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