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Contents

INCIDENCE STUDY OF GASTROINTESTINAL DISEASES IN STUDENTS AND GUIDELINES FOR THEIR PREVENTION 7
Adamovych I.V., Vovk K.V., Litvin O.I., Nikolenko E.Ya., Bakumenko M.G., Dergachova A.V. 7
IMMEDIATE RESULTS OF X-RAY ENDOVASCULAR INTERVENTIONS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION 8
Aksenov E.V., Gumenyuk B.M. 8
PATHOGENETIC FEATURES OF THE COURSE OF NON-ALCOHOLIC STEATOHEPATITIS WITH COMORBIDITIES OF OBESITY AND CHRONIC KIDNEY DISEASE 9
Antoniv A. A. 9
ECHOGRAPHIC AND DOPPLER INDICATORS IN EVALUATING PREGNANCY COURSE IN WOMEN WITH THREATENED MISCARRIAGE IN EARLY TERMS 11
Akhundova G. I., Shamkhalova I. A. 11
DYNAMIC CHANGES OF PLACENTAL HORMONES IN PREGNANT WOMEN WITH MODERATE AND SEVERE PREECLAMPSIA 13
Babayeva A. H., Rzakulieva L. M. 13
ANALYSIS OF THE OCULAR LAYER RIGIDITY AND THE STATE OF EYE HYDRODYNAMICS IN MYOPIA 14
Bezkorovayna I.M., Nakonechnyi D.O. 14
INCIDENCE OF DISABILITY DUE TO OCCUPATIONAL DISEASES IN THE DNIPROPETROVSK REGION 15
Borisova I. S., Abramenkova N. O., Kontsur V. M. 15
LEVELS OF SERUM C-REACTIVE PROTEIN AND INTERLEUKIN-6 AS PREDICTORS OF ACUTE CORONARY SYNDROME SEVERITY 16

Veremchuk S. F., Marunyak S. P., Dzyuba D. A, Loskutov O. A. 16
CHARACTERISTCS OF THE COURSE OF PREGNANCY AND LABOR IN WOMEN WITH ENDOMETRIOSIS 18
Vorobii V. D. 18
A STUDY OF THE TIME-BASED CHARACTERISTICS OF PHENOMENOLOGY OF POST-STROKE FATIGUE OVER THE FIRST YEAR AFTER STROKE OCCURRENCE 19
Delva I. 19
Ukrainian Medical Stomatological Academy, Poltava 19
ASSESSMENT OF THERAPEUTIC EFFECTIVENESS OF CHONDROPROTECTORS FOR PATIENTS WITH COMORBID DISEASES 24
Zhdan V. M., Lebid' V. G. 24
OCCUPATION AND SMOKING PREVALENCE AMONG PARENTS WHOSE CHILDREN HAVE DISEASES OF URINARY SYSTEM 26
Ivanova A.A., Sorokina I.V., Myroshnychenko M.S., Omelchenko O.A. 26
HORMONAL BACKGROUND IN WOMEN WITH INFERTILITY AND PSYCHOSOMATIC DISORDERS 28
Kaminsky A.V. 28
PSYCHO-HYGIENIC SIGNIFICANCE OF PERSONALITY TRAITS OF ADOLESCENTS WITH VISION DISORDERS 29
Korobchansky V.O., Sasina O.S. 29
CHARACTERISTICS OF CLINICAL COURSE OF EXTERNAL GENITAL ENDOMETRIOSIS IN PATIENTS WITH HYPOTHYROIDISM 30
Lysenko B. M., Habrat B. V., Litvak Ye. O. 30
STUDY OF QUALITY OF LIFE IN PATIENTS WITH ACUTE MYELOID LEUKAEMIA DURING INDUCTION ANTHRACYCLINE-BASED CHEMOTHERAPY 32
Lymanets T.V. 32
DOPPLER ASSESSMENT OF UTERINE BLOOD FLOW IN WOMEN WITH THE THREAT OF PREGNANCY LOSS IN THE SECOND TRIMESTER 33
Magerramov N. S., Shamhalova I. A. 33
EFFECTS PRODUCED BY BETARGIN AND QUERCETIN THERAPY COMPLEX ON CLINICAL COURSE, CHRONIC SYSTEMIC INFLAMMATION AND ENDOTHELIAL DYSFUNCTION IN PATIENTS WITH STABLE CORONARY HEART DISEASE AND CONCOMITANT NON-ALCOHOLIC FATTY LIVER DISEASE 35
Manusha Yu.I. 35
MECHANISM OF DEVELOPMENT of inner ear EXTERNAL CILLIARY CELL dysfunction AND its correlation with AUTOIMMUNE TYROIDItIS 37
Naumenko A.N., Deeva Yu.V., Tarasenko M.V. 37
SONOGRAPHIC ASSESSMENT OF WOMEN WITH RETROCHORIAL HEMATOMA IN THE FIRST TRIMESTER OF PREGNANCY 38
Orujeva P. F., Shamhalova I. A. 38
CHARACTERISTICS OF THE COURSE OF CEREBRO-CRANIAL INJURY IN CHILDREN WITH CONNECTIVE TISSUE DYSPLASIA 40
Petrenko V. N. 40

PECULIARITIES OF COLORECTAL PHENOTYPE OF CARCINOMA OF UNKNOWN PRIMARY ORIGIN 41
Poslavska O. V., Shponka I. S., Hrytsenko P. O. 41
ANTI-HELICOBACTER PYLORI THERAPY OPTIMIZATION IN PATIENTS WITH CHRONIC GASTRITIS AND CONCOMITANT DIABETES MELLITUS TYPE 2 42
Radionova T.O. 42
PECULIARITIES OF THE EXPRESSION OF ESTROGEN AND PROGESTERONE RECEPTORS IN OVARIAN TUMOUR 44
Savchenko O.A., Shponka I.S., Savchenko P.V. 44
CLINICAL CHARACTERISTICS AND COURSE OF THE FIRST TRIMESTER OF GESTATION IN WOMEN WITH POLYCYSTIC OVARY SYNDROME AND METABOLIC DISORDERS OR WITHOUT THEM 45
Suleymanova N. M. 45
COMPARATIVE CHARACTERISTICS OF THE NATURE AND FREQUENCY OF INTRAOPERATIVE, EARLY AND LATE POSTOPERATIVE COMPLICATIONS AFTER APPLYING VARIOUS TECHNIQUES OF CATARACT SURGICAL TREATMENT 47
Steblovska I. S., Bezkorovaina I.M. 47
PECULIARITIES IN MANAGING ELDERLY FEMALE PATIENTS WITH OSTEOARTHRITIS AND COMORBIDITIES 48
Lebid' V. G., Haimenova G. S. 48
THE EFFICIENCY OF L-CARNITINE AND MELDONIUM DIHYDRATE IN THE THERAPY OF NON-ALCOHOLIC STEATOHEPATITIS AND COMORBID OBESITY AND CORONARY HEART DISEASE 50
Khukhlina O. S., Kuzminska O. B., Antoniv A. A., Kotsiubiichuk Z.Ya., Mandryk O.Ye. 50
INVESTIGATION OF RISK FACTORS AND CRITERIA OF ALGORITHM PREDICTING PSORIASIS AT THE STAGE OF PRIMARY MEDICAL CARE 51
Cherkashina L.V. 51
ANALYSIS OF CHANGES IN HEALTH STATUS OF PRIMARY-SCHOOL CHILDREN OF THE POLTAVA REGION 52
Chetverikova O.P. 52
IMPROVEMENT IN THE MANAGEMENT OF PATIENTS WITH NON-ALCOHOLIC STEATOHEPATITIS AND ATHEROGENIC DYSLIPIDEMIA 53
Shcherbak O.V. 53
CHANGES IN BLOOD PLASMA ELECTROLYTE CONTENT IN PATIENTS WITH GASTROESOPHAGEAL REFLUX DISEASE 55
Yakhnitska M.M. 55
CONSIDERATION OF THE SERIES OF MORPHOFUNCTIONAL VALUES IN FEMALE ATHLETES OF YOUNG AGE, ENGAGED BY LIGHT ATHLETICS 57
Bugaevsky K.A., Bila A.A., Dovgan' A.V., Petrenko O.V., Abramov K.V. 57
PECULIARITIES OF CYTOCHEMICAL STATUS OF BLOOD LYMPHOCYTES IN ISCHEMIA-REPERFUSION LIVER INJURY 58
Garayev G. Sh., Shahmamedova S. O. 58
PLANNING OF ABDOMINOPLASTY IS FROM THE POINT OF VIEW OF

BIOMECHANICS AND MORPHOLOGICAL DESCRIPTIONS TISSUES OF FRONT ABDOMINAL WALL 59
Drabovskiy V.S. 59
INFLUENCE OF AP-1 TRANSCRIPTION FACTOR INHIBITOR ON FREE-RADICAL OXIDATION AND ANTIOXIDANT PROTECTION IN PERIODONTAL TISSUES OF RATS EXPOSED TO SYSTEMIC ADMINISTRATION OF SALMONELLA TYPHI LIPOPOLISACCHARIDE 61
Yelins'ka A.M., Kostenko V.O. 61
OBESITY: ANALYSIS OF LEADING CAUSES OF DEATH AND CONCOMITANT PATHOLOGIES BASED ON AUTOPSY CASE PROTOCOL 62
Mazur O., Kuzyk Yu. 62
STUDY OF MACRO- AND MICROELEMENT COMPOSITION OF SKELETAL MUSCLES OF THE RATS WITH CHRONIC HYPERGLYCEMIA 64
Rtail R., Tkach G. 64
STATUS OF FREE-RADICAL PROCESSES AND ANTIOXIDANT PROTECTION SYSTEM OF THE PARODONTIUM CONNECTIVE TISSUE IN RABBITS WITH HYDROCORTISONE PERIODONTITIS 65
Cheremysna V.F., Jemela O.D., Gychenko G.P. 65
ANGIOGENESIS IN HIGH GRADE DIFFUSE ASTROCYTIC TUMORS 66
Chertenko T. 66
MELATONIN IMPROVES MITOCHONDRIAL FUNCTION AND DECREASES OXIDATIVE STRESS IN GUMS OF DIABETIC RATS 68
Yaremii I.M., Kushnir O.Yu., Khlus K.M. 68
CONSERVATIVE TREATMENT OF PULPITIS BY USING CITRATE BUFFER 73
Bublij T.D., Kostyrenko O.P. Kotelevskaya N.V, Moshel T.N. 73
CHARACTERISTICS OF GUM SHAPERS 74
Zaporozhchenko IV, Toncheva KD, Kasyanova VG, Korol DM 74
ELECTROMYOGRAPHIC RESEARCH OF CHEWING MUSCLES FUNCTIONING IN DYSFUNCTIONAL DISORDERS OF TEMPOROMANDIBULAR JOINT 75
Kostiuk T.M. 75
CHARACTERISTICS OF MORPHOLOGICAL STRUCTURE OF SCAR TISSUE AFTER SURGICAL TREATMENT OF NECK CYSTS OF EMBRYOLOGICAL ORIGIN AT 6TH, 9TH AND 12TH MONTHS OF POSTOPERATIVE PERIOD 77
Krinichko L.R. 77
EFFICIENCY OF INTEGRATION TREATMENT OF GENERALIZED CATARRHAL GINGIVITIS IN ADOLESCENTS WITH CHRONIC GASTRODUODENITIS 77
Lisetska I.S., Rozhko M.M. 78
EFFECTIVENESS OF INITIAL CARIES TREATMENT USING OZONE AND ENAMEL-HARDENING GEL 'TOOTH MOUSSE' 78
Oliynyk R.P., Rozhko M. M. 79
BIOPHYSICAL ASPECTS OF DETERMINING THE TRANSMITTANCE OF SOLID TISSUES AND THE SURFACE TENSION OF BIOPHYSICAL ASPECTS IN DETERMINING TRANSMITTANCE COEFFICIENT OF HARD TISSUES AND SURFACE TENSION OF

ANTISEPTIC SOLUTIONS IN DENTAL ROOT CANAL SYSTEM 80
Sidash Yu. V. 80
INVESTIGATION OF BIOFILM-FORMING AND ADHESIVE PROPERTIES OF CLINICAL STRAINS KOCURIA SPP 81
Faustova M.O. 81
CLINICAL EFFICACY OF TREATMENT OF INFLAMMATORY AND DYSTROPHIC DISEASES OF PERIODONTITIS OF WOMEN WITH BACTERIAL VAGINOSIS IN THE NEAREST TERMS OF OBSERVATION 82
Shulzhenko A.D. 82
ІНТЕГРАТИВНІ МЕХАНІЗМИ ПАТОЛОГІЧНИХ ПРОЦЕСІВ: ВІД ЕКСПЕРИМЕНТАЛЬНИХ ДОСЛІДЖЕНЬ ДО КЛІНІЧНОЇ ПРАКТИКИ 83
PATHOPHYSIOLOGICAL COMPARISON OF BLEEDING IN OBSTETRIC AND SURGICAL PRACTICE 83
Vastyanov R. S. , Savitsky I. V. , Rusnak S. V. , Ostapenko I.O. , Nagovitsin O.P. 84
INFLUENCE OF EXOGENOUS MELATONIN ON ACUTE KIDNEY INJURY INDUCED BY ACETAMINOPHEN 85
Dudka Ye. A., Shchudrova T. S., Petriuk A. Ye., Zamorskii I. I. 85
MORPHOLOGICAL CHANGES IN SKIN OF GUINEA PIGS IN ERYTHEMATIC PERIOD AFTER THE EXPOSURE TO LOCAL UV-IRRADIATION IN APPLYING OINTMENT CONTAINING THIOTRIAZOLINE AND SILVER NANOPARTICLES 86
Zvyagintseva T.V., Myronchenko S.I., Naumova O.V. 86
CORRECTION OF PROXIMAL NEPHRON DAMAGE DURING IRRITABLE BOWEL SYNDROME 88
Rohovyi Yu. Ye., Bilooka Yu. V., Bilookiy V. V. 88
TRANSFORMATION OF THE MENTAL HEALTH CARE SYSTEM 90
Makarenko O.M., Flaherti M., Demydchuk A.S.,..... 90
THE APPROACHES TO IMPROVE PRACTICAL SKILLS AT THE DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY 92
Pakharenko L.V. 92
STUDENTS' SCIENTIFIC SOCIETY IN FOSTERING AND SECURING HUMAN RESOURCES IN MEDICAL UNIVERSITY 93
Petryniv V. B. 93
SCIENTIFIC APPROACHES TO STRUCTURING THE CONTENT OF EDUCATIONAL MATERIAL FOR MEDICINE DISCIPLINES 93
Tovstiak M. M., Holovanova I. A. 94
ОГЛЯДИ ЛІТЕРАТУРИ 95
MODERN VIEWS ON IDENTIFYING PRESCRIPTION OF DEATH COMING IN PRACTICE OF FORENSIC MEDICINE (LITERATURE REVIEW) 95
Bachinsky V.T., Vanchulyak O.Ya., Sarkisova Yu.V., Kolacheva A.Yu. 95
EVALUATION OF TECHNIQUES AND CONTEMPORARY STATE OF SURGICAL TREATMENT OF CHRONIC DACRYOCYSTITIS 97
Bezega N.M., Ryadnova V.V. 97
EPIDEMIOLOGICAL AND AETIOLOGICAL FACTORS OF FOOD ALLERGIES 101

Bubyr L. M. 101
TREATMENT OF CHRONIC PERIODONTITIS IN CASE OF ACQUIRED WIDE-OPEN ROOT APEX (LITERATURE REVIEW) 105
Han I.V. 105
ETIOLOGICAL AND PATHOGENETIC ASPECTS OF INTRAUTERINE GROWTH RETARDATION 108
Gromova A. M., Berezhna V. A. 108
IMPAIRMENT OF REPRODUCTIVE FUNCTION IN BENIGN UTERINE PATHOLOGIES 112
Huseynova Z. S. 112
OBESITY AS A COMORBID STATE UNDER PSORIASIS 115
Yemchenko Ya. 115
PATHOGENETIC FEATURES OF ENDOTHELIAL DYSFUNCTION UNDER HEMOSTASIS IMBALANCE 117
Kotiuzhynska S. G., Umanskiy D.O., Pogulych Yu. V., Lyhodid O. M. 117
SOME ASPECTS OF THYROID IMPACT ON THE BODY STATE IN NORMAL AND PATHOLOGY CONDITIONS 120
Ryabukha O.I. 120
THE ROLE OF CELL CYCLE REGULATORY GENES IN THE DEVELOPMENT OF STOMACH CANCER 125
Chernobay A. V., Chernobay M. A. 125
TYPES OF DYSFUNCTIONAL CONDITIONS OF TEMPOROMANDIBULAR JOINT BY ETIOLOGY AND CHARACTERISTICS OF THEIR PATHOGENESIS 127
Yatsenko P.I. 127
ПОГЛЯД НА ПРОБЛЕМУ 132
SOME ASPECTS OF TITANIUM APPLICATION IN DENTAL TREATMENT 132
Bachanek Teresa, Zimenkovsky Andrzej, Szybinsky Volodimir, Pitura Karolina, Hendzel Barbara, Wolańska Ewa, Samborski Dariusz, Borowicz Janusz, Tymczyna-Borowicz Barbara ... 132
КЛІНІЧНИЙ ВИПАДОК 137
HEART VALVE ABNORMALITIES IN NOONAN SYNDROME: LITERARY REVIEW AND CASE STUDY 137
Zhdan V.M., Katerenchuk O.I. 137
TYPE B1 THYMOMA ASSOCIATED WITH MYASTHENIA: A CASE REPORT 139
Filenko B.N., Starchenko I.I., Roiko N.V., Cherniak V.V., Novoseltseva T.V. 139

INCIDENCE STUDY OF GASTROINTESTINAL DISEASES IN STUDENTS AND GUIDELINES FOR THEIR PREVENTION

Adamovych I.V., Vovk K.V., Litvin O.I., Nikolenko E.Ya., Bakumenko M.G., Dergachova A.V.

Key words: incidence rate, students, gastrointestinal diseases, prevention, balanced nutrition.

This article deals with the issue on the susceptibility of the student population to gastrointestinal diseases. The incidence and prevalence rates of gastrointestinal diseases were investigated in students studying at Kharkiv higher educational institutions and based on the data provided by the Kharkiv Municipal Student Hospital for 2016-2017. We carried out a comparative analysis of values showing incidence and prevalence of this pathology between the students and the general population over 18 based on the data given by the Kharkiv Municipal Clinic № 26 for the same period. Nutritional guidelines for balanced diet were elaborated for students with reference to this analysis. The authors paid special attention to the necessity of introducing preventive measures into practice in order to combat the negative trends in growing prevalence of these diseases among students. High incidence of gastrointestinal pathology in this group of population can be explained by students' indifference to their health, their unwilling to adhere to the day regimen and healthy diet. It has been noticed that students often consume food containing a large amount of fats and easily digestible carbohydrates, salt; many of them do not eat enough fruit, vegetables and whole grains as major sources of nutritional fibres. A lot of students combine their education with work, and, unfortunately it is often a night work. Consequently, many students do not adhere to the well-balanced meals, and their usual snacks are coffee and bakery products. It should be pointed out that the diseases of the gastrointestinal tract contribute much in deteriorating the quality of human life, thus preventing the occurrence of this pathology hinders the decline in life quality. Preventive measures are very important in controlling these diseases among young people. Compliance with the dietary patterns and balanced nutrition are among the important factors for primary and secondary prevention of gastrointestinal diseases on which we can have an impact. Strategic directions in solving this problem should be based on large-scale population education through lectures on rational nutrition and healthy dietary habits to foster awareness and personal responsibility for the health and wellbeing.

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IMMEDIATE RESULTS OF X-RAY ENDOVASCULAR INTERVENTIONS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

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Key words: bypath, coronary arteries, acute myocardial infarction.

This paper describes the study aimed at presenting the immediate angiographic results in patients with acute myocardial infarction (AMI). The survey included 626 patients with AMI who underwent diagnostic and therapeutic interventional procedures for this pathology on the basis of the Angiographic Department of the N. Amosov National Institute of Cardiovascular Surgery, National Academy of Medical Sciences of Ukraine. The average age of the patients was 66,96±1,81 years, average body weight was 86,5±1,44 kg. The area of left ventricular myocardial damage in calculating the QRS-index made up 20,4±1,2%. On admission, 438 pa-tients (69,97%) had a second functional class of heart failure by T. Killip. 332 patients underwent initial bal-loon angioplasty in early MI, and 294 patients underwent stenting of the infarction-related coronary artery (CA) with a simultaneous stent implantation. The result obtained have demonstrated that the CA atheroscle-rotic lesions caused the development of AMI are most often detected in the anterior interventricular branch (49% of cases) and in the right CA (28,2% of cases). At the same time, 74,1% of stenoses

are classified as a type "C", including occlusions (53,6%). The immediate (technical) angiographic success of balloon angio-plasty of the infarction associated CA was registered in 90,4% of cases. Favourable angiographic outcomes by stenting were achieved in 96,6% of cases. At the same time, the procedural success in view of repeated interventions was achieved in 91,5%, and good clinical results were found out in 86,7% of patients. The largest average degree of residual constriction was noted after the angiographic bypath in stenoses of type "C", and the smallest one was observed in cases of type "B" lesions.

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PATHOGENETIC FEATURES OF THE COURSE OF NON-ALCOHOLIC STEATOHEPATITIS WITH COMORBIDITIES OF OBESITY AND CHRONIC KIDNEY DISEASE

Antoniv A. A.

Key words: non-alcoholic steatohepatitis, chronic kidney disease, pathogenesis, bacterial endotoxin.

The purpose of this study was to determine the pathogenetic role of the bacterial endotoxin content in the blood on the hepatocyte damage markers, the severity of steatosis and liver fibrosis in patients with non-alcoholic steatohepatitis and comorbid obesity, depending on the form and stage of chronic kidney disease, and its progression. Materials and methods. 170 patients with non-alcoholic steatohepatitis aged 40-55 years were examined. All patients were distributed as follows: group 1 included 70 patients with non-alcoholic steatohepatitis and concomitant obesity of the 1st degree; group 2 involved 100 patients with non-alcoholic steatohepatitis, obesity of the 1st degree and comorbid chronic kidney disease of I-II st. (chronic pyelonephritis). We examined 30 healthy persons (HPs), who by their age and sex were not significantly different from the main group and the comparison group. The article provides the theoretical generalization of the features of the microbial status of the colon content (MSCC) during the course of non-alcoholic steatohepatitis and comorbidities of obesity and chronic kidney disease of the I-III stages that is characterized by the

development of marked dysbiosis (II-III st.) manifested with the occurrence and growing prevalence of pathogenic microflora, an increase in the number of opportunistic bacteria and yeasts of the genus Candida, a probable deficiency of representatives of normal microbiota as lactobacilli, bifidobacteria, bacteroids. Conclusion. The study has demonstrated the blood bacterial endotoxin content is of a high predictive clinical value as a marker showing the progression of non-alcoholic steatohepatitis against the background of chronic kidney disease and obesity with a growth above 0.23 EO / ml (sensitivity makes up 87.1%, specificity makes up 91.6%).

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ECHOGRAPHIC AND DOPPLER INDICATORS IN EVALUATING PREGNANCY COURSE IN WOMEN WITH THREATENED MISCARRIAGE IN EARLY TERMS

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Key words: pregnancy, I trimester, threatened miscarriage, ultrasonography, hematoma, Doppler.

The aim of this study was to evaluate ultrasonographic parameters and systolic-diastolic ration in patients with threatened miscarriage in the early gestation period. Material and methods. The study included 104 pregnant women at the gestation period of 5-12 weeks. The main group included 84 pregnant women with the threat of early miscarriage; the control group covered 20 women with physiological pregnancy without signs of the threatened miscarriage. In the control group, the mean age was 25.24±1.0 years, in the main group the mean age was 26.8±1.07 years. During the investigation we applied clinical techniques, ultrasound and dopplerometric imaging techniques. Ultrasound (US) and Doppler scanning were carried out by the device "Aloka-1400" and "Aloka-1700" (Japan), operating in the mode of gray scale and real time scale with the help of a convex abdominal and vaginal sensors with a frequency of 3.5 and 5 MHz. Dopplerometry was used to assess the systolic-diastolic ratio (S/D) in both uterine arteries. Results. In the group of the patients with the threat of miscarriage, primigravidae made up 22.6%, secundigravidae made up 77.4%; respectively, in the control group there were 25.0% of primigravidae and 75.0% of secundigravidae. There were 30 (35,7%) primigravidae and in 9 (45%) secundigravidae in the control group. Preterm labour occurred in 11.9% of cases in the main and in 5.0% of cases in the control group. Reproductive losses manifested by early spontaneous miscarriages were observed to be significantly more frequent in the main group ($p<0.01$), and late spontaneous miscarriages were observed only in the main group in 14.3% of cases. Among gynaecological pathology, inflammatory diseases (endometritis, adnexitis) were significantly more frequent, and made up

38.1%. Ultrasound-detected hematomas of various localization were observed in 98.8% of cases, myometrium hypertonicity was registered in 57.1%, and the disruption of the corpus luteum was registered in 48.8% of cases. In 54.8% of cases all these three signs were found out. In 66.7% of pregnant women, the volume of intrauterine hematoma did not exceed 9 cm3. In the main group, chorion was more often detected in the area of external orifice of uterus (40.5%), while in the control group chorion was most often detected along the anterior wall (40.0%). In the main group of SDS in the right uterine artery compared with the control indicator was reduced by 27.0% ($p<0.05$), in the left uterine artery – by 23.7%. Conclusion. The first trimester (up to 12 weeks of gestation) US scan should be implemented into the pregnancy management as it enables to detect risks associated with possible miscarriages. Our findings clearly demonstrate the value of the US scan.

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DYNAMIC CHANGES OF PLACENTAL HORMONES IN PREGNANT WOMEN WITH MODERATE AND SEVERE PREECLAMPSIA

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Key words: pregnant women, preeclampsia, severity, placental hormones, therapy.

The aim of the study was to provide a comparative assessment of the dynamic state of placental hor-mones in pregnant women with preeclampsia (PE) of varying severity. Material and methods. 76 pregnant women (mean age 27.7±2.6 years) were examined. Aged primiparas made up 44.7%, multiparas made up 55,3%. Depending on the severity of PE, the patients were divided into 2 groups: group I included 52.6% of pregnant women with moderate PE, group II included 47.4% of pregnant women with severe PE. The sever-ity of PE was evaluated by the Wittlinger scale. The content of hormones was evaluated starting from 33-35 weeks of gestation. Placental hormones estriol (est), progesterone (PG), placental lactogen (PL) and human chorionic gonadotropin (HCG) were evaluated in venous blood by ELISA. Results. In terms of gestational age of 33-35 weeks, there was a decrease in placental hormones lasted up to 38-40 weeks in both groups. Depending on the therapy received, each group was divided into 2 subgroups: a comparison subgroup that received conventional therapy and a main subgroup receiving conventional therapy supplemented with anti-oxidants. The inclusion of antioxidants enabled us to slow down the decrease in placental hormones in the blood, especially placental lactogen by 23.6%; in severe PE, chorionic gonadotropin decrease was slowed by 44.2% ($p<0.05$) and placental lactogen by 57.9% ($p<0.01$). Conclusion. Assessment the level of these hormones is of an important clinical significance in the early diagnosis of preeclampsia, and can also be an indicative of the severity of the disease.

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ANALYSIS OF THE OCULAR LAYER RIGIDITY AND THE STATE OF EYE HYDRODYNAMICS IN MYOPIA

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Key words: myopia, sclera rigidity, elasto-tonography, myopia progression

Introduction. The issues on elasticity and rigidity of the outer eye layer and the diagnosis of the myopia progression based on the findings obtained by elasto-tonography are posing a great scientific and clinical interest. The aim of the study was to estimate the rigidity of the outer eye layer using the applanation elasto-tonography and to examine the effect of their changes on the myopia progression. Materials and methods. We examined 84 patients (168 eyes), aged 16 to 38 years. Among them, 138 eyes were with medium spherical equivalent (from -3,25D to -20,0D) and 30 eyes were with emmetropia (control group). All patients passed through the applanation elasto-tonography to obtain the findings on the rigidity of the outer eye lay-ers in myopia and to assess the myopia progression. Results. It has been found out that compared with the moderate and high degrees myopia, when comparing the survey with the parameters in the emmetropia group, there is an additional criterion to assess the myopia progression, and this is the analysis of the rigidity of the outer eye layer by the applanation elasto-tonography. This technique, in contrast with the previously used to the study the myopic eyes, allows us to investigate the elasticity of the scleral eye capsule more fully, since it can detect the accumulation of residual sclera deformations by fibrils after the compression and can reveal hidden rigidity disturbances. The shortening of the post-compression elastic rise by 1.5 mm indicates the myopia progression. There is a direct strong correlation between the magnitude of the post-compression elastic rise shortening and the magnitude of myopic refraction. Correlation coefficient equal to 0,97 is reliable with probability of error-free prediction p>99%. Conclusion. An additional diagnostic criterion to assess the myopia progression is the

analysis of the rigidity of the ocular layers by using elasto-tonography. The shortening of the post-compression elastic rise more than 1.5 mm in comparison to the previous results indicates the myopia progression because it characterizes the impairment in the rigidity of the eye layers (r = 0.97 - probability of error-free prediction p> 99%).

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INCIDENCE OF DISABILITY DUE TO OCCUPATIONAL DISEASES IN THE DNIPROPETROVSK REGION

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Key words: occupational diseases, disability indicators, medical and social expertise.

The study aimed at analyzing the dynamic changes in disability incidence due to occupational diseases in the Dnipropetrovsk region for 2015-2017. A retrospective study of the dynamics of disability resulted from occupational diseases was based on the data provided by the municipal hospital "Regional Clinical Centre for Medical and Social Expertise of the Dnepropetrovsk Regional Council" for the period from 2015 to 2017. Medical and social cases and referrals to medical and social expertise (Form 088/y) of patients passed through the examination by doctors of

specialized occupational medical and social settings were studied. It has been shown that the number of people with disabilities resulting from occupational diseases is increasing in the Dnepropetrovsk region. The ways to overcome this unfavourable trend should be supported by governmental measures and aimed at improving regulatory and legal documents that will lead to consistency between various government institutions and monitoring the compliance of sanitary and hygienic conditions at hazardous industrial enterprises.

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LEVELS OF SERUM C-REACTIVE PROTEIN AND INTERLEUKIN-6 AS PREDICTORS OF ACUTE CORONARY SYNDROME SEVERITY

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Key words: ischemic heart disease, acute coronary syndrome, acute myocardial infarction, unstable angina, cardiogenic shock.

The work is devoted to the study of the role of C-reactive protein (CRP) and interleukin-6 (IL-6) as serum markers for assessing the plaque instability in patients with acute coronary syndrome (ACS) under endovas-cular coronary revascularization (CR). The study included 81 patients (18 patients in the control group (CG) without signs of coronary heart disease, 20 patients with stable angina (SA), 20 patients with unstable an-gina (UA), and 23 patients with acute myocardial

infarction (AMI)). The surveyed groups were comparable by sex, age, and type of conducted CR. The average age was 67.4±4.2 years. Among them there were 57 men and 24 women. Concentrations of CRP and IL-6 were assessed after collecting all samples, and simultane-ously lipidograms, blood glucose and other concomitant indices were being performed. The obtained data showed that in the group of patients with AMI the level of CRP was higher than the similar values recorded in CG approximately by 85,59±3,9%, in the group of patients with SA the index studied was higher by 77,54±2,7%, and in the group of the patients with UA it was higher by 33.85±1.8%. At that, the value of IL-6 were higher than the relevant values recorded in the CG approximately by 74,9±2,4%; the value of IL-6 com-pared with the SA group was higher by 67,03±3,1% and exceeded this index in patients with UA on average by 24,85±1,8%. We observed a direct correlation between the values of CRP and IL-6 in patients with AMI in the first day of their hospital staying. The results of the study have shown that serum levels of CRB and IL-6 can be used to assess the stability of the plaque and are relevant in the ACS development that confirms the significant value of these indicators in predicting ACS.

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CHARACTERISTCS OF THE COURSE OF PREGNANCY AND LABOR IN WOMEN WITH ENDOMETRIOSIS

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Key words: endometriosis, pregnancy, labour, pathology.

Introduction. Genital endometriosis is a type of the gynaecological pathology, which often leads to com-plications during the gestational period and affects the state of the fates and newborn. The aim of this study was to analyze the characteristics of the course of pregnancy and labour in women with genital endometriosis. Materials and methods. The study was based on the analysis of the course of pregnancy and labour in 103 pregnant women with histories of genital endometriosis, which made up the basic group. 30 healthy pregnant women without this diagnosis made up the control group. Results. The average age of women in the control group was 28.57±0.76 years, and in the basic one this was 30.58±0.51 years. By studying the anamnesis of pregnant women with endometriosis, one can note the wide spread of other gynaecological diseases, among which the chronic inflammatory processes of the uterine appendages ($\chi 2$ =11.22, $p<0.001$) and infertility ($\chi 2$=14.87, $p<0.001$) prevailed. It is necessary to point out that there is a significantly increased percentage of operative procedures on reproductive organs in persons with endometriosis, as well as high rate of artificial and spontaneous abortions. The commonest complications that occur during the gestation in the basic group include the pathology of fetoplacental complex – placental dysfunction ($\chi 2$=13.77, $p<0.001$), oligo- and polyhydramnios ($\chi 2$=4.49, $p=0.03$), foetal growth retardation and the threatened miscarriages. However, it should be stressed that the assessment of the functional state of the foetoplacental complex in 18-20 weeks of gestation revealed the early signs of compensatory changes of the foetus and placenta state in 14 (13.59 %) pregnant women of the basic group. The women of the basic group against the background of the high prenatal risk and the high rate of pregnancy complications were diagnosed to have the high frequency of foetal distress in labor ($\chi 2$=3.77, $p=0.05$), caesarean section ($\chi 2$=8.24, $p=0.04$) and during operative delivery ($\chi 2$=12.84, $p<0.001$). Conclusion. Thus, the results of scrutinizing the clinical signs of the pregnancy, labour and state of newborns demonstrated that pregnant women with endometriosis in their medical history are at high risk to develop the foetoplacental complex disorders, such as placental dysfunction, oligo- and polyhydramnios, as well as foetal distress in labour and operative delivery.

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A STUDY OF THE TIME-BASED CHARACTERISTICS OF PHENOMENOLOGY OF POST-STROKE FATIGUE OVER THE FIRST YEAR AFTER STROKE OCCURRENCE

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Post-stroke fatigue (PSF) is a common medical and social problem. Aim: to analyze time-based characteristics of PSF over the first year after stroke event. Material and methods. Patients were examined through definite time slots: during hospital staying (234 cases), in 1 month (203), in 3 months (176), in 6 months (156), in 9 months (139) and in 12 months (128 cases) after stroke. PSF was measured by fatigue assessment scale (FAS) and multidimensional fatigue inventory-20. (MIF-20) We conditionally divided all PSF cases into early PSF group (presented only within the 1st month after stroke), persistent PSF (presented within the 1st post-stroke month and later) and late PSF (appeared only in 3rd month observation or later). Results. Having analyzed all PSF cases according to FAS, we found out 15 PSF cases (16,0%) were assessed as early PSF, 51 (54,2%) assessed as persistent PSF and 28 (29,8%)– as late PSF. For all time-based types of PSF domains, according to MIF-20, the similar pattern of distribution was observed: early PSF domains – from 16,3% to 20,3%, persistent PSF domains – from 54,15 to 59,8%, late PSF domains – from 23,9% to 26,0%. All domains of early PSF, according to MIF-20, were statistically more intensive than all corresponding domains of persistent PSF and late PSF, whereas intensities of all persistent PSF domains and all late PSF domains were much or less similar. Conclusions. 1. About 20% of all PSF cases are early PSF, 25% are late PSF and slightly more than half of all cases is persistent PSF. 2. Proportions of all domains of early PSF, late PSF and persistent PSF are practically similar. 3. Significant differences between severities of early PSF and persistent PSF as well as late PSF can be as indirect evidences that all time-based PSF types are quite distinctive entities.

Key words: post-stroke fatigue, time characteristics, intensity.

The research described in this paper was performed within the framework of research plan of Neurological Department with Neurosurgery and Medical Genetics at Ukrainian Medical Stomatological Academy “Clinical and pathogenetic optimization of diagnosis, prognosis, treatment and prevention of complicated central nervous system's disorders and neurological impairments due to therapeutic pathologies” (state registration number 0116U004190).

Introduction

Nowadays there is an accelerating growth of modern society diseases and their vascular complications, in particular stroke that can be explained to some extent by the consequences of urbanization and significant lifestyle changes [1]. For the last decade much attention of researchers

has been paid to a variety of non-functional long-term complications of stroke. One of these, so called «silent» complications, is post-stroke fatigue (PSF). PSF is a common medical and social problem, which often affects post-stroke patients [2, 3]. It is well known that PSF negatively affects rehabilitation, recovery and survival rate after the cerebral event [4, 5].

For recent years PSF has being considered as evolutionary process. Five longitudinal studies devoted to PSF course in individual patients found that more than one third of patients had PSF at the initial assessment (usually within the first 3 months after stroke) [6-10]. Among patients with PSF at the initial assessment, about two thirds of them had PSF at a later stage of follow-up (usually over 1 year after stroke), and nearly one third of them had recovered by that time. Among patients without PSF at the initial assessment, PSF developed in 12% to 58% of them during the course of the follow-up [6-10]. These findings were grounds for the development of conceptual model for PSF, which reveals three patterns of temporal course of PSF after stroke, that is, early onset PSF, persistent PSF, and late onset PSF [11]. At the same time up to now there are no in-depth studies aimed to study the temporal course and characteristics of early, persistent and late PSF. However for better understanding the nature of PSF management it is very important to determine time-related aspects of this pathological entity. The aim pf this study was to analyze time-based characteristics of PSF over the first year after stroke event.

Material and methods

The study included patients who had an acute stroke (ischemic or hemorrhagic), agreed to participate in the study and were able to provide informed consent. Exclusion criteria were major medical illness that could cause secondary fatigue (oncological, hematological diseases, cardiac, liver, kidney and respiratory insufficiency, progressive angina pectoris, acute myocardial infarction), alcohol abuse, consciousness impairments, insufficient cognitive ability (Mini-Mental State Examination scores less than 24) [12], depressive and anxious disorders (Hospital Anxiety and Depression Scale scores more than 10 for both pathologies) [13], impaired speech function to participate (severe dysphasia or dysarthria), impaired language or written ability to complete the study questionnaires, severe functional disabilities (modified Rankin scale scores $\geq$4).

Patients' characteristics were evaluated in definite time slots: during hospital staying (234 cases), in 1 month (203), in 3 months (176), in 6 months (156), in 9 months (139) and in 12 months (128 cases) after stroke.

PSF was measured by two self-report questionnaires: fatigue assessment scale (FAS) and multidimensional fatigue inventory-20 (MFI-20). FAS included 5 questions about mental components and 5 questions about the physical part of fatigue. The score $\geq$22 indicates fatigue presence [14]. MFI-20 is a 20-item multidimensional questionnaire, which covers global, physical, mental, motivational and activity-related fatigue domains. A cut-off of 12 out of 20 for every sub-scale has been suggested to apply fro people with stroke [15].

Distributions of continuous variables were checked by Shapiro-Wilk test. Parametric variables were represented as mean±standard deviation, non-parametric – as mediana (Me) and interquartile (25%-75%) range (Q1-Q3). Intensity of each PSF domain was measured at time of initial detection. For determination differences between severities of certain PSF domains Mann-Whitney U test was used. A p-value <0,05 was considered as statistically significant.

Results and discussion

Patients' age ranged from 43 to 79 years (63,3±8,4 years). Initially there were 112 (47,9%) males and 122 (52,1%) females. 201 (85,9%) patients had ischemic strokes, and 33 (14,1%) had hemorrhagic strokes in their histories.

Table 1

Numbers of PSF cases, according to FAS, over the first year after stroke event

Time slots after stroke evetn	Number of PSF cases	Increase compared with previous time slot, n (%)	Decrease compared with previous time slot, n (%)

stay in hospital	65	-	-
1 month	63	14 (33,3%)	8 (34,8%)
3 months	76	26 (61,9%)	7 (30,4%)
6 months	69	1 (2,4%)	3 (13,0%)
9 months	54	1 (2,4%)	4 (17,4%)
12 months	58	0	1 (4,4%)

The table 1 demonstrated that the significant dynamics of PSF (both increase and decrease) was observed within the first 3 months after stroke event. Increase in PSF number was especially noticeable within the period between 1st and 3rd months after stroke (that made up almost two third of all new PSF cases), while within the period between 3rd and 9th post-stroke months, only 2 new PSF cases were registered.

Literature sources about longitudinal characteristics of PSF are quite limited and somewhat controversial. Sone studies reported that about two thirds of patients with PSF in a month after stroke (according to FAS) had become non-fatigued by the 6 month and most of them remained non-fatigued at the 12 month [6]. Accoording to other studies, PSF measured by Fatigue Severity Scale was found at admission, at the 6 month and in a year of post-stroke life in 37,7% of the patients and was absent at all in 17,4% of the patients, whereas the remaining 44,9% of the patients had variable course of PSF during the first post-stroke year [7]. PSF, according to Fatigue Severity Scale, was found at the time of discharge from inpatient rehabilitation departments and also in 24 weeks later in 40,5% of the patients, whereas about a quarter of the patients reported no PSF at either measurement and rest of patients had PSF only at one observation [9]. Among the patients who reported PSF (due to Fatigue Assessment Instrument) at the 6 month of the follow up had a minor stroke, 77,3% still reported PSF at the 12 month of the follow-up and 11,6% were newly diagnosed cases, when patients reported about PSF later on [10].

Thus, according to our results, between 1st and 3rd months after stroke there was upsurge of PSF numbers. How to interpret this phenomenon? From the positions of the evolutionary concept of PSF by Wu S. et al [11], it can be assumed that just in this time interval (exactly, between 1st and 3rd months after stroke event) some dramatical changes of PSF nature with corresponding clinical manifestations occur. Based on above mentioned time-based PSF characteristics and according to evolutionary concept of PSF, we conditionally divided all PSF cases into early PSF group (PSF found out only within the 1st month after stroke and disappeared at the 3rd month of the follow-up), persistent PSF (presented within the 1st post-stroke month and later) and late PSF (appeared only at 3rd month of follow-up or later).

Proceeding from the time-based concept of PSF, throughout all PSF diagnoses, according to FAS, 15 PSF cases (16,0%) were found as early PSF, 51 PSF cases (54,2%) were assesed as persistent PSF and 28 PSF cases (29,8%) – as late PSF.

Number of all PSF domains, according to MFI-20, at each post-stroke time slot was comparable to the amounts of PSF, according to FAS. Therefore, we consider it is unnecessary to present the data about number of each PSF domain within the observation period.

Table 2

Changes in number of PSF domains according to MFI-20, compared with previous time point over the first year after stroke event

Time point after stroke occurrence	PSF domain									
	Global		Physical		Mental		Activity-related		Motivational	
	+	-	+	-	+	-	+	-	+	-

	N, (%)	n, (%)	n, (%)	n, (%)	n, (%)	n, (%)	n, (%)	n, (%)	n, (%)	n, (%)
1 month	5 (38%)	9 (32%)	16 (39%)	9 (32%)	15 (38%)	8 (30%)	13 (37%)	7 (26%)	13 (41%)	8 (33%)
3 months	24 (60%)	8 (29%)	24 (59%)	9 (32%)	25 (62%)	9 (33%)	22 (63%)	8 (30%)	19 (59%)	7 (30%)
6 months	1 (2%)	4 (14%)	1 (2%)	3 (11%)	0	7 (26%)	0	8 (30%)	0	7 (30%)
9 months	0	4 (14%)	0	6 (21%)	0	0	0	2 (7%)	0	1 (3%)
12 months	0	3 (11%)	0	1 (4%)	0	3 (11%)	0	2 (7%)	0	1 (3%)

Table 3

Number and frequencie of time-based types of PSF domains over the first year after stroke event

PSF domain	Time-based type of PSF		
	Early	Persistent	Late
global	17 (17,7%)	54 (56,3%)	25 (26,0%)
physical	18 (17,8%)	58 (57,4%)	25 (24,8%)
mental	17 (17,5%)	55 (56,7%)	25 (25,8%)
activity-related	15 (16,3%)	55 (59,8%)	22 (23,9%)
motivational	15 (20,3%)	40 (54,1%)	19 (25,6%)

Table 2 shows that all PSF domains, according to MIF-20, have the similar dynamics of evolution as global PSF. There is an intense increase in the number of new PSF cases (no matter of PSF domain) within the first 3 post-stoke months with subsequent zero dynamics during the next 9 months. Also, just within the first 3 post-stroke months there is a significant reduction of PSF cases (likewise, no matter of PSF domain).

In the same manner, on the basis of time-based pattern, we conditionally divided all PSF domains into three types – early PSF, persistent PSF and late PSF.

Table 3 demonstrates that for all time-based types of PSF domains the similar pattern of distribution is observed: about one-fifth of the patients were diagnosed to have early PSF, about a quarter of them had late PSF, and all the rest cases were assessed as persistent PSF.

Table 4

Intensities of time-based types of PSF domains over the first year after stroke occurrence

PSF domain	Time-based type of PSF		
	Early	Persistent	late
global	15 (14; 16)* **	14 (13; 14)	14 (13; 14)
physical	15 (14; 16)* **	14 (13; 14)	14 (13; 14)
mental	15 (14; 16)* **	14 (13; 14)	14 (13; 14)
activity-related	15 (15; 16)* **	14 (13; 14)	14 (13; 15)
motivational	14 (14; 15)*	14 (13; 14)	14 (13; 15)

* - significant differences ($p<0,05$), according to Mann-Whitney U test, between early PSF and persistent PSF;

** - significant differences ($p<0,05$), according to Mann-Whitney U test, between early PSF and late PSF.

As it can be seen in the table 4, all domains of early PSF are statistically more intensive than corresponding domains of persistent PSF and late PSF (exception is motivational domain of late PSF). Significant difference between severities of early PSF and late PSF can also be as indirect evidence that early PSF and late PSF are quite different entities, which have, probably, their own special etiopathogenetic peculiarities. Moreover, significant weakening of early PSF during its transition into persistent PSF can also be a confirmation that early PSF and persistent PSF are quite distinctive entities, each with its peculiar nature.

At the end of the paper, it is necessary to underscore that our findings are quite important for clinical practice because the understanding of PSF development peculiarities is the ground for adequate PSF management. For example, based on our results, PSF prevention must be dealt as early as possible after stroke but just within the first 3 months after stroke (precisely during this period occur majority of new PSF cases), whereas in 3 months after stroke event or later preventive measures should be nearly ineffective and clinicians should focus on PSF treatment issues.

Conclusions

1. According to time-based PSF concept, about 20% of all PSF cases are early PSF, 25% of the cases are late PSF and slightly more than half of all cases are persistent PSF.
2. Proportions of all domains of early PSF, late PSF and persistent PSF are practically similar.
3. Intensities of all domains of early PSF are significantly higher than intensities of the corresponding domains of persistent PSF and late PSF.

Future investigations in this field should be directed toward the identification of socio-demographic, personal, neurological, neuroimaging and other factors associated with early PSF, persistent PSF and late PSF as well as with certain domains of time-based PSF types. These findings could help to understand ethiopathogenetic peculiarities of time-based types of PSF.

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ASSESSMENT OF THERAPEUTIC EFFECTIVENESS OF CHONDROPROTECTORS FOR PATIENTS WITH COMORBID DISEASES

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Key words: osteoarthritis, comorbidity, chondroprotectors, combined therapy.

Introduction. Osteoarthritis is one of the most common connective tissue diseases. The prevalence of osteoarthritis in Ukraine is 643 cases per 10 000 population, the incidence is 49-52 cases per 10 000 popula-tion, the rate of primary disability resulted from the diseases is 0,8 cases per 10 000 population. Osteoarthri-tis refers to diseases with high comorbidity and is accompanied with arterial hypertension, atherosclerosis, and ischemic heart disease. At present, one of the urgent tasks is searching the most effective comprehen-sive treatment for osteoarthritis and concomitant comorbidities. The aim of this study is to evaluate the scheme of integrated therapy of patients (men and women) with OA and comorbidities by using chondroprotectors including chondroitin sulphate (Arthrida, France), glucosamine sulphate (Synarta, Ukraine), glucosamine hydrochloride in combination with chondroitin sulphate (Artiflex plus, Ukraine) and vasar /losartan, Omega-3, fenibut, trisipin, rosarta. Materials and methods. A prospective multicenter study on the basis of the Department of Family Medicine and Therapy in the Rheumatologic Department of the M.V. Sklifosovsky Poltava Regional Clinical Hospital included 50 outpatient and inpatient women and men aged 54-76 years with primary gonarthrosis of II-III radiological stages by Kellgren and Lawrence and comorbid diseases, the commonest of which were hypertension, coronary artery disease, diffuse cardiosclerosis. During the study, there was found out a significant clinical effect of chondroitin sulphate and glucosamine sulphate in patients with OA and comorbid pathology that was manifested by the improvement of clinical parameters such as the Leken's functional index and WOMAC scale parameters. After 6 months following the treatment, there was a significant decrease in the total Leken's functional index (11,46 ± 2,11) ($p < 0,0001$) in the patients in the main group receiving chondroitin sulphate and glucosamine sulphate ($p < 0,0001$), compared with the relevant indicator of the control group (12,26 ± 2,15). A significant decline in the Leken's index in the main group was also observed in 12 months after the start of the study ($p = 0,0006$), pointing out a long-term effect after the onset of chondroitin sulphate and glucosamine sulphate therapy in the main group. The total score by the WOMAC scale was significantly lower ($p < 0,0001$) in 6 months after the beginning of the therapy in the main group (678,02 ± 201,63) compared with the control group (741,24 ± 174,72). This indicator in 12 months in the main group (762,84 ± 184,34) was also significantly lower ($p = 0,0004$) than in the control group (879,04 ± 196,04). The above-mentioned dynamics according to the WOMAC questionnaire indicates a significant clinical effect in the combination of chondroitin sulphate with glucosamine sulphate in the main group. Improvement

due to the proposed combined therapy was observed in 91,2% of patients in the main group. The therapy described had a marked positive effect on relieving pain, improving atricular mobility, reducing difficulty in performing daily routines, reducing manifestations of synovitis confirmed by US scans, as well as on positive dynamics of laboratory parameters, improvement of the quality of life (normal blood pressure, pain relief in the area of the heart and joints, decrease in the need for NSAIDs and antihypertensive drugs).

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OCCUPATION AND SMOKING PREVALENCE AMONG PARENTS WHOSE CHILDREN HAVE DISEASES OF URINARY SYSTEM

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Key words: urinary system diseases, children, Kharkiv region, risk factors.

Diseases of the urinary system in children are still remaining an urgent problem nowadays due to their high prevalence that dictates the necessity to implement large-scale measures aimed at preventing the oc-currence of this pathology by eliminating risk factors. The purpose of the study was to analyze the occupa-tional factors and smoking prevalence among parents whose children are diagnosed to have diseases of urinary system and live in Kharkiv region. The material of the study was the information obtained through interviewing parents about their professional activity and smoking habits. The respondents surveyed were divided into two groups: I group included 662 children hospitalized at the Kharkiv Regional Children Clinical Hospital with various pathologies of the urinary system; II group included 73 healthy children, who were registered in the Izyum Central City Hospital. The study demonstrates that among the significant risk factors for the development of the diseases of the urinary system in children of the Kharkiv region there are high smoking prevalence and unemployment of parents. The identified regional risk factors allow clinicians to implement timely measures in order to prevent the development of urinary system diseases in children.

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HORMONAL BACKGROUND IN WOMEN WITH INFERTILITY AND PSYCHOSOMATIC DISORDERS

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Key words: infertility, psychosomatics, gonadotropic hormones, sex hormones, colpocytological investigation.

Psychosocial stress induced by social conditions contributes to the impairment of reproductive function. The development or deterioration of the course of endocrine diseases adversely affects the mental state as well. Objective of this study was to determine the specificity of hormonal changes in women with infertility and psychosomatic disorders. 93 women with tubal-peritoneal factor of infertility (main group) were exam-ined. The control group consisted of 30 fertile women with children born. Following the survey conducted and psychologist consultations, the patients of the main group were divided into following groups: the 1 group included 61 women with severe psychosomatic disorders; the 2 group included 32 women without such disorders. Radio immunological methods were used to determine the content of pituitary and steroid hormones in the peripheral blood serum. In the follicular phase of the menstrual cycle, the concentration of luteinizing hormone in the patients of the 1 group was increased (8.70 ± 0.11 vs. 6.35 ± 0.23 and 5.03 ± 0.15 IU / l in the women of the 2 and the control group, p □0,05). Marked increase in the ratio of luteinizing hormone and follicle-stimulating was detected as well. The level of prolactin was increased in patients of the 1 group compared to women in the control group (9.23 ± 0.14 vs. 8.25 ± 0.17 ng / ml, p□0.05). On the 5th day of the menstrual cycle, a significantly increased level of estradiol was registered, and on the 21st day, a reduced level of progesterone was found, respectively, the progesterone / estradiol ratio was lowered. A significantly higher level of testosterone was also revealed (2.21 ± 0.10 vs. 1.95 ± 0.12 and 1.61 ± 0.11 ng / ml, p □ 0.05). According to colpocytogram, anovulatory menstrual cycle of the hyperestrogenic type with luteal phase insufficiency was diagnosed in 62.5% and 40.7% of the patients in the 1 and the 2 groups. The women with infertility and psychosomatic disorders demonstrated an imbalance of gonadotropic and sex hormones that was manifested by relative progesterone deficiency, signs of hyperestrogenia, hyperandrogenism and hyperprolactinemia and confirmed by colpocytological studies. The data obtained open up prospects for the application of psycho-correction methods in the treatment of infertility.

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PSYCHO-HYGIENIC SIGNIFICANCE OF PERSONALITY TRAITS OF ADOLESCENTS WITH VISION DISORDERS

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Key words: adolescents with vision impairment, personality traits, multivariate questionnaire by R. Cattell, psychodiagnosis, psycho hygiene.

The article outlines the results of research of the personality traits of adolescents with vision impairment. It is generally known that the defect of vision is not an isolated condition. It negatively affects the develop-ment of the emotional sphere of a young person. Vision impaired persons, especially children and adoles-cents are at significantly greater risk to develop mental disorders than their peers with the normal vision. The described full-scale psychodiagnostic experiment was aimed at analyzing the prevalence of conditions known as predecessors of mental disorders and, namely, personality accentuations by emotional, volitional and communicative properties as criteria for prenosological diagnosis of mental disorders in adolescents with vision impairment. Analysis of personality traits carried out by using R. Cattell`s questionnaire, suggests the connections between the personality traits and the adaptive abilities of adolescents with vision disorders as well as points out the necessity of individual registration of certain psychological indicators to maintain and promote the health of children enrolled to specialized educational institutions. Poor vision leaves imprint s on the development of the child, can cause a deviation in all types of cognitive activity and affects the formation of the child's personal and emotional-volitional spheres. Therefore, the main psycho-hygienic measures to foster and develop a child with visual impairment will be directed towards the correction and the formation of compensatory processes that must begin in the early childhood.

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CHARACTERISTICS OF CLINICAL COURSE OF EXTERNAL GENITAL ENDOMETRIOSIS IN PATIENTS WITH HYPOTHYROIDISM

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Key words: clinic, diagnostics, conservative treatment, operative intervention with external genital endometriosis, hypothyroidism, thyroid gland, infertility, reproductive age, prevention of recurrence of genital endometriosis.

This work aimed at investigating clinical features of the clinical course of external genital

endometriosis (EGE) in patients with hypothyroidism (HT). Processing of the data obtained demonstrated that the presentations of HT, especially of its manifest stage in patients under the study were the following: limb oedema, obesity, decreased body temperature, speech retardation, hoarse voice, drowsiness, sluggishness, paresthesia, memory loss, hair loss, hyperkeratosis of the skin of the elbows, anaemia, biliary dyskinesia and depression. The analysis of the clinical symptoms characteristic of EGE showed that constant dull non-menstrual pelvic pain was observed to be significantly more frequent ($p < 0.05$) in patients with comorbidity of EGE and HT. The study also revealed that oligomenorrhea (30%) was significantly more frequent ($p < 0.05$) when combined with EGE and HT, especially in patients with subclinical HT ($p < 0.05$). The results obtained studies showed that infertility is one of the commonest clinical manifestations of EGE in patients with comorbid HT that is often the chief and only complaint presented by these patients. The number of patients with infertility in the group under the study made up 36.7% that was significantly higher ($p < 0.05$) than in the group of patients with EGE without thyroid pathology (20%).

It should be noted that in women with EGE and subclinical HT, infertility occurred in 23.3% of cases, while in women with EGE and HT in its manifest stage, infertility was observed in 50% of cases, i.e. it nearly doubled. There was a significant increase in the number of infertile women with combined pathology compared with patients with EGE, but having no any endocrine pathology ($p < 0.001$). According to our own observations, when there is a comorbidity of EGE and HT, the incidence of anaemia is significantly higher: 25% of cases compared to the group of patients (10%) who had no comorbidity, ($p < 0.05$). There is a significant increase in the detection of benign hyperplastic endometrial processes in women suffering from EGE and comorbid autoimmune thyroid pathology (by 15% more), in comparison with a group of patients without thyroid pathology (4%, $p < 0.05$). Own studies revealed that among the patients with combined pathology (group 2), 71.7% of women were infected with herpes virus infection, 41.7% of women had urea plasma infection that was significantly more common ($p < 0.05$) compared with the patients having only EGE. Analysis of the symptoms of sexually transmitted infections (STIs) in patients of the 2nd group revealed some features of the clinical course: in women with HT and EGE, urea plasma infection was significantly more often ($p<0.05$) detected compared with the results obtained in the 1st group of the patients (8%). As for herpes virus infection, it was found in all patients of the 2nd group with common forms of EGE. It is important to focus an attention on the findings regarding anamnesis information on spontaneous abortion: the number of spontaneous early miscarriages in group 2 was higher (58.1%) than in the group of women suffering from EGE, but having no endocrine pathology (group 1) (28.57%, $p<0.05$). Moreover, a greater risk of abortion was detected in patients with EGE and subclinical HT (38.7%, $p<0.05$). It should be specially noted that in 32.3% of women of the group 2 miscarriages occurred in early gestation that was significantly ($p < 0.05$) more frequent compared to the patients suffering from EGE without any pathology of the thyroid glands (10.7%). Conclusions. Consequently, comorbid course of EGE and HT is characterized by significantly common occurrence of moderate anaemia, by various forms of infertility and miscarriage in early gestation compared with similar values in the group of women with EGE without comorbidity. Sexually transmitted infections, and, in particular, urea plasma infection was significantly more often detected ($p < 0.05$) in women with HT and ENE (26.7%) compared with the results obtained in patients (8%) with EGE without thyroid pathology (4%, $p < 0.05$); hyperplastic endometrial processes are observed significantly higher in women with HT and EGE compared with patients with EGE without thyroid pathology (4%, $p<0.05$).

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STUDY OF QUALITY OF LIFE IN PATIENTS WITH ACUTE MYELOID LEUKAEMIA DURING INDUCTION ANTHRACYCLINE-BASED CHEMOTHERAPY

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Key words: acute myeloid leukaemia, anthracycline cardiotoxicity, quality of life.

The study of life quality in patients with acute myeloid leukaemia during induction chemotherapy is an ex-tremely important issue in modern oncochematology. The aim of this work was to assess the quality of life in patients with acute myeloid leukaemia during induction chemotherapy with the inclusion of anthracycline antibiotics. Materials and methods.

The study included 56 patients with newly diagnosed acute myeloid leukaemia, 32 (57.1%) women and 24 (42.9%) men, aged 33 to 72 years old. The general health condition of patients assessed by ECOG was found out to be within I-II scores, and according to the Karnovsky index is was assessed as of 60-80%. All patients received standard courses of induction chemotherapy according to the schemes "7+3" or "5+2". In a comparative aspect, the assessment of the condition of patients was done twice: at baseline, before the beginning of specific treatment, and after induction chemotherapy, when remission was achieved. To study the quality of life, the Short Form

Medical Outcomes Study (SF-36) questionnaire was used. Results. At reaching remission in patients the physical activity indexes increased in 1.2 times ($p<0.05$); the role of physical problems in limiting life – in 1.4 times ($p<0.05$); the general state of health improved in 1.2 times ($p <0.05$); vital activity – in 1.5 times ($p<0.05$); the role of emotional problems in limiting life increased in 1.5 times ($p<0.05$); mental health improved in 1.6 times ($p<0.05$). Statistically significant changes in the quality of life of patients after two courses of remission induction were recorded in improving the mental status by 1.5 times ($p<0.05$); while the physical status of patients according to the summary scale scores did not significantly changed. Compared to the data of practically healthy respondents, the life quality indicators of patients with acute myeloid leukaemia remained significantly low. Conclusions. Acute myeloid leukaemia plays a crucial role in worsening the quality of life of patients, especially in the debut of the disease. During remission induction indices reflecting the improvement in the quality of life of patients with acute myeloid leukaemia are noted to be slightly better.

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DOPPLER ASSESSMENT OF UTERINE BLOOD FLOW IN WOMEN WITH THE THREAT OF PREGNANCY LOSS IN THE SECOND TRIMESTER

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Key words: pregnancy, II trimester, spontaneous miscarriages, Doppler assessment, uterine blood flow.

The aim of the research was to study the hemodynamic changes of uterine vessels in women with the threat of pregnancy loss in the II trimester. Material and methods. The study included 101 pregnant women with the threat of spontaneous abortion in the II trimester; their average age was 28.7±4.06 years. Primigra-vidae made up 36.6%, secundigravidae made up 63,4%, primiparas made up 62,4%, and secundiparas made up 37,6%. All pregnant women passed through the procedure of history taking, studying their extra genital diseases, general clinical examination, ultrasound scanning and Doppler assessment. Ultrasound scanning was performed by the device "Flex Focus 1202" (firm "B-K Medical ApS", Denmark). Doppler as-sessment of blood flow in uterine arteries was performed starting from 21-22 weeks of gestation. The sys-tolic-diastolic ratios (SDR), pulsation index (PI) and resistance index (RI) were determined. Results. The age when women of the main and control groups had their menarche onset was approximately 12.6±0.33 and 12.4±0.2 years, respectively. In the main group, the menstrual cycle was described as irregular in 13.9% of cases. Among somatic diseases, the most common were chronic gastritis diagnosed in 19.8% of the

patients of the main group, and in 4.0% of the patients of the control group; neurocirculatory dystonia was diagnosed in 32 (31.7%) patients of the main group, chronic tonsillitis was detected in 33 of the main group (32.7% vs. 4.0% in the control group). The prevalence of gynaecological diseases was as follows: chronic inflammatory diseases of the genitals (42.6%), chronic adnexitis (33.7%), and cervical erosion (33.7% vs. 8.0% in the control). Frequency of medical abortions was also higher in the main group: 66.3% of cases ($p<0.01$) vs. 24.0% in the control group. Spontaneous miscarriages were observed in 21 (20.8%, $p<0.01$) women of the main group, while in the control group spontaneous miscarriages were observed in 2 (8.0%) women. In 22 (21.8 percent) of the 64 secundiparas women there was a history of preterm birth. 48 (47.5%) and 33 (32.7%) patients in the main group and 1 (4.0%) and 2 (8.0%) women in the control group com-plained of abdominal and lower back pain. Bloody vaginal discharge, chill, shortness of breath, increased uterine tone was noted by women with the threat of pregnancy loss in 20.8, 7.9, 7.9 and 9.9% of cases, respectively. On average, SDR in the main group exceeded the control value by 32.6% ($p<0.05$), IR did by 46.4% ($p<0.01$) and PI was higher by 24.0% ($p<0.05$). Disorders of uteri-placental blood flow were detected in 85.1% of pregnant women. Uterine blood flow disorders were detected in all 48.5% of patients with placental insufficiency, in 21.8% of women with acute genital infections and in 14.8% with gestational pyelonephritis. During the second trimester there was a decrease in uterine blood flow in both groups of the study. Hemodynamic disorders in the uterine artery in most patients were detected in the period of 27-28 weeks of gestation. Conclusion. The maximum frequency of hemodynamic disorders is observed in the period of 27-28 weeks. Doppler assessment of uterine blood flow allows clinicians to evaluate the functional state of the uterus-placenta system in the II trimester of pregnancy more objectively.

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EFFECTS PRODUCED BY BETARGIN AND QUERCETIN THERAPY COMPLEX ON CLINICAL COURSE, CHRONIC SYSTEMIC INFLAMMATION AND ENDOTHELIAL DYSFUNCTION IN PATIENTS WITH STABLE CORONARY HEART DISEASE AND CONCOMITANT NON-ALCOHOLIC FATTY LIVER DISEASE

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Key words: coronary heart disease, non-alcoholic fatty liver disease, chronic systemic inflammation, endothelial dysfunction, central hemodynamics, blood flow in the portal and hepatic veins

Introduction. Coronary heart disease and non-alcoholic fatty liver disease are urgent present day prob-lems in Ukraine and throughout the world. The pathogenetic basis for the development of coronary heart disease is atherosclerosis of the coronary vessels. Chronic systemic inflammation is considered as the trigger mechanism of atherosclerosis and it is accompanied by dyslipidemia, endothelial dysfunction, lipid peroxidation. Functional disorders of the liver enhance the development and progression of coronary heart disease. Recent scientific achievements prove the effectiveness of betargin and quercetin in the presence of this comorbid pathology. The aim of the research was to study the effects of comprehensive therapy of betargin with quercetin on the clinical course of stable coronary heart disease and non-alcoholic fatty liver disease, indicators of chronic systemic inflammation (TNFα, IL-6, IL-10, expression of kappa-B-inhibitor alpha gene), endothelial dysfunction (circulating endothelial CD32 and CD40 microparticles), central hemodynamics and blood flow velocity in the veins of the liver. Materials and methods. The clinical study included 70 people aged 40-69 years with the confirmed diagnosis of stable coronary heart disease: stable exertional angina, functional class I-II, CH 0-I and concomitant non-alcoholic fatty liver disease (steatohepatosis). 2 months following the protocol therapy, the patients were divided into 2 groups: the study group (n=27) and the comparison group (n=43). We performed comprehensive examination of patients before and after the treatment: echo-doppler-cardiography, ultrasound scan of the liver, identification of serum cytokine concentrations: TNFα, IL-6 and IL-10 by enzyme-immunoassay and polymerase chain reaction to determine the expression of kappa-B-inhibitor alpha gene. Using the method of flow cytoflowmetry, we established the number of circulating endothelial CD32 and CD40 microparticles. Patients of the study group were prescribed to take betargin and quercetin along with the standard therapy, and the patients of the comparison group continued to receive the baseline therapy. The treatment results were evaluated in 2 months. Improvement of the general condition and clinical course of this comorbidity has been found out that is confirmed by the reduced endothelial dysfunction indices of circulating endothelial CD32 CD40 microparticles, reduced blood flow rate in the portal and hepatic veins and enhanced central

hemodynamic parameters, thus proving the expressed endothelial protective properties of betargin and quercetin treatment complex. Furthermore, the anti-inflammatory effect was observed by lowering the TNFα, IL-6 cytokines and IkBα mRNA expression in mononuclear cells. Conclusions. Thus, the combination of betargin and quercetin during standard protocol therapy in patients with stable coronary heart disease and non-alcoholic fatty liver disease demonstrates a positive impact on the clinical course due to marked endothelial protective and moderate anti-inflammatory effects.

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MECHANISM OF DEVELOPMENT of inner ear EXTERNAL CILLIARY CELL dysfunction AND its correlation with AUTOIMMUNE TYROIDItIS

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Key words: autoimmune thyroiditis, otoacoustic emission, Prestin, antibodies to thyroglobulin, thyroid peroxidase antibodies, statistical analysis.

This article focuses on the prevalence of dysfunction of the inner ear structures in individuals with auto-immune thyroiditis in the state of euthyroidism. The hormonal functioning and intensity of autoimmune proc-ess in the thyroid gland were investigated. We determined the level of Prestin protein, a specific biochemical parameter for an internal. The hearing was assessed by recording the otoacoustic emission at the distortion products frequency. Subsequent multifaceted statistical analysis revealed reliable data of the function disruption of external cilliary cells of the inner ear, the increasing of Prestin protein levels in autoimmune thyroiditis group compared with healthy individuals. In addition, the results allow us to outline the main links in the mechanism of hearing impairment development in autoimmune thyroiditis and prove the reliability of the relationship between increased autoimmune activity in the thyroid gland and hearing function impairment.

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SONOGRAPHIC ASSESSMENT OF WOMEN WITH RETROCHORIAL HEMATOMA IN THE FIRST TRIMESTER OF PREGNANCY

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Key words: pregnancy, the first trimester, retrochorial hematoma, ultrasound, Doppler, blood flow.

The aim of this study is to determine dopplerometric and ultrasound parameters in women with retro-chorial hematoma in the first trimester of pregnancy. Methods. 65 pregnant women with the threat of preg-nancy termination and RHG in the period of 7-13 gestational weeks aged from 20 to 36 years (average age was 27.6±1.48) years were examined. The control group consisted of 22 pregnant women without the threat of pregnancy loss, whose average age was 28.2±1.0 years. The examined pregnant women underwent his-tory taking procedure, general clinical examination, ultrasound scanning and Doppler assessment by using the "Siemens sonoline G40" (Germany) device. Imaging techniques included standard investigation proce-dures: trans-vaginal ultrasonography and transabdominal scan with a full bladder using a transvaginal trans-ducer of 6.5 MHz, convex probes of 3,5 and 5 MHz in the two-dimensional Doppler ultrasound pulsed and colour modes. We determined the systolic-diastolic ratio (SDR), resistance index (RI) and pulsation index (PI). Indices were calculated using the following formulas: SDR = S/D, the ratio of the maximum systolic phase to the minimum value in the diastole phase; IR = (S-D)/S, where C and D - respectively, the maximum rate of the systole and the rate of the diastole of the vascular blood flow; SP=(s-D)/M, where M is the aver-age value of the blood flow rate. Body mass index is calculated by the Quetelet formula. Results. 24 (36.9%) of patients were in their 7-10 week gestation period, the rest 41 (63.1%) of the patients were in their 11-13 week. The body mass index averaged 22.82±1.06 kg / m2 and 26.40±0.9 kg/m2 in pregnant women with RHG and in the control group respectively. In the structure and frequency of gynaecological diseases (cervi-cal ectopia, inflammatory diseases, scar deformation, endometrial hyperplasia, etc.) of the patients with PCG, cervical ectopia and inflammatory diseases were prevalent. According to the history, menarche age ranged from 12 to 15 years and averaged 13.9±0.53 years, in the control group it was 12.3±0.28 years. In general, menstrual cycle disorders were observed in 62 patients (95.4%), while in the control group disorders were observed in 2 (9.1%). Menorrhagia was the most frequent in 43.1% of cases vs. 0% in the control, al-gomenorrhea was diagnosed in 33.8% of cases vs. 9.1% in the control, ($p<0.01$). The 40.0% of secundigra-vidae had the second pregnancy in, 24.6% of the

secundigravidae had the third pregnancy, 7.7% of them had the fourth pregnancy, and the fifth pregnancy was observed in 3.1% ofsecundigravidae. History of abortions was found in 27.7% patients of the main group vs 9.1% in the control group, ($p<0.01$), miscarriages were registered in the 16.9% of the main group vs 0% in the control. Lower abdominal pain was noted by 23.1%. In 41.5% of cases there was a combination of pain and bleeding. In 50.8% of the cases, a pole was determined, 49.2% of the cases - the parietal location of the hematoma. According to dopplerometry data, the average indices of SDO, IR, and PI of spiral arteries in patients with PCG in the first trimester of pregnancy were increased relative to the control group. In patients with RHH, the SDO value was increased by an average of 2.5 times ($p<0.01$), and IR - 1.5 times ($p<0.05$).In colour Doppler mapping, single color loci or intermittent vascularisation were detected in 7.7%, multiple – in 66.2% of cases and in 6.1% of cases of color loci were not observed. In women with the threat of termination of pregnancy, complicated by PCG, the determination of the location and magnitude of the hematoma, the assessment of the yolk SAC volume is important. Women with RHG can be attributed to a high risk of spontaneous miscarriage and other complications of pregnancy and functional disorders of the foetus, in particular fetoplacental insufficiency and foetal delay syndrome. Conclusion. The use of echographic criteria for assessing the development of the yolk SAC and the development of fetoplacental hemodynamic changes in the first trimester of pregnancy, especially in patients with a habitual loss, will determine the risk of adverse course and outcome of gestation, as well as timely select the appropriate pathogenetic treatment.

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CHARACTERISTICS OF THE COURSE OF CEREBRO-CRANIAL INJURY IN CHILDREN WITH CONNECTIVE TISSUE DYSPLASIA

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Key words: children, connective tissue dysplasia, cerebrocranial injury, urine, oxyproline.

Cerebrocranial injuries in children are one of the most serious and urgent problems of modern medicine and national health care due to their high incidence rate and severe consequences, which often lead to high mortality and disability. Over past decades researchers have reported about the growth of syndromal pathology resulted from connective tissue dysplasia that can considerably influence on the course of the disease. The purpose of this work is to identify characteristics of the course of cerebrocranial injury in children with evidence of connective tissue dysplasia. The total number of inspected children who have had cerebrocranial injury is 50; their age varies from 3 to 7 years old. The distribution of the patients into groups by the clinical forms of cerebrocranial injury showed the following: 54% of children had brain concussion, 26 % of patients had moderate brain contusion brain contusion, and 20 % of children had severe brain contusion. We have revealed based on the findings obtained that brain injuries are found out to ne more frequent among boys than among girls (66% vs. 34%). Severity of brain injury in children correlates with the presence of such clinical syndromes as vestibule-ataxical, epileptical, motor impairment, liquor hypertension and high level of oxyproline in urine. The results suggest that the presence of connective tissue dysplasia signs in children often correlates with more severe cerebrocranial injury that can be explained by accelerated collagen disintegration and, consequently, by higher instability of bone and cartilage tissue and walls of blood vessels.

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PECULIARITIES OF COLORECTAL PHENOTYPE OF CARCINOMA OF UNKNOWN PRIMARY ORIGIN

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Key words: carcinoma of unknown primary origin, colorectal cancer, CK20, CDX2, CK7.

Among cancers of unknown primary origin, adenocarcinomas are traditionally the most common histo-logical type of tumours. Carcinoma of a colorectal phenotype (CK20 +, CK7-, CDX2 +) has a relatively more favourable prognosis due to a more efficient system of procedures developed over the past two decades for colon cancer treatment. Accurate verification of metastases of colorectal carcinomas can be difficult due to the similarity of metastases of primary gastrointestinal, pancreatic-biliary or mucinous carcinomas of female reproductive system, simulating the characteristics of primary colon cancer and vice versa. The aim of this work is to investigate the complex of morphological, morphometric and immunohistochemical characteristics of colorectal carcinomas metastases in comparison with primary colon tumours in order to improve diagnostic algorithms. Materials and methods. A retrospective analysis was based on the biopsy material of 37 patients (29 women and 8 men) aged 28 to 81 years (mean age 58.46 ± 12.28, median 58) with metastases produced by cancers of unknown primary origin, which were later confirmed by the immunohistochemical study as colorectal carcinomas and on 41 follow-up postoperative material of patients with primary colon cancer in 24 women and 17 men aged from 27 to 76 years (mean 60.56 ± 12.81, median 64).The analysis of the distribution of metastatic carcinoma distribution revealed a typical affection of the female reproductive system: 18 out of 37 (48.65%), and in 13 of those cases (35.13%) ovaries were affected). Morphologically these changes developed the features of papillary serous moderately differentiated carcinomas. The age of women with primary intestinal adenocarcinoma (mean 60.54±12.25, median 65) was slightly higher than in women with metastatic invasion of the reproductive system (mean 59.26±13.40, median 60), and than in women with colorectal carcinoma metastases detected to localized in other regions (mean 57.2±12.16; median 58.2) (all $p>0.05$). Conclusions. Carcinomas of colorectal phenotype CK20 + / CDX2 + / CK 7 depending on a decrease in the degree of their differentiation can develop CK7 + status in individual tumours patterns that when taking into account the high percentages among female patients and the prevalence in metastatic ovarian affection, requires the elaboration of the immunohistochemical panel by exclusion markers (e.g. CA-125, estrogenic receptor).

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ANTI-HELICOBACTER PYLORI THERAPY OPTIMIZATION IN PATIENTS WITH CHRONIC GASTRITIS AND CONCOMITANT DIABETES MELLITUS TYPE 2

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Key words: diabetes mellitus type 2, chronic gastritis, small intestinal bacterial overgrowth, Helicobacter pylori, Bacillus infantis.

Prevalence of Helicobacter pylori in diabetic patients is still remaining unclear, as well as the role of gut microbiota in the progression of gastric pathology that can influence the effectiveness of patients' manage-ment. The goal of this study was to improve the treatment efficiency of chronic Helicobacter pylori-associated gastritis in patients with diabetes mellitus type 2 by intestine microbiocenosis correction. Design and methods. 28 patients with Helicobacter pylori-positive chronic gastritis and concomitant diabetes mellitus type 2 passed through filling in questionnaire, Helicobacter pylori faecal antigen test and hydrogen breath test with lactulose. Depending on prescribed therapy the patients were divided into two groups: I (n=14) – took Pantoprazole 40 mg, Amoxicilline 1000 mg and Clarithromycin 500 mg; II (n=14) – received Pantoprazole 40 mg, Amoxicilline 1000 mg, Clarithromycin 500 mg and probiotic B. infantis. Fisher's F-criterion was used for statistical analysis. Results. On the 28-th day the rate of small intestinal bacterial overgrowth among the patients of the I group was higher than before the treatment (78%, n=11 vs. 57%, n=8). At the same time, it decreased in the patients of the II group (7%, n=1 vs. 36%, n=5; (φ=4,342; $p<0,05$)). The efficiency of Helicobacter pylori eradication made up 71% (n=10) and 88% (n=12) (φ=0,934; $p>0,05$) among the patients of the I and II groups respectively. Conclusions. Prescription of B. infantis promotes symptomatic improvement by preventing small intestinal bacterial overgrowth in patients with chronic gastritis and concomitant diabetes mellitus type 2.

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PECULIARITIES OF THE EXPRESSION OF ESTROGEN AND PROGESTERONE RECEPTORS IN OVARIAN TUMOUR

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Key words: epithelial tumours, granulo-cellular tumours, metastasis of mucinous adenocarcinoma, ER, PGR.

Differential diagnosis of ovarian tumours is still remaining a topical issue today. Epithelial ovarian tumours occur in 55-60% of all neoplasias of this localization, granulo-cellular ovarian tumours occur in 2-5% of cases, and metastatic lessons of ovaries make up 3-15%. More accurate diagnosis and prognosis have become possible due to the use of immunohistochemical method. The aim is of this study is to investigate the complex of morphological and immunohistochemical characteristics of the hormonal status of epithelial, granulo-cellular tumours and metastatic ovarian lesions caused by adenocarcinomas in order to improve ex-isting diagnostic algorithms. Materials and methods. The study was based on the retrospective analysis of the biopsy material taken from 40 women aged from 27 to 78 years (mean 58.46 ± 12.28, median 58) with ovarian tumours of which there were 31 epithelial tumours, 8-granulocytic tumours of adult type and 1 metas-tasis of mucinous colon adenocarcinoma invaded into the ovary with primary colonic tumour. Results. Analysis of all these cases of epithelial ovarian tumours revealed a correlation between increased expression of estrogen receptors and progesterone markers and a decrease in the level of differentiation of ovarian neoplasms (all $p < 0.05$). In all the cases of adult-type granulo-cellular ovarian tumours no correlation was found between the increase in expression of the receptors of these markers. Conclusions. Epithelial ovarian tumours of different histological variants with a decrease in the degree of differentiation and granulo-cellular ovarian tumours predominantly have a positive status for the estrogen and progesterone re-ceptors, and the metastasis of mucinous intestinal adenocarcinoma into the ovary is of zero status that requires expansion of the immunohistochemical panel (eg CA-125 markers, vimentin and calretinin).

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CLINICAL CHARACTERISTICS AND COURSE OF THE FIRST TRIMESTER OF GESTATION IN WOMEN WITH POLYCYSTIC OVARY SYNDROME AND METABOLIC DISORDERS OR WITHOUT THEM

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Key words: pregnant women, PCOS, history, pregnancy, obesity, miscarriage.

The aim of the study was to evaluate clinical indicators and features of pregnancy in patients with poly-cystic ovary syndrome (PCOS) with concomitant metabolic disorders or without them. Material and methods. 145 pregnant women with PCOS were examined at 8-14 weeks of gestation. All women were divided into 3 groups: group I (main group) included 72 pregnant women with PCOS and metabolic disorders; group II (comparison group) was made up of 53 pregnant women diagnosed with PCOS, but without metabolic disorders; group III (control) involved 20 pregnant women without PCOS and metabolic disorders. A conventional examination, including the history taking, objective physical examination, instrumental examination was carried out. Ultrasound scanning was performed by using the Aloka-SSD-1700" (Japan) device with a 3.5 MHz transabdominal sensor. Results. The age of pregnant women ranged from 20 to 35 years (average age was 28.3±1.2 years). In the main group, women aged 20 – 25 years and diagnosed to have PCOS made up by 55.6% ($p<0.05$) less compared with the control group, and the women of the comparison group made up by 32.0% less. On the contrary, in the older age group including 31-35 year old patients of the main group and the comparison group, PCOS was diagnosed by 57.3% ($p<0.01$) and 25.7% ($p<0.05$) significantly more frequent than in the control group, respectively. The average age of the examined pregnant women in the main group was 29.1±1.74 years, while in the comparison group it was 28.5±1.27 years and in the control group – 27.9±0.88 years. Among infectious diseases the patients had had in their childhood, measles was most often mentioned: nearly the equal share of the patients, 19.4% in the main group and 20.7% in the comparison group had measles, while in the control group only 5% had this disease. High frequency of acute respiratory viral infectious diseases (ARVIs) was also detected in the women with PCOS: it was reported by 38 (52.8%) patients of the main group, by 24 (45.3%) patients of the comparison group, while the control group demonstrated lower value – only 5 (25.0%) women. Moreover, women with PCOS had ARVIS 2 and 3 times a year. The examined women were diagnosed to have a number of extragenital diseases before pregnancy. In the patients of the main group and the comparison group, the most common disorder was fat metabolism disorder manifested by overweight or obesity, and mostly the abdominal type of obesity was observed. In the main group and in the comparison group, the number of women with impaired fat metabolism is 13.9 times and 10.6 times ($p<0.001$) significantly higher than in the control group ($p<0.001$), respectively. The diseases following the mentioned above by their occurrence were diseases of the cardiovascular system (CVS) manifested by arterial hypertension and neurocirculatory dystonia and found in 30 (41.7%) pregnant women with PCOS and metabolic disorders and in 20 (37.7%) pregnant women with PCOS only. At the

same time, cardio-vascular diseases were not observed in pregnant women of the control group. Tonsillitis, pharyngitis and chronic bronchitis were significantly frequent in 25 (34.7%, 7.0 times more than in the control group, $p<0.001$) pregnant women of the main group, in 15 (28.3%, 3.0 times more often than in the control group, $p<0.01$) women of the comparison group and 1 (5.0%) pregnant of the control group had pharyngitis. Cystitis, pyelonephritis, urolithiasis were detected only in pregnant women with PCOS. According to the data obtained, excessive hair loss occurred in 56 (77.8%) patients of the main group and in 42 (79.2%) patients of the comparison group. The hirsute number by the Ferriman-Hollway scale in pregnant women of the main group equalled 27.60±0.77 and in the comparison group it was 27.8±0.80. Most patients with PCOS were diagnosed to have infertility, mostly primary. The high percentage of infertility in the groups (in the main it made up 94.3%, and in the comparison group it made up 95.8%) is due to the main pathology, PCOS. In the main group and in the comparison group, the number of women with impaired fat metabolism was significantly higher than in the control group in 13.9 times ($p<0.001$) and in 10.6 times ($p<0.001$), respectively. Cardiovascular diseases were found in 41.7% of pregnant women with PCOS and metabolic disorders and in 37.7% of pregnant women with PCOS. Vomiting of varying severity in the pregnant women of the main group and of the comparison group was observed, respectively, 3.2 times ($p<0.01$) and 3.0 times ($p<0.01$) more often than in the control group. Conclusion. Pregnant women with PCOS and comorbid metabolic disorders or without them are obese, prone to an unfavourable risk profile of cardiovascular diseases and have a risk of pregnancy loss. Threatening miscarriages were observed in 79.2% and 71.7% of pregnant women of the main group and in the comparison group, respectively.

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COMPARATIVE CHARACTERISTICS OF THE NATURE AND FREQUENCY OF INTRAOPERATIVE, EARLY AND LATE POSTOPERATIVE COMPLICATIONS AFTER APPLYING VARIOUS TECHNIQUES OF CATARACT SURGICAL TREATMENT

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Key words: cataract, complications, phacoemulsification, femtosecond-assissted phacoemulsification.

The use of femtosecond laser allowed clinicians to reduce the frequency of intraoperative and early and late postoperative complications after cataract removal. The study on the dynamics of the structure and prevalence of ophthalmic diseases in Ukraine for 10 years has shown an increase in the specific weight of cataracts from 14.7 to 15.9%. The purpose of this study was to identify and compare the nature and fre-quency of intraoperative, early and late postoperative complications after applying various techniques of surgical treatment of age-related cataracts. Materials and methods. The study involved 558 patients (558 eyes) diagnosed to have cataract of I-III degree of the nucleus density by Burato. Patients were divided into two groups depending on the techniques applied during the surgical treatment: traditional cataract phacoemulsification (group I) and femtosecond-assissted phacoemulsification (group II). Results. Performing conventional cataract phacoemulsification is accompanied by operational complications (nicrohyphema, local detachment of descemets membrane, thermal burns of the cornea, anterior capsule tear, posterior capsule rupture, zonular dialysis, floppy iris syndrome) and postoperative (corneal oedema, microhyphema, exudative inflammatory reaction, transient hypertension, macular oedema, secondary cataract, and intraocular lens decentration). Femtosecond-assissted phacoemulsification can cause the following complications as surgical ones (anterior capsule rupture, postoperative capsule rupture) and postoperative (corneal oedema, exudative-inflammatory reaction, transient hypertension, macular oedema, secondary cataract).

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PECULIARITIES IN MANAGING ELDERLY FEMALE PATIENTS WITH OSTEOARTHRITIS AND COMORBIDITIES

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Key words: osteoarthritis, anti-inflammatory effect, comorbidity, combined treatment.

Introduction. Osteoarthritis is the most prevalent age-related disease of muscular-skeletal system charac-terised by high level of comorbidity as it is associated with cardiovascular and cerebrovascular diseases. Clinicians face the challenge in choosing more effective way of managing this pathology for post-menopausal women, taking into account polypragmasia and possible side effects of pharmacological agents. The aim of this study is to evaluate a new combination of drugs in complex management of women suffering from osteoarthritis associated with comorbid conditions by including chondroprotectors: chondroitine sulphatis (Chondrosat, Ukraine), glucosamine sulfatis (Glucosat, Ukraine), glucosamine hydrochlorid in combination with chondroitine sulfatis (Artiflex Plus, Ukraine) and Vasar, Moxonidine, Trizipin, Armadin, Rosart, Cephavora. Material and methods. The prospective multicentre study was performed on thre basis of the Department of Family Medicine and Therapy of Ukrainain Medical Stomatological Academy, Rheumatology Department of M.V. Sklifosovskyi Poltava Regional Clinical Hospital. The study enrolled 48 female in- and out-patients aged 52-74 years diagnosed to have primary gonarthrosis (II–III X-Ray stage by Kellgren and Lawrence classification) and comorbidities including arterial hypertension, coronary arteries disease, diffuse cardiosclerosis. Follow-up period lasted 12 months. Results. By analyzing the effectiveness of combined treatment during 12-months period in aged women with osteoarthrosis and comorbidities it has been found out that better results were obtained in the patients receiving parenteral and peroral forms of chondroprotectors. During the study, the patients with comorbidities demonstrated clinically significant effects by using chondroprotectors that was confirmed by the improvement of such clinical parameters as Lequesne index and WOMAC. After the 6-month treatment period we reached a clinically significant decrease in summary functional Lequesne index (10,28±2,15, $p<0,0001$) in patients with osteoarthritis treated by chondroprotectors compared with the control group (12,01±2,10). Statistically significant decrease in Lequesne index was observed in 12 months since the beginning of the therapy ($p<0,0006$) that suggests the presence of long-time post-treatment effect of the combined therapy. The patients of both groups reported pain relief at rest and at movement, improvement of daily routine activity assessed by using WOMAC questionnaire achieved in 6-month period of the treatment, but these values were significantly higher in the patients of the experimental group. Total result by using WOMAC questionnaire after the 6-month period of the therapy in the experimental group (702,02±203,65) was lower ($p<0,0001$) compared with the control group (831,52±179,78). This parameter was lower after 12-month period in the experimental group (786,94±189,32) ($p<0,0004$) compared with the control group (933,05±210,06).

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THE EFFICIENCY OF L-CARNITINE AND MELDONIUM DIHYDRATE IN THE THERAPY OF NON-ALCOHOLIC STEATOHEPATITIS AND COMORBID OBESITY AND CORONARY HEART DISEASE

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Key words: non-alcoholic steatohepatitis, coronary heart disease, obesity, dyslipidemia, oxidative stress, insulin resistance.

The aim of the study was to investigate the influence of L-carnitine and meldonium on the course of NASH with comorbid obesity and coronary heart disease (CHD), functional state of the liver, the state of the lipid peroxidation system and antioxidant protection, lipid profile of the blood, degree of insulin resistance. Materials and methods. The study involved 60 patients with NASH and comorbid obesity of I-II degree and CHD (stable angina pectoris of I-II FC) and 30 healthy individuals (PHP). To assess the efficacy of the ther-apy, 3 groups of patients were randomized according to age, sex, degree of obesity, and degree of the cytolytic syndrome markedness. The control group (I) (n=20) received hypocaloric diet, baseline treatment of CHD, alpha-lipoic acid for 30 days. The second group (II) (n=20), in addition to the standard therapy, re-ceived L-carnitine for 30 days. The third group (III) (n=20e) received additional L-carnitine and meldonium for 30 days. The average age of patients was 56.6 ± 2.74 years. The statistical processing of the results ob-tained was carried out by using parametric (t-criterion Student, Fisher's F-criterion) and non-parametric methods (Mann-Whitney U-criterion, Wilcoxon T-criterion) of variation statistics. The study has found out that the therapy with L-carnitine and meldonium is effective for patients with NASH with comorbid CHD; it re-duces clinical symptom presentation, reduces the intensity of cytolytic and mesenchymal-inflammatory syn-dromes, cholestasis, eliminates atherogenic dyslipidemia, reduces the index of atherogenicity, decreases the metabolic intoxication syndrome by reducing the intensity of lipid peroxidation processes and restoring antioxidant protection, as well as has marked membranoprotective effects.

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INVESTIGATION OF RISK FACTORS AND CRITERIA OF ALGORITHM PREDICTING PSORIASIS AT THE STAGE OF PRIMARY MEDICAL CARE

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Key words: general practice (family medicine), psoriasis, prognostic criteria, prediction algorithm.

A comparative analysis of the frequency, diagnostic informativeness and prognostic value of risk factors was carried out on 110 patients with psoriasis and 110 healthy patients selected by the paired-comparison method. Informative criteria for predicting psoriasis at the stage of primary medical care (provided in the rank sequence) were determined: a high level of personal anxiety, disharmonic distribution of body weight, myopia / astigmatism or hyperopia, adherent ear lobe (or its absence), impaired posture / hypermobility of joints, hernias of different localization, the presence of ventricular or atrial extrasystoles, the tendency to the formation of hematomas, shortened nail plates / impaired growth, the functional ability of the patient to roll up the tongue. The articles provides the grounds for the prediction algorithm and the visual analogue scale for assessing the personalized risk of psoriasis based on a complex of the most informative constitutional biological and visceral markers of undifferentiated connective tissue dysplasia, the use of which enables clinicians to form dynamic observation groups of patients with the disease. Three main syndromes have been identified in patients with psoriasis: psychosocial dysadaptation syndrome, syndrome of neurogenic and static locomotor manifestations, and dysplastic-dependent dysmorphia syndrome.

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ANALYSIS OF CHANGES IN HEALTH STATUS OF PRIMARY-SCHOOL CHILDREN OF THE POLTAVA REGION

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Key words: school-age children, posture disorders, scoliosis.

The protection of children's health is a priority in modern medicine worldwide. Health status of the chil-dren, and especially its largest share, school-age children, is one of the most important issues of the national healthcare. During the school period, healthcare professionals typically face the dynamics in the development of health disorders, premorbid conditions and chronic diseases. Such factors as the lack of physical activity, poorly organized daily routine and inadequate nutrition, growing intensity of the educational activity, social stresses and age-related physiological characteristics have a significant impact on the health of school-age children. The purpose of the study is to analyze the health status of the children by evaluating certain indicators, demonstrating the occurrence rate of so-called "school diseases", and namely the development of disorders of the

musculoskeletal system and impaired visual acuity in children in the Poltava region. The children of the Poltava region show trends in the health status deterioration, a rapid growth of musculoskeletal disorders among schoolchildren. Among the factors contributing to the occurrence of "school diseases" (posture disorders, scoliosis, vision acuity loss), there are leading ones including the absence of the latest child-appropriate furniture and school infrastructure, and insufficient illumination.

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IMPROVEMENT IN THE MANAGEMENT OF PATIENTS WITH NON-ALCOHOLIC STEATOHEPATITIS AND ATHEROGENIC DYSLIPIDEMIA

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Key words: non-alcoholic steatohepatitis, atherogenic dyslipidemia, ursodeoxycholic acid, levocarnitine, Rosuvastatin.

Atherogenic dyslipidemia is an important pathogenetic mechanism of the development of non-alcoholic fatty liver disease, which requires timely treatment in order to prevent possible complications. The aim of this study is to assess the efficacy of the therapy with ursodeoxycholic acid and levocarnitine supported by the median therapeutic doses of rosuvastatin in patients with non-alcoholic steatohepatitis and concomitant atherogenic dyslipidemia. Materials and methods. 42 patients whose average age of patients was 54.3±5.7 years were examined for having diagnosis of

non-alcoholic steatohepatitis and concomitant atherogenic dyslipidemia. The lipid profile and functional state of the liver were evaluated. Two groups were identified: I (n=20) included patients who received rosuvastatin in a dose of 20 mg per day, ursodeoxycholic acid in a dose of 15 mg/kg/day, and levocarnitine in a dose of 2 g per day for 3 months; II (n=22) included patients who received rosuvastatin in a dose of 20 mg per day, ursodeoxycholic acid in a dose of 15 mg/kg/day for 3 months. Results. The patients of group I through the course of therapy were found out to have decreased activity of alanine aminotransferase in 2.1 times, aspartate aminotransferase – in 2.1 times, gamma glutamyl transpeptidase – in 2.4 times that was accompanied by the lipid profiles normalization. Conclusions. The combination of ursodeoxycholic acid and levocarnitine in the integrated therapy may be recommended to manage patients with non-alcoholic steatohepatitis with atherogenic dyslipidemia.

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CHANGES IN BLOOD PLASMA ELECTROLYTE CONTENT IN PATIENTS WITH GASTROESOPHAGEAL REFLUX DISEASE

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Key words: gastroesophageal reflux disease, plasma blood, electrolytes.

Calcium, magnesium, sodium and potassium are essential macro-elements for normal functioning of a human body that mainly depends on their concentration and ratio in body fluids. The metabolism of electro-lytes mentioned above is interrelated and interdependent, thus their balance in the cellular and intercellular space maintains the body homeostasis. Modern studies point out a statistically significant decrease in the level of some electrolytes in saliva in patients with gastroesophageal reflux disease in comparison with healthy individuals. Therefore, it is important to investigate the concentration of calcium, magnesium, sodium and potassium in the blood plasma. The purpose of this work was to study the levels of plasma electrolytes (calcium, sodium, magnesium, potassium) in patients with gastroesophageal reflux disease. Materials and methods. 43 patients with gastroesophageal reflux disease (16 women and 27 men, the average age was 37.7 ± 1.9 years) passed through the comprehensive examination including history taking, endoscopic examination of the upper divisions of the gastrointestinal tract. In addition, the concentration of calcium, magnesium, potassium, and sodium in the blood plasma was determined: calcium - photometric method with arsenazo III; magnesium and sodium-colorimetric method with Mg2 + ions uranyl acetate and magon sulphonamide respectively; potassium - with tetraphenylborate ions turbidimetrically without deproteination. Statistical processing of the material was carried out. Results. The blood plasma calcium concentration in the patients with gastroesophageal reflux disease was 2.08 ± 0.04 mmol / l, and 28% of them demonstrated a statistically significant tendency towards hypocalcemia, 11.6% of the patients tended to have hypercalcemia. The blood plasma

magnesium content was 0.87 ± 0.03 mmol / L, and in 11.6% of patients, it deviated from the normal values. The blood plasma sodium content was 132.37 ± 2.32 mmol / L, and 51.1% of the examined patients had the lower level of sodium compared with standard statistical indices. Potassium content was 7.37 ± 0.54 mmol / l., and 44.2% of patients with gastroesophageal reflux disease experienced a tendency to hyperkalemia. Conclusions. The average indices of blood plasma electrolytes in patients with gastroesophageal reflux disease correspond to the normal values, however, a statistically significant trend is observed toward hypocalcaemia, hyponatremia and hyperkalemia. The changes in magnesium metabolism demonstrate almost equal probability towards hyper and / or hypoconcentration.

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CONSIDERATION OF THE SERIES OF MORPHOFUNCTIONAL VALUES IN FEMALE ATHLETES OF YOUNG AGE, ENGAGED BY LIGHT ATHLETICS

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Key words: female athletes, athletes, adolescence, pubertal age, menstrual cycle, puberty, canoeing and kayaking.

The article presents the study results of determining the characteristics of the menstrual cycle and the stage of puberty and adolescence in female kayakers and canoeists. It was found out that in both age groups, there were various disorders in the dynamics of its developing and in the course of menstrual cycle, as well as the stage of puberty. All the female kayakers and canoeists of pubertal age, who started going in for this sport before the onset of menarche, had numerous combined violations of CMC with the active formation of their clinical manifestations of hypomenstrual syndrome, on the background of premenstrual syndrome. It was also determined that 14 (73.68%) canoeists, and 12 (75.00%) kayaks, from both age groups, had premenstrual syndrome, with its clinical somatic, autonomic and psychological manifestations, often very pronounced. These athletes had numerous, often combined, disruptions in the process of puberty, with a pronounced delay in menarche, telarche and puartha. Thus, 60% of kayak athletes, and 80% of female canoeists, of both age categories, had a delayed telerhea. 80% of kayakers and 100% of canoeists, both of puberty and adolescence age, had a delay in puartha. In addition, the study results showed that kayakers of both age groups had more pronounced violations of the CMC and the process of puberty than canoeists. There was a pronounced presence of hypomenstrual syndrome in all female kayakers and canoeists, clinically fixed secondary amenorrhea with somatically and vegetatively expressed phenomena of premenstrual syndrome. In our opinion, revealed changes in this series of reproductive indicators, with years of intense rowing and significant physical and psycho-emotional loads, can be regarded as a result of intensive adaptations occurring in the bodies of athletes of both age groups.

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PECULIARITIES OF CYTOCHEMICAL STATUS OF BLOOD LYMPHOCYTES IN ISCHEMIA-REPERFUSION LIVER INJURY

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Key words: ischemia-reperfusion injury, liver, succinate dehydrogenase, acidic phosphatase, glycogen.

The aim of this study was to investigate the metabolic alterations in lymphocytes in ischemia-reperfusion liver injury. The study was carried out on 50 white rats of both sexes. All procedures with animals were performed in accordance with international rules and regulations (86/09 EEC and LINESCO (Paris), adopted by the European Society of Bioethics). Under inhalation ether anaesthesia, a median abdominal incision was performed on and live ischemia was induced by occluding the portal inflow vessels (portal vein and artery) with an atraumatic vascular loop for 5, 10, 15 min. Reperfusion was modelled by loosing the loop in 5, 10, 15 min. Peripheral blood of the

test animals was taken to investigate glycogen (Gl), succinate dehydrogenase (SDH) and acidic phosphatase (AP) activity by cytochemical methods. The SDH activity was assessed by the counting the average number of formazan granules in a lymphocyte (gr/l) per 50 cells, and the activity of acidic phosphatase (AP) and SDH were calculated by using the mean cytochemical index. When compared with the data of the control group, the changes occurring in the cytochemical status of lymphocytes of the main groups (I, II, III) are multidirectional. In lymphocytes of the 1st group of test animals there was a significant increase in the SDH activity (p 0,01), a moderate increase in Gl (p0,05) and a statistically significant decrease in AP (p 0,01). These changes depending on the duration of ischemia had a phase character. In the 1st group after short-term ischemia (5 min), the LDH activity doubled compared to the control, while the II and III groups after 10 min and 15 min ischemia demonstrated pronounced lowering of the above-mentioned values (p 0,01). The changes in the AP activity were unidirectional; the decrease in enzymatic activity was determined by the time of ischemia. These changes in the IA subgroup were being aggravated in dynamics. All subgroups (A, B, C), II and III groups showed a statistically significant decrease in the AP activity. Marked depression of enzymatic activity was established in III group, where AP values were 3-4 times lower than those of the control group. In the comparative analysis of cytochemical data of rats of the main group the most informative values were demonstrated by SDH. It should be noted that SDH, being a cardinal cytochemical index of peripheral blood lymphocytes and the criterion of the main energy metabolism of mitochondria, reflects the state of the body as a whole. Thus, the cytochemical parameters of lymphocytes are informative markers reflecting the state of metabolic processes in the body under ischemic reperfusion liver damage. Changes in mitochondrial and lysosomal enzymatic activity of lymphocytes were interrelated and the nature of the phase depended on the duration of ischemia and the duration of reperfusion. Relatively high values of glycogen under which these changes occurred indicate intracellular activation of glyconeogenesis.

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PLANNING OF ABDOMINOPLASTY IS FROM THE POINT OF VIEW OF BIOMECHANICS AND MORPHOLOGICAL DESCRIPTIONS TISSUES OF FRONT ABDOMINAL WALL

Drabovskiy V.S.

Key words: abdominoplasty, skin biomechanics, anterior abdominal wall

Abdominoplasty is the most popular method of operative correction of cosmetic defects of anterior ab-dominal wall. Plenty of factors among which and biomechanics parameters of pull of tissues influence on the results of abdominoplasty. The purpose of our research was to investigate hystoarchitektonic of superficial tissues of anterior abdominal wallon the different stages of deformation. For gaining end the results of hystotopography researches of 62 preparations of tissues of different layers of anterior abdominal wallfrom hypogastric area are analysed on the different stages deformations after abdominoplasty . At research of skin within the limits of flowage found out the insignificant morphological changes of epidermis, in form dystrophy of multi-layered epithelium of different degree, diminishing of amount of ceratinocytes depending on age. Epidermal mews were unhomogeneous on sizes and form with dense intercellular connections and rare intraepithelial lymphocytes. The papillary layer of derma was more thinned, fibred, homogeneously eosinofilic. The surplus amount of capillar is educed in the superficial departments of papillary layer of derma. At the estimation of hypodermis on the stages of the plastic loading the presence of monomophs is educed uniadipocytes, homogeneous in a due form and to the sizes, with the different amount of layers of the fibrotic changed connecting tissue. At research of tissues of anterior abdominal wall at supraplastic deformations, the expressed destructives pathological changes are described. Marked the expressed atrophy of multi-layered layer of epithelium of skin, diminishing of amount of ceratinocytes. Quite often there was a different hyperkeratinization and parakeratosis with the single intraepithelial lymphocytes. Differentiation of derma on layers was washed out, papillary layer fibred, homogeneous, eosinophylic. The presence of greater amount of vessels of capillary type is established in the superficial departments of papillary layer of derma. Reticulated layer of derma at superdeformations, placed thinned and uneven with the various location of collogen structures. In a hypoderma, under influence of supraplastic deformation, there were plural layers of fibrotic connecting tissue with the hearths of angiomatosis. Microstructure changes of tissues of superficial layers of anterior abdominal wall on the different stages of deformation, reflect the initial process of atrophy-sclerotic changes of skin, hypodermis, with a tendency to progression of development of changes depending on the increase of parameters of tension of tissues. Character of the educed violations within the limits of flowage, testifies to maintenance of ability of tissues to the reparation processes and expediency of account of this morpho-biomechanic factors at the choice of methods of getting up and mobilization of dermic-fatty flaps at implementation of abdominoplasty.

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INFLUENCE OF AP-1 TRANSCRIPTION FACTOR INHIBITOR ON FREE-RADICAL OXIDATION AND ANTIOXIDANT PROTECTION IN PERIODONTAL TISSUES OF RATS EXPOSED TO SYSTEMIC ADMINISTRATION OF SALMONELLA TYPHI LIPOPOLISACCHARIDE

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Key words: transcription factor AP-1, lipopolysaccharide-induced systemic inflammatory response, free radical processes, oxidative-nitrosative stress, periodontium.

This study is aimed at investigating the effect of the inhibitor of the transcription factor AP-1 SR 11302 on free radical oxidation and antioxidant defense in rat periodontal tissues during the experimental systemic inflammatory response (SIR) induced by the introduction of the lipopolysaccharide (LPS) Salmonella typhi (in a dose of 0.4 μg/kg body wt, 3 times for the 1 week and once a week through the next 7 weeks). SR 11302 introduction in a dose of 1 mg/kg 3 times a week, starting from the 30th day of the LPS experiment, was accompanied by a significant decrease in the rate of production of superoxide anion radical by NADPH-dependent electron transport chains (by 15.0%), by the mitochondrial respiratory chain (by 16.3%) and by leukocyte NADPH-oxidase (by 16.2%) compared with the findings in the group subjected to the SIR reproduction. Under these conditions the total activity of NO-synthase (by 32.1%) and nitrate reductase (by 17.6%) decreased. The content of peroxinitrite ions yielded to the value of the group exposured to SIR simulation by 14.8%. The introduction of SR 11302 during SIR conditions was accompanied with lower concentration of secondary products of lipid peroxidation and its increase during incubation in a prooxidant buffer solution. The activity of superoxide dismutase and catalase exceeded the findings of the groups with SIR reproduction by 33.3% and 53.3%, respectively. It has been concluded that applying the inhibitor of AP-1 SR 11302 during SIR condition is an effective means to correct free radical processes in periodontal tis-sues.

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OBESITY: ANALYSIS OF LEADING CAUSES OF DEATH AND CONCOMITANT PATHOLOGIES BASED ON AUTOPSY CASE PROTOCOL

Mazur O., Kuzyk Yu.

Key words: obesity, comorbidity, death cause, autopsy.

Numerous reports have confirmed the leading role of obesity in developing various diseases. Therefore, the purpose of this study was to carry out retrospective analysis and to evaluate the prevalence of obesity in the Lviv region according to autopsy protocols with further identifying morbidity and mortality structure in deceased patients with obesity. The authors analyzed 4835 autopsy cases during the period of 2011-2015 on the basis of the Lviv Regional Pathology Bureau – obesity, without verified diabetes, was detected in 266 cases (5.5%). Among the deceased patients there were 164 (61.7%) women and 102 (38.4%) men. The average age of deceased women was 68.6±1.7 years, and the average age of men was 58.6±1.8 years. Women aged 60 to 70 years predominated in deceased patients with obesity. The analysis of obesity cases has been carried out

according to two criteria: identifying the main cause of death and identifying concomitant pathology. According to the results obtained, during the last five years there has been an increase in the number of deceased patients with obesity. Thus, in 2011 it made up 4,2%, whereas in 2015 this value reached 6% of the total autopsy number. On average, the number of deceased patients with obesity increased by 1% every year. The similar tendency has been observed towards the number of deceased individuals with obesity: for instance, their number in 2011 made up 0.9% of all autopsy cases, while in 2015 the percentage was 2.9%. In obese patients the leading causes of death were identified as follows: diseases of the cardiovascular system, malignant neoplasms and diseases of the digestive system. Among the concomitant pathology, almost half of patients have been diagnosed to have chronic bronchitis. Diseases of the digestive, cardiovascular systems and thyroid gland were commonly found as well. The prevalence of obesity and the number of obese people increased with each passing year, as well as the diversity of obesity-associated diseases.

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STUDY OF MACRO- AND MICROELEMENT COMPOSITION OF SKELETAL MUSCLES OF THE RATS WITH CHRONIC HYPERGLYCEMIA

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Key words: skeletal muscles, chronic hyperglycemia, macroelements, microelements.

To date, there is a small number of works devoted to the study of the role of trace elements in the development of chronic hyperglycemia and diabetes, wherein the results are often controversial. This circumstance prompted us to conduct our own experiment to study the concentration of K, Na, Ca, Mg, Fe, Zn, Cu in skeletal muscles of rats with chronic hyperglycemia. 12 Wistar male rats were used for experiment. Animals were divided into control and experimental subgroups (6 in each group). The chronic hyperglycemia in the experimental group was modeled by two-week of 10% fructose solution loading with followed single intraperitoneal administration of streptozotocin 40 mg/kg. Triceps surae muscle was used for study. Determination of macro- and microelements content was carried out by atomic absorption spectrometry methods with electrothermal and flame atomization. The statistical analysis was performed using the SPSS-15 electronic package. Determination of the reliability of the differences between control and experimental groups was performed using Student's criterion (t). It was revealed that concentration of K ($P < 0.001$), Ca ($P < 0.001$), Fe ($P = 0.001$), Zn ($P = 0.001$) and Cu ($P = 0.038$) in striated muscles of animals with chronic hyperglycemia was significantly lower compared to rats of control group. There were no differences between the contents of Na and Mg in comparison groups ($P = 0.101$ and $P = 0.374$, respectively). The results of the present study showed a significant difference between the content of macro- and microelements in skeletal muscles of rats with chronic hyperglycemia and control animals, indicating possible differences in the accumulation of elements in tissues under the condition of normal- and hyperglycemia.

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STATUS OF FREE-RADICAL PROCESSES AND ANTIOXIDANT PROTECTION SYSTEM OF THE PARODONTIUM CONNECTIVE TISSUE IN RABBITS WITH HYDROCORTISONE PERIODONTITIS

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Key words: rabbits, hydrocortisone periodontitis, peroxide oxidation of lipids, antioxidant system, catalase, ceruloplasmin, malondialdehyde.

The article presents the results of studying the status of lipid peroxidation and the activity of enzyme systems in hydrocortisone periodontitis in rabbits, both in serum and in the periodontal mandibular homogenate. Increased intake of xenobiotics, depletion of depot antioxidants, unbalanced nutrition and other negative factors promotes the development of an oxidative stress characterized by imparing the prooxidant and antioxidant balance, and the development of oxidative damage. Object. To analyze the status of free-radical processes in hydrocortisone periodontitis in rabbits. Materials and methods. The research was conducted on Chinchilla breeds, which were subjected to modeled periodontitis. Results. Unidirectional changes of lipid peroxidation (LP) and antioxidant enzyme systems in both serum and mandibular periodontal tissue homogenate were found out. The study demonstrated the activation of lipid peroxidation and antioxidant defense in serum. Conclusions. Increase in the activity of lipid peroxidation processes plays an important role in the pathogenesis of numerous pathological processes, including inflammatory lesions of periodontal tissues. Changes in the indicators of the lipid peroxidation system serve as markers for identifying the severity of the inflammatory process and the effectiveness of the treatment. In hydrocortisone periodontitis in rabbits we observe the activation of lipid peroxidation and decrease in the activity of antioxidant enzyme systems. Shifts occurring in the secondary LP products, catalase and ceruloplasmin confirm the inflammatory nature of periodontium pathology in rabbits.

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ANGIOGENESIS IN HIGH GRADE DIFFUSE ASTROCYTIC TUMORS

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Key words: glioblastoma, anaplastic astrocytoma, angiogenesis in malignant diffuse astrocytic tumors, VEGF, CD34, EGFR, recurrences of high grade diffuse astrocytic tumors

Angiogenesis plays the key role in tumor progression. It is mentioned in some scientific reports that the evaluation of the expression such vascular markers as CD34 and VEGF could be used for

diagnostic and prognostic purposes. Moreover, VEGF expression should be evaluated in cases when specifically targeted chemotherapy is needed e.g. in relapsed tumors. It was well described the fact that the growth of a number of epidermal growth factor receptor (EGFR) in tumor tissue is one of the triggers that stimulate the synthesis of VEGF. Nevertheless, the prognostic impact of this phenomenon for diffuse astrocytic tumors is still under discussion. There is a lack of studies that are focused on the angiogenesis in a complex with scoring a proliferative activity of endothelium and its features varying from tumor morphology. The number of research reports that describe angiogenesis in relapsed anaplastic astrocytomas and glioblastomas is also insufficient, although this information could be helpful for the development of an effective therapeutic strategy. The aim of this study was a complex analysis of angiogenesis in diffuse astrocytic tumors grade III-IV through the routine histological investigation and contemporary immunohistochemical method. Materials and methods. The recent study included 3 groups of tumor specimens (the total number of observations was 45 tumor samples). The first and the second groups included samples of anaplastic astrocytomas and glioblastomas, but patients from the 1st group, in comparison to patients from the 2nd group, experienced a recurrence within 1 year after the surgery. The third group was composed of relapses of the tumors from the patients in the 1st group. Immunohistochemistry with primary antibody CD34, VEGF and EGFR were used in our study. The index of vascularisation was independently calculated in every case. The index was calculated as the ratio of the microvascular density scored with VEGF to the microvascular density scored with CD34. Kruskal-Wallis H and Mann-Whitney U tests were performed for comparison of quantitative parameters between groups. Chi-squared test was used when it was needed. Results. The average index of vascularisation was slightly higher in the group of tumors, that relapsed within 1 year after the surgery (0,825±0,13) in comparison with the group of tumors without relapse (0,67±0,39). But this difference was statistically insignificant. The index of vascularisation was significantly higher ($p<0,01$) in primary tumors with cysts (0,97±0,06) compared to primary solid tumors (0,52±0,16). The thick-walled vessels are significantly more often found in relapsed diffuse astrocytic tumors (Chi-squared test=14,014, $p<0,01$). Probably, it could be a result of microvessel transformation caused by radiation and chemotherapy. The significant elevation of the index of vascularization was associated with elevation of EGFR expression in tumor tissue (Kruskal-Wallis H (2, N=45)=34,19 ($p<0,0001$)). Conclusions. 1. The thick-walled vessels are significantly more often found in relapsed diffuse astrocytic tumors compared to primary tumors (Chi-squared test=14,014, $p<0,01$). 2. The index of vascularisation was significantly higher ($p<0,01$) in primary tumors with cysts compared to primary solid tumors. 3. There were no significant differences in the index of vascularization in the group of tumors, that relapsed within 1 year after the surgery and the group without relapse ($p >0,05$). 4. The significant elevation of the index of vascularization was associated with elevation of EGFR expression in tumor tissue (Kruskal-Wallis H (2, N=45)=34,19 ($p<0,0001$) and Mann-Whitney U test in a pairwise comparison of groups $p<0,01$ for each pair).

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MELATONIN IMPROVES MITOCHONDRIAL FUNCTION AND DECREASES OXIDATIVE STRESS IN GUMS OF DIABETIC RATS

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It is known that melatonin not only carries out control of circadian and seasonal biorhythms in the human body, but also helps to maintain oxidative antioxidant homeostasis and normoglucemia in the body. The purpose of the study was to determine the effect of melatonin on the content of reduced glutathione and the activities of glutathione peroxidase, catalase and superoxide dismutase, as well as the content of TBC reactive compounds and protein carbonyl content in the cytosol, and the activities of succinate dehydrogenase and H+-ATP-ase in the mitochondria of the gums of rats with alloxan diabetes mellitus. Research methods. Animals were divided into 5 groups: 1) control; 2) rats with apparent diabetes – basal glycemia levels ≥ 8.0 mmol / l; 3) rats with apparent diabetes who, from day 5 after administration of aloxane, received daily melatonin 10 mg / kg of weight during 7 days daily at 8:00 per os; 4) rat with impaired glucose tolerance - basal glycemia level ≤ 6.9 mmol / l; 3) rats with impaired glucose tolerance, which were similarly administered within 7 days of melatonin. Results and discussion. In gingival tissues of rats with apparent diabetes, reduction in the content of reduced glutathione by 30% and increased activity of glutathione peroxidase by 32% were observed, respectively, when compared with control rats. The activity of catalase and superoxide dismutase decreased by 18% and 46% in the group of diabetic rats than in

the control group. In the group of animals with impaired glucose tolerance, the activity of catalase was 25% higher than control. The content of TBC reactive compounds increased in groups of diabetic rats and with impaired glucose tolerance by 65% and 36% respectively, while the level of oxidized proteins in animals with diabetes increased by 52% compared to control. In the mitochondrial fraction of gum cells, decrease in the activity of succinate dehydrogenase and H + -ATPase in animals with diabetes was found to be 68% and 41%, respectively, as compared to control. Weekly daily administration to rats with apparent diabetes melatonin at a rate of 10 mg / kg contributed to the normalization of the glutathione system and basal glycemia we studied. Conclusion: These results demon-strate that melatonin supplementation prevents gingival mitochondrial dysfunction induced by diabetes in as-sociation with decreased oxidative stress.

Key words: antioxidative system, mitochondria, aloxane diabetes, gums, melatonin, rats.

Completed in accordance with the planned research work "Stressed morphofunctional and biochemical changes in the structures of chronoperiodical and hepatorenal systems in mammals" 0114 U002472 – Fundamental.

Introduction

Diabetics and experimental animal models ex-hibit high oxidative stress due to persistent and chronic hyperglycemia, thereby deplete the activity of the antioxidative defense system and thereby promote the generation of free radicals [6]. The metalloproteins SOD, CAT, and GPx provide the first line of antioxidant defense against reactive ox-ygen species through enzyme-catalyzed dismutation of O2- to H2O2, which is further reduced to oxygen and water [11].

Melatonin, a hormone secreted by the pineal gland, has remarkable antioxidant properties [13].

Diabetic gingivitis [8] is a diabetic complication related to the metabolic alterations featur-ing diabetes. Diabetes is characterized by in-creased lipid peroxidation, altered glutathione redox status, exacerbated levels of ROS, and mitochondrial dysfunction.

Succinate dehydrogenase (SDH) or succinate-coenzyme Q reductase (SQR) or respiratory Com-plex II is an enzyme complex, found in many bacte-rial cells and in the inner mitochondrial membrane of eukaryotes. It is the only enzyme that partici-pates in both the citric acid cycle and the electron transport chain [9]. ATPases in mitochondria are the prime producers of ATP, using the proton gra-dient generated by oxidative phosphorylation [5].

Taking this into consideration, the aim of this work was to evaluate the effects of melatonin intake in gingival mitochondrial function and cytosolic oxidative status in alloxan-induced diabetic rats.

The aim was to determine the influence of mela-tonin on basal levels of glucose (BG) in the blood, levels of protein carbonyl content and thiobarbituric acid reactive compounds (TBCRC), reduced gluta-thione (GSH), activities of glutathione peroxidase [EC 1.11.1.9] (GPx), superoxiddysmutase [EC 1.15.1.1] (SOD) and catalase [EC 1.11.1.6] (CAT) in cytosolic fraction of gums, activities of succinate dehydrogenase [EC 1.3.5.1] (SDH) and H+-ATP-ase [EC 3.6.1.3] in gingival mitochondria of alloxan diabetic rats.

Materials and methods

Research performed in compliance with the Rules of the work using experimental animals (1977) and the Council of Europe Convention on the Protection of Vertebrate Animals used in exper-iments and other scientific purposes (Strasbourg, 1986), according to directions of International Committee of Medical Journals Editors (ICMJE), as well as “Bioethical expertise of preclinical and other scientific research conducted on animals” (Kyiv, 2006). Diabetes was induced in male Wistar rats by single i.p. injection of alloxan (170 mg/kg) [7]. Four days after diabetes induction, rats were divided into diabetic (untreated) and melatonin-diabetic group (10 mg/kg, daily and orally for one week). Among diabetic rats were rats with preserved normoglycemia (impaired glucose tolerance – IGT) and rats with diabetes mellitus (DM) BG ≥ 8,0 mmol/l. Blood was taken from the tail vein evaluate the BG level with the use of OneTouchUltra (LifeScan, USA). Rats were sacrificed at the twelfth day from the beginning of the experiment accord-ance with the ethical

treatment of animals. The gin-gival tissue was quickly removed, rinsed in saline, blotted, weighed and homogenized. The homoge-nate, 5% in ice-cold 0,25 mM tris-HCl-buffer (pH 7,4), was made using a homogenizer. The superna-tant of the homogenate, prepared by ultracentrifu-gation for 10 min at 3000g/min was used for meas-urement of activities of enzymes. Gingival cytosolic oxidant status was assessed by measuring of GSH level, SOD, CAT, and GPx activities. Determinations of the enzymes activities were by standard methods [12].

In the process of oxidative modification of pro-teins in the radicals of the aliphatic amino acid resi-dues, aldehyde and ketone groups are formed. They interact with 2,4-dinitrophenylhydrazine (2,4-DNPH) to form 2,4-dinitrophenylhydrazones with a specific absorption spectrum. Aldehyde- and keto-derivatives which are neutral in nature are deter-mined at a wavelength of 370 nm [2]. The method of TBCRC determination is based on a spectropho-tometric determination of the trimetinic colored complex formed from the TBCRC interaction with thiobarbituric acid [1].

Mitochondria were isolated by differential cen-trifugation in the isolation buffer [14]. Energy func-tion of mitochondria was estimated by determina-tion of succinate dehydrogenase activity [3] and H+-ATP-ase [4].

Statistical analysis was performed using Statistica 10 StatSoft Inc. To determine an ade-quate method of statistical estimation of the aver-age difference between the study groups held pre-liminary check distribution quantities in samples. According to the criteria Shapiro-Wilk, which is used to assess the normality of distribution in the sample volume $n \leq 50$, all samples not received data on deviation of the distribution of samples from normal ($p>0,05$). Given these data, the use of Mann-Whitney test was considered sufficient for valid conclusions. Differences were considered to be statistically significant at $p \leq 0,05$.

Results and Discussion

Insertion of melatonin for 7 days helped to re-duce 1.9 times compared with the baseline, basal glucose level in the group of animals with overt dia-betes, indicating its hypoglycemic action.

Diabetics and experimental animal models ex-hibit high oxidative stress due to persistent and chronic hyperglycemia, thereby deplete the activity of the antioxidative defense system and thereby promote the generation of free radicals [6].

To access the protein oxidation mediated by glycation process, the levels of protein carbonyl content (tabl. 1) were measured. The level of pro-tein carbonyl groups was significantly increased in DM by 52% compared with control, whereas mela-tonin treatment significantly suppressed an in-crease in protein carbonyl content. When compar-ing with index of diabetic rats, the percentage re-duction of carbonyl content by melatonin was found to be 19%.

The biochemical function of GPx is to reduce li-pid hydroperoxides to their corresponding alcohols and to reduce free hydrogen peroxide to water. Glutathione neutralizes ROS, both directly and through GPx. We have found the level of GSH decreases by 30% and activity of GPx increases by 32% in DM group of animals compared with control. Reduced content of GSH in gums under DM, presumably due to both inhibition of its synthesis and enhanced use by GPx to neutralize hydrogen peroxide and other hydroperoxides, formed due to increased free radical oxidation of lipids and biopolymers in gum tissue. The activities of CAT and SOD were found to be lesser on 18% and 46% in DM group of rats than in control. In group of animals with IGT activity of CAT was on 25% higher than control possible due to absence of hyperglycemia. Melatonin injections was helpful for normalization this index under study.

TBCRC are formed as a result of lipid peroxida-tion that can be used to measure lipid peroxides after reacting it with thiobarbituric acid. The level of TBCRC was found to be higher on 65% in DM group and on 36% in IGT group respectively than in control. So, the lipid peroxidation was increased in diabetic gums. Melatonin partly prevented diabetes-induced increase in TBCRC in gingival tissues.

According to the results obtained, it may be postulated that melatonin inhibits glycation by reducing the generation of reactive carbonyl or dicarbonyl groups either from fructosamine or glucose, probably due to stimulation of glucose transport to cells [1] and preventing of ROS

formation in conditions of hyperglycemia.

Reduced levels of the mitochondrial enzyme SDH (tabl. 2), the main element of complex II of electron transport chain, were observed in gingival mitochondria of DM rats which were on 68% less than control. Energy metabolism defects have been identified according decrease of the H+-ATP-ase activity on 41% compared with control. Melatonin injections was helpful for normalization this index under study.

Melatonin, as it is known [10], stimulates the uti-lization of glucose by tissues, it promotes an increase in the tissues of ATP concentration, the res-toration of disturbed under diabetes mellitus oxidant-antioxidant homeostasis. A week daily admin-istration to rats with DM melatonin at a rate of 10 mg / kg contributed to a decrease in basal glycemia and normalization of all of our indices.

Table 1
Changes of the antioxidant defence in gums of diabetic rats, (n=6, x±S x)
Indexes

Groups	G-SH, μmol/g	GPx, μmol/min×mg	CAT, mmol/min×mg	SOD, OD/min×mg	TBCRC, μmol/g of tissue	Protein carbonyl (370нм), mmol/g protein
1.Control group	93.0±3.5	437±31	103.2±3.54	0.25±0.012	21.5±1.09	2.04±0.08
2. DM	65.3±4.2a					
p=0.0032	574±28a					
p=0.014	84.5±5.27a					
p=0.015	0.14±0.009a					
p=0.00093	35.4±2.28a					
p=0.0024	3.11±0.19a					
p=0.003						
3. DM + melatonin		94.4±3.8b				
p=0.0031	448±38b					
p=0.024	93.3±4.19	0.18±0.011b				
p= 0.019	27.8±1.23b					
p=0.015	2.52±0.18 a. b					
p=0.035						
p=0.048						
4. IGT	97.8±5.0b					
p=0.0034	461±34b					
p=0.028	129.0±8.97a.b					
p= 0.024						
p=0.0057	0.29±0.018b					
p= 0.00088	29.1±2.05 a.					
p=0.014	2.53±0.21					
5. IGT + melatonin		102.0±4.9b				
p=0.0022	455±28b					
p=0.013	105.0±5.22b.c					
p=0.02						
p=0.043	0.26±0.015b					
p=0.0012	20.2±1.72b.c					

p=0.0027
p=0.013 2.17±0.09b
p=0.0049
Note: 1. a, b, c - changes are reliable (p≤0.05). 2. a - concerning intact rats;
b - concerning rats with diabetes mellitus; c – concerning rats with IGT
Table 2
Changes of mitochondrial energy function in gums of diabetic rats, (n=6, x±S x)
Indexes
Groups SDH, nmol/min×mg H+-ATP-ase,
μmol (iP)/min×mg
1.Control group 10.87±2.860 0.37±0.023
2. DM 3.52±1.435a
p=0.047 0.21±0.019a
p=0.0027
3. DM + melatonin 9.03±1.81 b
p=0.041 0.29±0.011 a. b
p= 0.01
p= 0.0031
4. IGT 10.75±3.0598 0.38±0.015
5. IGT + melatonin 10.2±2.352 0.41±0.03
Note: 1. a, b, c - changes are reliable (p≤0.05). 2. a - concerning intact rats;
b - concerning rats with diabetes mellitus; c – concerning rats with IGT

Conclusion

Melatonin improves gingival mitochondrial func-tion in diabetic rats preventing impairment of mito-chondrial respiration. Melatonin also decreased ROS levels and lipid peroxidation and improved the GSH level as well. These results demonstrate that melatonin supplementation prevents gingival mitochondrial dysfunction induced by diabetes in association with decreased oxidative stress.

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CONSERVATIVE TREATMENT OF PULPITIS BY USING CITRATE BUFFER

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Key words: citrate buffer, pulpitis, conservative treatment.

The article describes the study of the effect produced by citric acid on hard dental tissues that results in the chemical reaction yielding calcium citrate, which serves as a hard dental tissue protector by forming a sort of root seal and is characterised by biological inertness ensuring its anti-allergic properties. The purpose of this work was to investigate the response of the pulp and hard dental tissues in the course of treating pulpitis with citrate buffer. Four patients aged 21 - 35 years passed through clinical and X-ray examinations to confirm their diagnosis of acute focal pulpitis. Following the antiseptic treatment and preparation of the carious cavity, we placed citrate buffer containing white clay onto the bottom of the carious cavity and sealed with temporary sealant. A week later fillings were replaced with permanent ones when there were no problems with teeth. A histochemical study by using Schiff's staining was performed on the longitudinal section of the filled teeth removed for orthodontic reasons. According to the results of clinical and additional studies, positive dynamics was observed in all the patients treated by the proposed method. Histochemical findings showed that after the application of paste with citrate buffer, there was a hardening of areas in hard tissues of the tooth 4.8 around the carious cavity; we also observed positive Schiff (PAS) reaction due to the accumulation of fibrin and mucoproteins in the dentin near the horn of the pulp. The therapeutic lining by citrate buffer causes an anti-inflammatory effect, has no side effects and contraindications. In addition, the accumulation of fibrin and mucoproteins in the areas of predentin and regular dentin near the horn of the pulp indicates the onset of the active phase of the process of delimitation from the source of destruction, which in this region has the maximum Schiff (PAS) positive reaction. We can recommend applying citrate buffer as an alternative to calcium hydroxide layer during conservative treatment of pulpitis.

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CHARACTERISTICS OF GUM SHAPERS

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Key words: implant-supported fixed dentures, prosthetic bed, gum shapers, gum gene phenotype.

This article pays a particular attention to carrying out the preparatory stage prior the placement of implant-supported fixed dental prostheses. Despite the short term of their useful life, they play an important role in providing qualitative aesthetic tooth replacement with implant-supported appliances by preparing prosthetic bed and keeping gum healthy as well as facilitate good oral hygiene. Gum shapers are made of bio-inert materials and lined with various materials, e.g. fluoroplastics and polyether ketone. The purpose of this study was to compare different shapes of gum shapers depending on the gum gene phenotype. Materials and methods: We carried out a comparative study of gum shapers of various sizes, shape and type of surface. Results: The proper selection of a gum shaper was based on several factors including the width and thickness of the alveolar process, the biotype of the periodontal disease, the maxillary ratio, the interalveolar height, occlusal contact, tooth tilt that limit the dentition defect as well as the biological width of the natural teeth. The materials used to manufacture gum shapers are paid much attention as well as materials can produce considerable impact on the process of tissue regeneration within the peri-implant area. Many factors determine the composition of microbiota and the formation of biofilms with respect to biomaterials such as surface roughness, surface energy and chemical composition. Adhesiveness on the surface of the gum shaper is also provided by the type of the material itself and its property to be well polished. Conclusion: Carrying out the preparatory stage before the replacement with implant-

supported fixed dentures is an integral part of the successful treatment outcomes. The use of gum shapers contributes to the good formation of the prosthetic bed by regenerating the peri-implant tissues.

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ELECTROMYOGRAPHIC RESEARCH OF CHEWING MUSCLES FUNCTIONING IN DYSFUNCTIONAL DISORDERS OF TEMPOROMANDIBULAR JOINT

Kostiuk T.M.

Key words: electromyography, temporomandibular joint, chewing muscles, bioelectric activity, bioelectric rest.

Muscular and articular dysfunction of the temporomandibular joint is one of the most prevalent disorders in dentistry nowadays. This is characterized by complicated polyetiology and varying clinical manifestations, presenting difficulties both for diagnosis and rehabilitation of the patients. The priority study direction is definitely the search for diagnostic methods that will allow clinicians to identify the dysfunctional changes in their early stage. We performed electromyography that contributed to analysis of changes in the masticatory muscles depending on the severity of temporomandibular joint dysfunction. The chewing muscles due to their complex reflex

interdependence are very sensitive and respond to any anatomical and functional changes of the dentofacial apparatus. Functional condition of the dentofacial muscles largely depends on even slight occlusal abnormalities. Neurogenic and myogenic disorders of the dental mandibular region can contribute or exacerbate the development of malocclusion. When the dentist starts therapy of the muscular-articular dysfunction, s/he should have clear vision on functional condition of all muscles of the head and neck region. When no or incomplete remodelling of muscular activity, there is a very high risk of the recurrence of this disorder. Therefore, one of the most important tasks of modern integrated therapy of the temporomandibular joint dysfunctions is its early detection. The electromyographic examination of patients who are suspected to have temporomandibular dysfunction allows clinicians to establish the dependence between the severity of dentofacial neuro-muscular affection and clinical manifestations of this disorder.

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CHARACTERISTICS OF MORPHOLOGICAL STRUCTURE OF SCAR TISSUE AFTER SURGICAL TREATMENT OF NECK CYSTS OF EMBRYOLOGICAL ORIGIN AT 6TH, 9TH AND 12TH MONTHS OF POSTOPERATIVE PERIOD

Krinichko L.R.

Key words: neck cyst, normotrophic scar, pathological scar, ceruloplasmin, PRF-clot.

In spite of the huge achievements in modern medicine, the issue on identifying causes of postoperative pathological scarring of the skin is still remaining one of challenge for maxillofacial surgery due to the in-crease in their occurrence rate and the lack of concerned approach regarding the aetiology and pathogene-sis. The aim of this work was to study the characteristics of the morphological structure of postoperative normotrophic and pathological scars during the application of standard methods of their prevention in com-parison with the approach elaborated by the authors. It was found out the morphological picture demon-strates the effectiveness of the prophylaxis including PRF-clot and ceruloplasmin at the 6th month of post-operative period: connective tissue papillae are not visually different from those in intact derma, the epithelial lay between them are characterized by a monomorphic pattern and relatively similar sizes. Bundles of collagen fibres are located predominantly perpendicular to the capillary epithelium and parallel in the middle and basal areas. Protein Ki-67 antibody test has shown the proliferative activity in 20% of the epithelial cells of the basal layer of the epidermis and its total absence in the cells of the cicatrical tissue. The bundles of collagen fibres of postoperative scar are not significantly different from those in the intact derma by their tinctorial characteristics and metric indices in 12h months of follow-up that is the evidence of the effectiveness of the proposed approach of scar prevention.

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EFFICIENCY OF INTEGRATION TREATMENT OF GENERALIZED CATARRHAL

GINGIVITIS IN ADOLESCENTS WITH CHRONIC GASTRODUODENITIS

Lisetska I.S., Rozhko M.M.

Key words: catarrhal gingivitis, chronic gastroduodenitis, adolescents, complex treatment.

Epidemiological investigations for recent years have indicated the high intensity and prevalence of perio-dontal tissue diseases among oral pathologies in adolescents. Nowadays synthetic medicines are widely used for the treatment of periodontal tissue diseases that leads to pronounced positive effect, but at the same time cause some side effects. That is why it is reasonable to pay attention to the application of herbal medicinal products, which are non-toxic or have low toxicity, thus considered to be relatively safe. Herbal preparations and probiotics have been proven to be quite effective serving as antimicrobials, reducing in-flammatory reactions and increasing local immune properties. The aim of this investigation was to study the efficacy of combined application of medicinal preparations as Stomatophyte and Dentagel supported by probiotic YOGURT in 38 adolescents aged from 12 to 18 with catarrhal gingivitis and chronic gastroduodenitis, who made up the main group. The comparison group included 25 adolescents of the same age with diagnosed generalized catarrhal gingivitis who did not present any complaints. Clinical examination of adolescents was carried out according to the generally accepted methodology using subjective (complaints, medical history) and objective (physical examination, palpation, percussion, probing and additional: assessment of oral hygiene index values and the values of periodontal tissue status). The findings obtained were recorded in medical cards of dental patients and used for mapping of our examination. It has been found that this combination was not inferior to the conventional treatment, but also exceeds it by clinical indices and parameters. The values of the PMA index following the end of the treatment course in adolescents in the I A subgroup of the main group was 3.7 ± 1.12% and in the I B subgroup was 6.8 ± 1.14%. The adolescents of II A subgroup in the comparison group demonstrated 1.6 ± 1.08% and the II B subgroup had 2.9 ± 1.13%, respectively. The value of the index after the end of treatment course in the adolescents in the I A subgroup of the in the main group was 0.11 ± 0.02 and 0.17 ± 0.03 in the I B subgroup, respectively. The results obtained in the adolescents of the main group have demonstrated the described integrated treatment of catarrhal gingivitis is of high clinical efficiency and results in more pronounced stable changes in the tissues and positive dynamics of the indices compared to the adolescents of the comparison group.

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EFFECTIVENESS OF INITIAL CARIES TREATMENT USING OZONE AND

ENAMEL-HARDENING GEL 'TOOTH MOUSSE'

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Key words: initial caries, remineralizing therapy, ozonotherapy.

Data of preliminary studies indicate that the isolated use of enamel-hardening jell 'Tooth Mousse' and ozone promotes increased caries resistance and elimination of primary caries foci in children of different age groups. Taking into account the lack of data about the results of combined use of the above-mentioned methods, it is appropriate to study the cumulative effect of ozone and remineralisation approaches in order to improve the parameters of duration and success of treating caries in the spot stage among children. Objective of this study was to provide probation and analysis of the results of integrated treatment of initial caries based on the combined action of ozonotherapy and demineralising agent Tooth Mousse. Materials and methods. The study included 60 children aged 6 – 12 years who were equally divided into two groups. Results. Immediately after the treatment with ozonotherapy and Tooth Mousse, following changes in the indicators of the TER-test were noted in the children of test group the: 22 individuals (73.33%) had 2 ± 0.75 scores, 8 persons (26.67%) had 3 ± 0.29 scores; in the control group 20 persons (66, 67%) had 3 ± 0,55 scores, 8 persons (26,66%) had 4 ± 0,12 scores, and 2 persons (6,67%) had 5 ± 0,19 scores. CRT-test findings in the test group after the treatment were higher by 60 seconds in all studied children (100%), and in the control group such findings were noted in 22 (73.33%) children, while in 8 (26, 67%) of them the results remained less that 60 seconds. Conclusion. The total success rate of caries treatment according to the findings of the TER-test, the CRT-test and the laser-fluorescence analysis in the group of children, who were treated by ozone and the Tooth Mousse agent achieved 100% in a month after the treatment, while in the control group, receiving calcium electrophoresis and fluorine applications, such success criteria ranged within t=56,66-70%.

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BIOPHYSICAL ASPECTS OF DETERMINING THE TRANSMITTANCE OF SOLID TISSUES AND THE SURFACE TENSION OF BIOPHYSICAL ASPECTS IN DETERMINING TRANSMITTANCE COEFFICIENT OF HARD TISSUES AND SURFACE TENSION OF ANTISEPTIC SOLUTIONS IN DENTAL ROOT CANAL SYSTEM

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Key words: the root canal, transmission coefficient, surface tension coefficient.

In endodontic practice, antiseptic agents of various pharmacological groups are used for medicinal treat-ment of root canals. The structure of the root canal and its branches, which is the main reservoir of a large number of bacteria and due to geometric and physical conditions, on the one hand, is the most difficult to convey the energy of light radiation, and, on the other hand, is characterised by its complicated filling with proper photosensitizer. In this regard, the purpose of this study was to investigate the peculiarities of light transmission by hard dental tissues, as well as the surface tension of photosensitize solutions. The paper described the study of surface tension of antiseptic solutions of 3% sodium hypochlorite, 0.06% chlorhexi-dine begluconate, 1% alcohol chlorophyll, 2% methylene blue, 3% hydrogen peroxide, 0.1% ethacridin lac-tate that are widely used in the medical treatment of root channels and some of them have a photosensitizer effect. Experimental measurement of their surface tension coefficient was carried out to determine the possibility of fluid penetration into a cavity of a small cross-section. The light transmission coefficient with hard dental tissues was assessed. Thus, a 1% alcohol chlorophyllipt solution demonstrates its property to fill in dentin tubules of a small cross-section more easily than the aqueous solutions of photosensitizer, because its surface tension factor is the smallest of all the solutions studied. The possibility of combined use of light radiation with disinfectant solutions for photo-activated therapy and antiseptic treatment of root canals in general has been grounded.

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INVESTIGATION OF BIOFILM-FORMING AND ADHESIVE PROPERTIES OF CLINICAL STRAINS KOCURIA SPP

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Key words: Kocuria spp., adhesion, biofilm formation, inflammation, mucous membrane

The etiopathogenetic factor of infectious inflammatory diseases of the oral mucous membranes is the formation of bacterial biofilms by opportunistic microorganisms. Therefore studying the course of inflammatory processes taking into account the characteristics of adhesion and biofilm formation by their dominant pathogens contributes to the revision and improvement of the known methods in prevention and treatment of these diseases. The purpose of this study was to investigate the adhesive and biofilm-forming properties of clinical strains of K. kristinae, isolated from the oral cavity of patients with infectious inflammatory diseases of the mucous membranes. Materials and methods. The objects of the study were 18 clinical strains of K. kristinae, isolated from the examined patients. Adhesion of the studied microorganisms was evaluated on the formalized human red blood cells of the blood type O (1) Rh + by the Briliss technique. Adhesive properties were evaluated by adhesion index of microorganisms. The study of bio-film-forming properties of clinical isolates of K. kristinae was performed by using the spectrophotometric method of G.D. Christensen. Properties of microorganisms to form a biofilm were evaluated by the degree of absorption of the dye in units of density. The statistical analysis of the findings obtained was carried out by standard "STATISTICA +" and "Microsoft Excel 2010" software packages. The relationship between adhesiveness and biofilm formation of K. kristinae strains was assessed by the correlation coefficient (r-Pearson). Results. Representatives of the genus Kocuria are found in 70% of patients with infectious-inflammatory diseases of oral mucous membrane. It has been established that these pathogens possess high adhesive and biofilm-forming properties. The coefficient of correlation r-Pearson between these indices of K. kristinae strains indicates direct correlation dependence.

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CLINICAL EFFICACY OF TREATMENT OF INFLAMMATORY AND DYSTROPHIC DISEASES OF PERIODONTITIS OF WOMEN WITH BACTERIAL VAGINOSIS IN THE NEAREST TERMS OF OBSERVATION

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Key words: bacterial vaginosis, amino-test, gingivitis, periodontitis.

Introduction. Inflammatory and dystrophic periodontal diseases are usually found along with general somatic pathologies. Urogenital pathologies, especially dysbiotic states of the genital tract, are extremely rarely associated with pathologies of periodontal disease, while periodontitis and bacterial vaginosis combine the commonality of the pathogenic factor (biofilm infections), high prevalence, pathogenesis, chronicity, and recidivism. In addition, there are no protocols for the management of dental patients with genital dysbiosis, including women with bacterial vaginosis. Aim. Clinical and laboratory evaluation of the efficiency of the newly patented complex for the treatment of infectious and immunodeficiency diseases of periodontal tissues in women with bacterial vaginosis. Materials and methods. 54 patients of reproductive age (18-45 years) with bacterial vaginosis were examined. The subjects were divided into 2 groups depending on the prescribed treatment scheme. An index evaluation of the periodontal condition was carried out using the indexes of PMA and KPI by Leus, an amino-test of oral fluid. Also, oral fluid was studied for the sIgA content before treatment, on days 14 and 28 after starting treatment. Results. One of the

criteria for treatment effectiveness is the elimination period of the inflammatory process in the periodontal tissue. On the 14th day, the disappearance of clinical signs of gums inflammation among patients in Group I was diagnosed in 46.2% (12 women), in Group II - 75% (21 women), on the 28th day, a similar result was diagnosed in 84.6% (22 women) and 96.4% (27 women), respectively. It was also noted that the decrease of PMI in patients of Group I was 1.6 times compared with the rates before treatment, whereas in persons of the II group - 3.8 times. The quantitative indices of the amine test of persons of the 1st group on the 14th day decreased by 1.67, and on the 28th day - by 1.68 times. In the representatives of the 2nd group, the intensity of the reaction decreased by 5.9 times on the 14th day and remained constant until the 28th day. On day 28 after treatment, sIgA concentration was normal in both groups of women, but the outcome of patients in Group II was significantly higher by 1.3 times compared to the results of a similar study in women in Group I. Conclusion. The results obtained allow us to state that in patients who were treated according to the proposed protocol, the clinical symptoms of gum inflammation disappeared 14 days earlier than in women who were prescribed a traditional course of treatment.

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ІНТЕГРАТИВНІ МЕХАНІЗМИ ПАТОЛОГІЧНИХ ПРОЦЕСІВ: ВІД ЕКСПЕРИМЕНТАЛЬНИХ ДОСЛІДЖЕНЬ ДО КЛІНІЧНОЇ ПРАКТИКИ

PATHOPHYSIOLOGICAL COMPARISON OF BLEEDING IN OBSTETRIC AND

SURGICAL PRACTICE

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Key words: blood loss, gastrointestinal bleeding, obstetric bleeding, caesarean section, local endoscopic haemostasis.

Bleeding ranks the leading position among the causes of deaths among all age groups. For instance, the number of women died of direct or indirect obstetric causes reaches 128,000 cases per year, i. e. 1.7 per 1 000 of parturitions. Data on gastrointestinal bleeding are far from being less alarming: 423 – 464 cases of bleeding per 100 000 people. The purpose of the study was to compare the pathophysiological parameters of bleedings subjected to surgical and conservative haemostasis that arose in surgical, obstetric and gynaecological practices. A cohort study included 29 pregnant women who gave birth by Caesarean section, and 26 patients with gastrointestinal bleeding who were supported by lo-cal haemostasis. No mortality was registered in the first group, while in the second group mortality made up 7.7%. The total blood loss in the first group reached 579,2 ± 39.6 ml, while in the 2nd group in 38.5% of cases the extensiveness of blood loss was not determined by the methods of assessment, and 7.7% of pa-tients had compensated stage of blood loss, and the rest had sub compensated blood loss. About 69.2% of patients in the first group developed complications resulted from bleeding. At the beginning of the bleeding, the difference between systolic and diastolic blood pressure in the first group was 40 mm Hg, while in the second this was 31.4 mm Hg. Tachycardia was noted in the second group. Following the treatment, the difference between systolic and diastolic blood pressure in the first case made up 36.8 mm Hg, while in the second it was 19.3 mm Hg. Consequently, when comparing the pathophysiological parameters of bleeding, we may state the blood loss indices in obstetric and gynaecological patients are less marked that those in surgical practice. Such a pattern in the selected groups can be explained by age-related features and surgical controllability of blood loss.

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INFLUENCE OF EXOGENOUS MELATONIN ON ACUTE KIDNEY INJURY INDUCED BY ACETAMINOPHEN

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Key words: acetaminophen-induced acute kidney injury, melatonin, nephroprotection

This study aimed at investigating influence of melatonin (in a dose of 5 mg/kg) on the morphofunctional state of the kidneys in acetaminophen-induced acute kidney injury. The study was performed on 24 laboratory non-linear white rats. It has been found out that a single administration of acetaminophen in a dose of 750 mg/kg causes mainly the damage to proximal nephron tubules and manifests by cell necrosis (12%) and widespread degenerative changes in 50% of the tubular cells according to the histological examination. At the same time, renal dysfunction is observed, which is characterized by a 1.6-fold decrease in diuresis, a 2-fold decrease in the glomerular filtration rate, an increase in creatinine concentration in blood plasma in 1.7 times, an increase in proteinuria and fractional excretion of sodium ions in 3.3 times that confirms the disturbances in a readsorption capacity of nephrons. It was found that a single administration of melatonin produced a cytoprotective effect on the epitheliocytes of renal tubules, significantly limiting the extent and prevalence of the histopathological changes, and, accordingly, preventing the development of toxic nephropathy, which was confirmed by the normalization of the majority of indices: an increase in diuresis in 1.3 times, glomerular filtration rate in 1.6 times, sodium reabsorption by 2%, as well as a decrease in creatininemia and proteinuria compared with the values of untreated animals. The obtained data on the effectiveness of preventive use of melatonin under the conditions of acetaminophen administration in a toxic dose indicate the nephroprotective activity of the pineal hormone resulting from its ability to influence the key links of pathogenesis. The results of the study confirm the prospects for further experimental study of the influence of exogenous melatonin on the course of renal pathology of various geneses.

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MORPHOLOGICAL CHANGES IN SKIN OF GUINEA PIGS IN ERYTHEMATIC PERIOD AFTER THE EXPOSURE TO LOCAL UV-IRRADIATION IN APPLYING OINTMENT CONTAINING THIOTRIAZOLINE AND SILVER NANOPARTICLES

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Key words: ultraviolet irradiation, skin, morphological changes, thiotriazoline, silver nanoparticles

The aim of this study was to investigate the morphological characteristics of the skin of guinea pigs in erythematic period after the exposure to local ultraviolet irradiation and in correcting skin reaction with thiotriazoline ointment containing silver nanoparticles. The studies were carried out on albino guinea pigs di-vided into 3 groups: the 1 group included animals exposed to local ultraviolet irradiation (control); the 2 group included animals exposed to local ultraviolet radiation

and treated with thiotriazoline ointment 2%; the 3 group was made up of animals exposed to local ultraviolet radiation and treated by ointment containing thiotriazoline and silver nanoparticles. In 2 hours, 4 hours and on the 3rd day, the animals were euthanazied and then their tissue samples were taken for morphological study. The animals of the control group demon-strated dyscirculatory changes in the skin in 2 and 4 hours following the exposure to irradiation. On the third day of the experiment, histopathological changes in the skin reached a maximum in their extent: there were observed numerous apoptosis-altered epidermal cells, loss of intercellular contacts with tissue vacuolization in the area of the dermo-epidermal junction, dermal infiltration with leukocytes, destruction of collagen and elastic fibres in 100% of animals. In the groups of the animals received the correction with the ointment, ap-plying the thiotriosoline ointment containing silver nanoparticles was found out to be the most effective that was confirmed by slightly expressed alterative changes, a decrease in leukocyte infiltration of the dermis, and a smaller share of focal damage of connective tissue fibres compared with the control. Conclusions. 1. Exposure to local ultraviolet irradiation causes inflammatory degenerative changes in the skin of guinea pigs, reaching their highest degree in severity on the 3rd day following the exposure. 2. The effectiveness of the thiotriazoline ointment containing silver nanoparticles exceeds the medicinal healing effect of thiotriazoline ointment without silver that is manifested more significantly on the 3rd day.

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CORRECTION OF PROXIMAL NEPHRON DAMAGE DURING IRRITABLE BOWEL SYNDROME

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Key words: anaerobic microflora of the colon, kidney, pro-inflammatory cytokines, irritable bowel syndrome, alflorex.

Aim. The article presents the analysis of the protective effect provided by probiotics on the state of the proximal nephron of the kidneys, pro-inflammatory cytokines of blood plasma, anaerobic microflora of the large intestine and the general condition of patients with irritable bowel syndrome, constipation and diarrhoea assessed by the Likert scale Purpose of research. To find out protective effect of the drug “Alflorex” the condition of the proximal nephron of the kidney, pro-inflammatory cytokines in blood plasma, anaerobic microflora of the large intestine and the general condition of patients in the Likert scale for irritable bowel syndrome with constipation and diarrhoea. Materials and methods. 60 patients (18 men and 42 women 42, aged 28 – 62) with irritable bowel syndrome were examined. 28 of all patients with irritable bowel syndrome suffered from constipation and 32 people suffered from diarrhoea. Drug “Alflorex” was prescribed to be taken in a dose of 1 capsule per day in the morning after meal with a glass of water. The duration of the therapy course was 4 weeks. Result. The therapy with “Alflorex” leads to the elimination of dysbacteriosis by the growth of anaerobic microflora, B. Bifidum, B. Lactis, a decrease of pro-inflammatory cytokines in plasma, improved general health condition of the patients according to the scale of Likert. Conclusions. The therapy with the drug “Alflorex” for patients with irritable bowel syndrome has also demostrated the normalization of the functional state of the kidneys with a decrease in the manifestations of tubular proteinuria and an increase in proximal reabsorption of sodium ions.

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ГУМАНІТАРНІ ТА СОЦІАЛЬНІ ПРОБЛЕМИ МЕДИЦИНИ, ПИТАННЯ ВИКЛАДАННЯ У ВИЩІЙ МЕДИЧНІЙ ШКОЛІ

TRANSFORMATION OF THE MENTAL HEALTH CARE SYSTEM

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Key words: social work, health insurance, policy in the field of mental health care, transformation.

As a result of the board discussion on the psychiatric support principles, having occurred in the 1970s in the leading countries of the world, the biological approach in psychiatry had been replaced by the humanistic one against the background of the humanistic psychotherapy, dominating at that time. The new medical policy, aimed at the development of the out-patient care through the expansion of the network of psychiatric policlinics and small profile offices of mental health care in general hospitals was developed and offered. At the same time the psychotherapy and the psychological services in the domain of mental health and in traditional medical settings in Eastern Europe countries were implemented through 1990-2000, that is after the collapse of the Warsaw Pact military alliance. The aim of this work was to study the transformation process of the mental health care system (MHC) in Poland and some countries of Eastern Europe. The mental health care system was based on creation of the network of the large hospitals in the sphere of public care. In the countries of Eastern Europe there was a tendency to changes observed from the middle of the 1970s and these changes were rather slow due to the shortage of financing and the lack of a real demand from the customers (patients and their families). In the late eighties and in the early nineties there were the changes that strengthened the influence on customers; introduction of the systems of health insurance broke the prospects of the outdated policy in the field of health care and especially in mental health and promoted providing of the high level professional help and a possibility of re-socialization of patients. The evolution of the mental health care in the countries of Eastern Europe has been greatly influenced by the market ideology as well as by modern technical and professional achievements of the modern system of the MHC in the world.

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THE APPROACHES TO IMPROVE PRACTICAL SKILLS AT THE DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

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Key words: practical skill, training, cytological screening, students.

Introduction. An increase in the prevalence of background and precancerous cervical diseases requires the implementation of the latest technologies for early detection and timely differentiation of the pathology. Cytological screening is one of the most effective methods in diagnosis of the cervical pathological and is an obligatory technique to master by general practitioners. The aim of the study was to analyze the experience of using simulation technologies for mastering the practical skills to take smears for cytological investigation. Results. While delivering the discipline "Obstetrics and gynaecology", it is important to pay much attention of medical students to the pathology of cervix through discipline modules 1 and 3. Today cytological screening is not only a conventional technique to master it; it is important and necessary to master the technique of liquid cytology. Students can master this skill not only during the practical classes, but also during independent out-of-class training under the guidance of the qualified professional (staff representative) at the training centres equipped to develop practical skills. For this purpose we have elaborated the algorithm to take and investigate smears supported by demonstration materials, video materials, case tasks. This approach also promotes clinical thinking. Mastering the technique of the skills is carried out on the gynaecological simulators. Students are taught to interpret the results of cytological screening using such classification systems as the Pap test, the American Society of Cytology and the Bethesda system. Students who had passed through the training in such training centres had no problems in demonstrating their skills during the module control and the final exams. Conclusion. The improvement of screening techniques to detect background and precancerous cervical diseases and mastering techniques of cytological research leads to the growth of the doctor's qualification and ability to use the skills acquired in clinical practice.

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STUDENTS' SCIENTIFIC SOCIETY IN FOSTERING AND SECURING HUMAN RESOURCES IN MEDICAL UNIVERSITY

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Key words: student, society, medicine, education, science.

The article highlights the role of students' scientific society in medical university, describes the tasks and goals of students' scientific society, an important organ, which governs and promotes students' research in higher medical educational institutions, coordinates directions of research student scientific groups over all departments of the university. The aim of this study was to evaluate the im-portance of student scientific society in higher medical educational establishment in terms of fostering and securing human resources. The chief goals of higher medical educational establishment is to provide high quality training for competitive medical professionals characterized by responsible attitude to the profession, stable interest in the future profession and intention for further self-development. Student scientific society helps to improve and to keep updated the training of medical specialists through the distribution of the latest scientific ideas, sharing the knowledge and academic experience, through the getting insight into the latest achievements in theoretical disciplines. Students' involvement into scientific society helps them to develop profession-relevant skills such as discipline, responsibility, fundamental research skills, team work skills, etc. The developed skills to work independently and in groups allow students to be more prepared to meet the profession-related demands, to keep up on innovations in medicine and health care, and to adhere to live-long learning education. Thus, students' scientific society is directed towards improving the professional development of future doctors that is based on the achievements obtained by students taking into consideration their capabilities, interests, and the best graduates are recommended to start career as a researcher or lecturer at the medical university.

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SCIENTIFIC APPROACHES TO STRUCTURING THE CONTENT OF

EDUCATIONAL MATERIAL FOR MEDICINE DISCIPLINES

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Key words: content structuring, scientific approaches, didactic principles.

Increase in the accessibility to quality, competitive education for the citizens of our country in ac-cordance with the demands providing innovative sustainable development of the social society, economic growth, ensuring the development of persons according to their individual as presentation aspirations, abilities, needs on the basis of lifelong learning has been identified by the National Strategy for the Development of Education in Ukraine up to 2021 as the most important goals for the next decade. Achieving these purposes is impossible without engaging highly qualified, skilled and motivated personnel trained in accordance with the most progressive national and world trends. After all, it is professionalism, professional competencies are considered as the main prerequisites for successful functioning of the health care system at all its levels. Issues on structuring the content of the educational material that ensures the effectiveness of its didactic implementation and, as a consequence, increases the level of learning effectiveness, are considered by didactics through all educational levels and have a long history. Modern approaches to their solution, related primarily to the specifics of the current period, identified by professionals as information era due to the huge streams of affordable information and the ever-increasing opportunities for its transfer are presented in this work. However, the analysis of the educational activities in the educational sphere, scientific research toward the improvement of training and professional activity of the medical professional emphasize today the existence of a number of interrelated contradictions that complicate the problem of the development and further improvement of the profession-related competencies. Relevance of the outlined problem, being insufficiently studied, and the necessity to over-come these outcomes has defined the choice of the theme of the research presented.

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ОГЛЯДИ ЛІТЕРАТУРИ

MODERN VIEWS ON IDENTIFYING PRESCRIPTION OF DEATH COMING IN PRACTICE OF FORENSIC MEDICINE (LITERATURE REVIEW)

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Key words: prescription of death coming, vitreous body, diagnostic methods, forensic medical examination.

The article presents an analysis of modern literature on the approaches in identifying the duration of the post-mortal interval, in particular, different methods of identifying the prescription of death coming and gen-eralization of their characteristics. The maximum precise identification of the prescription of death coming now is based on the recent scientific achievements, and is one of the most important aspects of the forensic medicine. To date, there have been a large number of diagnostic techniques described in the relevant literature that ultimately allow experts to determine the estimated time limits of death coming. Despite a number of advantages, these techniques require improvement of their accuracy and elimination of shortcomings, such as the procedural complexity, the non-specificity of morphological changes in biological tissues at different pathological conditions and the influence of environmental factors, high costs, time consuming, the impact of "human factor" on the results obtained. According to literary sources, a set of laser polarimetric techniques allows forensic experts to solve a number of the above-mentioned problems, as well as to carry out an express diagnosis; they are more objective, characterized by less task-performance time, independence, higher sufficient accuracy and reproducibility of the results. Having analyzed the literature data, we came to the conclusion that unlike the conventional methods used in forensic medical practice, which may not always be effective and may not be reliable, modern possibilities in investigations of biological tissues and body fluids by laser polarimetry techniques enable to find and implement the latest forensic optical criteria and methods for identifying the prescription of death coming in forensic practice. The use of analytical capabilities of laser polarimetric methods in combination with the characteristics of vitreous body as an object of research seems to be promising and requires scrutinized study.

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EVALUATION OF TECHNIQUES AND CONTEMPORARY STATE OF SURGICAL TREATMENT OF CHRONIC DACRYOCYSTITIS

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Key words: lacrimal system, dacryocystitis, dacryocystorinostomy, laser dacryocystorinostomy, endonasal surgery, endoscopic technology.

Chronic dacryocystitis is an infectious inflammatory disease, which in 80-85% of patients was associated with various forms of nasal diseases due to the close relationship between the nasal cavity, perianal sinuses and the lacrimal system. Typically, the therapeutic treatment of this disease that consists of general and local (eye drops) antibiotic therapy, irrigation of lacrimal ducts with sterile solutions, is not effective and requires further surgical intervention. Most often, the choice of dacriocysteine treatment depends on the degree of chronicity of the process. Dacryocystorinostomy is known as the main approach in treating chronic dacriocysts that can be performed either through external or endonasal access. As it is known from the history of surgical treatment of dacriocystis, there is an ever-existing question on what profile this pathology belongs to: ophthalmology or rhinology. External and endonasal access to the lacrimal sac has become the basis for the parallel existing techniques of surgical treatment of dacriocystitis. The success of the operations mainly depends on the close interaction of ophthalmologist and otorhinolaryngologist. Modern ophthalmologists are increasingly mastering endonasal procedures. This review highlights the techniques of performing dacriocystoryostomy retrospectively: from conventional to the latest technologies. The review also covers a large number of reports, discussing combined and separate applying of surgical treatment of chronic dacryocystitis.

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EPIDEMIOLOGICAL AND AETIOLOGICAL FACTORS OF FOOD ALLERGIES

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Key words: children, food allergy, allergen, food, risk factors, epidemiology.

The article highlights key issues on the problem of food allergy in children. Based on numerous research papers and reports published by well-known experts, some examples of the prevalence of food allergy among children and adults are given in the article. There has been an attempt to clarify the role of food al-lergy in the structure of allergic pathology. There is no clearly defined and reliable picture of food allergy epidemiological that is mainly due to the absence of exact diagnostic algorithm and unified classification of food allergy; this, in turn, results in delayed diagnosis and late therapeutic management. The article also focuses on the main risk factors of the development of food allergy and singles out the key causative food allergens. Food products with the most pronounced allergenic properties are milk, eggs, wheat, soy, peanuts, nuts, fish and seafood. Modern molecular diagnostic capabilities make it possible to isolate the main components of food allergens and cross-allergy with pollen of plants and animal proteins. Among the commonest proteins there are simple and complex proteins (glycoproteins, haptens, polypeptides) of food products having different functional characteristics. The article emphasizes on the thorough

approach in differential diagnosis between true food allergy and pseudo-allergic reactions. The role of chronic gastrointestinal diseases in the development of sensitization and allergic inflammation has been analyzed as well. There has been established the necessity to improve diagnostic and therapeutic measures in order to improve the quality of life of children.

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TREATMENT OF CHRONIC PERIODONTITIS IN CASE OF ACQUIRED WIDE-OPEN ROOT APEX (LITERATURE REVIEW)

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Key words: chronic periodontitis, wide tooth root apex, regeneration.

Treatment of patients with chronic periodontitis is still remaining a challenge for both dental therapists and researchers due to its high prevalence, the complexity of diagnosis and often the lack of long-term positive results of treatment. The aim of endodontic treatment of chronic forms of periodontitis is to normalize microflora of macro- and microcanals, to arrest inflammation in the periapical area, to seal root canals and to promote the regeneration of the structure of periapical tissues, both by enhancing the body protective forces (immune reactivity) and by effect of endodontic filling material for accelerating the repair processes in the non-apical area. A problem arising during the treatment of this pathology is the restoration of destructed areas of the periapical tissues. The development of destructive changes in tissues of periodontium and dental cement of the tooth root is accompanied by resorption of tissues that form the apical foramen that leads to the formation of the acquired wide-open root apex and complicates the treatment of patients with chronic periodontitis at certain stages. Wide-open root apex (40-80 by ISO) is diagnosed in cases of incomplete apexogenesis in complicated caries and the destruction of the growth zone of the developing dental root, in cases of anatomically determined changes of the structure of the root apex, in pathological resorption of the apical foramen. Wide-open dental root apex impedes the stage of sealing the root canal with the possibility of a micro-leakage between the root restoration and the root tissue, thus can favour entering bacteria and their by-products into the periapical area and vice versa that contributes into the exacerbation and aggravation of the pathological process. On the other hand, wide tooth root apex causes the free access to periapical tissues and thus promotes the better effect of remedies in order to eliminate the inflammatory process in the periapical area and stimulates the reparative osteogenesis. The analysis of the available literature confirms the topicality of the development of the periapical therapy through transcanal insertion of the material into periapical area to improve the treatment of patients with chronic periodontitis having acquired wide-open root apex.

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ETIOLOGICAL AND PATHOGENETIC ASPECTS OF INTRAUTERINE GROWTH RETARDATION

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Key words: foetus, intrauterine growth retardation, macrophages, transforming growth factor (TGF-β), soluble endoglin (s-Eng).

Nowadays intrauterine growth retardation is considered as both a medical and a social problem. Compli-cated pregnancy increases the overall health care costs and hospital burden due to high risks of neonatal complications. The health of the nation depends first and foremost on the health of future generations. IUGR occurs in 7-10% of all pregnancies and affects the further percentage of perinatal morbidity and mortality. The delay in foetal development of the foetus is associated with a

number of adverse short-term effects and long-term disorders of the nervous, endocrine and cardiovascular systems. Thus, from now on, IUGR children born are at high risk to have to develop disability. Placental insufficiency is the most common IUGR cause. Despite numerous reports on this problem, searching for new approaches in early diagnosis of foetal delayed growth, the prediction of the occurrence of this complication, adequate methods of delivery and treatment is still continuing. Recently, the in-depth investigation of immunological processes of many pathological conditions has being carried and conditions, which might occur during pregnancy, are not an exception. Macrophages that are present at all the stages of normal gestation play an important role in the implantation, placentaltion and the progression of pregnancy. Scrutinizing study of the functioning macrophages and their polarization can contribute in prognosis of pregnancy outcomes. Macrophage polarization is induced by various signals and produces various cytokines, which, in turn, participate in the formation of pathological pregnancy, and, namely, IUGR. Cytokine transforming growth factor beta (TGF - β), which participates in the formation of pathological pregnancy, is little known and considered as the most enigmatic. Soluble endoglin (s-Eng) plays an important role in the development of endothelial dysfunction and in the pathogenesis of placental insufficiency, as well as in the IUGR development. Therefore, further detailed study of immunological aspects in the delayed foetal growth provides the possibility to predict and diagnose this of this pathology of pregnancy and therefore is of significant therapeutic value.

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IMPAIRMENT OF REPRODUCTIVE FUNCTION IN BENIGN UTERINE PATHOLOGIES

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Key words: reproductive dysfunction, benign uterine pathology, adenomyosis, myoma, endometrial hyperplasia.

Benign pathology of uterine endo- and myometrium in women of child-bearing age are among the most common pathological processes in gynaecological practice. Uterine fibroids are among the most prevalent benign tumours of the female genital organs and occupy a significant share among the causes of reproduc-tive dysfunction. There is a noticeable increase in the incidence of uterine myoma, especially among women of child-bearing age. The main factors of reproductive functional disorders in uterine myoma are hormonal changes that occur due to changes in various parts of the unified functional system of the hypothalamus – pituitary gland – ovaries-uterus. The prevalence rate of the condition combining fibroids and pregnancy among all pregnant women reaches 2-5%. At the same time, the course of pregnancy, obstetric tactics, and methods of delivery in this case have their own characteristics. The peculiarities of pregnancy when it is complicated with uterine fibroids include threatened abortion at different terms of pregnancy, fetoplacental insufficiency (FPI) and the syndrome of intrauterine growth retardation (IUGR), rapid tumour growth, malnutrition and necrosis of myoma nodes, placenta detachment, foetal malposition and presentation. It is shown that 56-60% of patients with uterine myoma have anovulatory cycles with different degrees of estrogen saturation or two-phase menstrual cycles with luteal phase insufficiency. Various intrauterine interventions (multiple scraping, manual examination of the uterine cavity, etc.), which lead to the destruction of the histological barrier between the basal layer of the endometrium and myometrium, are considered to be provoking factors in the development of adenomyosis. New imaging techniques (ultrasound, magnetic resonance imaging) allow to clinicians to diagnose adenomyosis in its early stages that makes it possible to carry out individual timely correction of reproductive function. In adenomyosis, diagnosis by MRI determines the presence of pathological inclusions localized in the uterine wall. In a number of doubtful cases, computed tomography is prescribed for differential diagnosis. Endometrial hyperplasia is a pathological process that results in the growth of the uterine mucosa and a failure in the reproductive functions. As a result, fertility is significantly impaired that is detected in more than 50% of women of fertile age. It has been revealed that 38.6% of women have infertility, and 11.9 % of women have habitual miscarriage. Impaired reproductive functioning in benign uterine pathologies (endometrial hyperplasia, fibroids and adenomyosis), despite the long history of their study, is still remaining to be in the focus of attention of national and foreign researchers. The

results of the studies show that benign uterine diseases are the cause of reproductive dysfunction in women. The established pathogenetic features indicate the need for a more in-depth study of this problem to develop an effective algorithm of diagnostic and therapeutic and preventive measures.

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OBESITY AS A COMORBID STATE UNDER PSORIASIS

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Key words: psoriasis, obesity, comorbidity, systemic inflammation.

Psoriasis is a chronic, genetically determined autoimmune polyetiological inflammatory disease with a disorder of epidermal proliferation, provoked by exogenous and endogenous factors, and is characterized by erythema, scaly elements, papules and plaques. According to the results of clinical and epidemiological studies, about 3-4% of the population of our planet suffer from psoriasis, regardless of gender, age and ethnic group, while the proportion of this pathology in the general structure of skin diseases reaches, according to different authors, from 1% to 40%. However, despite the widespread of psoriasis and the research on this problem, there is still no unified view of the pathogenesis of this dermatosis. For an objective understanding of the pathogenesis of psoriasis, it is necessary to take into account the insufficiently studied comorbidity of this pathology and emotional disorders, which manifest themselves in almost all patients with psoriasis. Psychoemotional disorders are found in almost all patients with psoriasis. Thus, the depression and anxiety that are typical for patients with psoriasis are accompanied by the same central and peripheral signs as prolonged stress. Stress reactions are provoked by psychosocial and economic problems, depression, anxiety, alcohol consumption and smoking. Thus, during physical and mental stress, the concentration of neuropeptide Y increases, which leads to increased food intake, weight gain and further development of obesity with a number of metabolic disorders, which undoubtedly affects the course of psoriasis. Therefore, in research of the pathogenesis of psoriasis in recent years more attention is paid to disorder of metabolic processes. The causes of psoriasis and abdominal obesity are immunological disorders and genetic defects. Peculiarity of pathogenesis in patients suffering from psoriasis with obesity, in contrast to patients without excess body weight, is statistically significant progression of hyperleptinemia and increase of systemic cytokine proinflammatory potential. Therefore, a more in-depth study of the comorbidity of psoriatic disease will reveal new targets for the treatment of this dermatosis.

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PATHOGENETIC FEATURES OF ENDOTHELIAL DYSFUNCTION UNDER HEMOSTASIS IMBALANCE

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Key words: endothelial dysfunction, hemostasis, nitric oxide, heparin.

This article presents current data on the mechanisms of the onset and development of various pathologi-cal conditions maintained by the hemostasis system. To date, thromboses are considered

as the main cause of death and disability in developed countries, despite the numerous techniques available for their prevention and treatment. Vascular endothelium by producing various biologically active substances plays an extremely important role in providing hemostatic reactions. Defect of the vascular wall is an important starting point of the cardiovascular continuum and to the point determines the development of ongoing pathology, from risk factors to the occurrence of the pathological condition and even death. There is no doubt that there is a relationship between the processes of development of endothelial dysfunction and the disruption of blood clotting. Hypercoagulation is not only a consequence of the functional inconsistency of the endothelium, but is actively involved into its development and progression. Vascular endothelium is not only a target organ in the development of thrombosis, but also an effector in the pathogenesis of its complications. The articles describes the role of heparin deficiency in the pathogenesis of hypercoagulation that is caused by increased heparin consumption in endothelial functioning aimed at neutralization of activated clotting factors, which are produced directly by the damaged vascular endothelium. The development of persistent hypoheparinemia is caused directly by death or injury of mast cells against the background of progressive endothelial dysfunction. In this case it is important to point out that more active correction of the rheological properties of blood in endothelial dysfunction, in turn, leads to depletion of the functional capacity of mast cells and as a consequence to a decrease in the concentration of heparin in the blood with subsequent disturbances in the hemostasis system.

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SOME ASPECTS OF THYROID IMPACT ON THE BODY STATE IN NORMAL AND PATHOLOGY CONDITIONS

Ryabukha O.I.

Key words: thyroid gland, thyroid hormones, effects on the body.

Endocrine system is a stage of general control over the processes of life activity in the endothermic or-ganism, regulating many of its functions. An important component of this system is the thyroid gland. Various effects of thyroid hormones are produced due to the presence of their receptors in the cell nucleus and mitochondria of almost all tissues and organs. By increasing the rate of RNA transcription, thyroid hormones effect the synthesis of proteins, activate the synthesis of enzymes involved in lipid metabolism, enhance the synthesis and absorption of carbohydrates and their assimilation and use, effect the permeability of cytoplasmic membranes for mineral ions. Thyroid hormones increase the consumption of oxygen by tissues, energy release, enhance heat production. The thyroid activity is closely related to the functions of other organs in the endocrine system. Particularly close functional link can be traced between thyroid, the hypothalamus and pituitary gland; thyroid dysfunctions can adversely affect the state of the gonads, pancreas and adrenal glands. Thyroid hormones are essential for the normal functioning of the central nervous system, particularly for the brain: changes in their blood contents are accompanied by mental, cognitive, behavioural and motor disorders. By defining the properties of myofibril proteins, thyroid hormones influence the muscles, thus indirectly affecting the state of the cardiovascular system and hemodynamics. The effect of the thyroid hormones on the respiratory system is implemented through their influence on the development of foetal and newborn lungs, formation and development of alveolar epithelium and alveoli, surfactant production. Functional links between thyroid and liver have been established as well: the gland affects the biliary system, gastrointestinal tract and urinary system. Thus, disorders in thyroid functioning trigger a chain reaction of various organs dysfunctions, which may vary in severity, but affect the functioning of the human body as an integral biological system.

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THE ROLE OF CELL CYCLE REGULATORY GENES IN THE DEVELOPMENT OF STOMACH CANCER

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Kay words: stomach cancer, carcinogenesis markers, TGF-β1 gene

Among the most important challenges in oncology, the task of studying diagnostic and prognostic significance of some carcinogenesis markers is absolutely relevant, and namely the frequency of detection and identification of levels of EGFR, Ki-67, TGF-β1 receptors detected by immunohistochemical and immunosorbent methods, and mutations in some oncogenes through the progression of cancer stomach in humans. The latter, along with other oncogenes, suppressor genes and secretory proteins, are considered as perspective markers that characterize the biological behaviour of the tumour and allow clinicians to adhere the patient-centred approaches in choosing proper therapy for patients with stomach cancer. However, the molecular genetic factors underlying the carcinogenesis of stomach cancer of the intestinal and diffuse types are different. Thus, the loss of heterozygosity and the mutation of p53, reduction of p27 expression, cyclin E expression and 6.0-kb transcripts of the 3-met gene are involved in the process of malignancy from precancerous changes to the development of the intestinal type of RH. Loss of the DCC gene, mutations in the APC gene, loss of heterozygosity (LOH) 1q, loss of p27, tumour growth factor (TGF) -β receptor type I (I) and the amplification of the HER2 gene are often associated with the late stage of intestinal carcinoma. On the other hand, the loss of heterozygosity in chromosome 17b, the

mutation or loss of heterozygosity of p53, and the mutation or loss of E-cadherins are mainly involved in the development of low-differentiated diffuse forms of stomach cancer. The gene EGFR (HER1) and TGF-β1 encode an epidermal growth factor receptor, which is a membrane tyrosine kinase, and is involved in the regulation of many cellular processes. Hyperexpression of these genes is observed in virtually all tumours of epithelial origin. Gastric carcinoma expresses EGFR in almost half of cases. The involvement of TGF-β1 in the pathogenesis of stomach cancer indicates the potential use of inhibitors of this receptor for the treatment of malignant tumours of the stomach.

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TYPES OF DYSFUNCTIONAL CONDITIONS OF TEMPOROMANDIBULAR JOINT BY ETIOLOGY AND CHARACTERISTICS OF THEIR PATHOGENESIS

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Key words: temporomandibular joint (TMJ), dysfunctions, aetiology, pathogenesis.

Numerous publications in professional dental and general medical publications in recent years have re-flected the growing interest in the problem of temporomandibular joint (TMJ) dysfunctional conditions that is explained by the large number of patients suffering from this problem, by the polymorphism of clinical manifestations due to different aetiology of these conditions, special characteristics of pathogenesis. All this can impede in making correct diagnosis and prescribing proper treatment. It has been determined that the leading factors in the development of TMJ dysfunctional conditions include occlusive articulation, neuromuscular disorders, chronic joint injury. The key points in the development of occlusal-articulatory dysfunction are dentition end-defects, impaired inter-alveolar distances due to excess abrasion of the chewing dental surfaces, decreasing bite, etc. It is considered that muscle spasm is a leading element in the development of neuromuscular dysfunction. The neurogenic factor in the development of the neuromuscular type of TMJ dysfunction is characteristic of persons with a labile nervous system. The causes for the development of traumatic TMJ dysfunction include inadequately long-term dental procedures, when a patient has to sit in the dental arm-chair with an open mouth for hours for teeth restoration, impression taking, and difficult removal of lower molars. There are postural and multifactorial concepts of the development of TMJ dysfunction. Therefore, the search for the leading mechanisms of the development of certain types of TMJ disorders with their systematic analysis is a constant

process that motivates the specialists and opens up new prospects and options for using the latest techniques of patient examination to make diagnosis more precise and to carry out adequate and effective treatment.

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ПОГЛЯД НА ПРОБЛЕМУ

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SOME ASPECTS OF TITANIUM APPLICATION IN DENTAL TREATMENT

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Titanium is a light grey metal found in such minerals as ilmenite, rutile and titanite. Nanoparticles are becoming more widely used in medicine, dentistry, pharmacy and as food additives. The aim of this work was to highlight some aspects in applying titanium and its alloys in dental restorations. Both medical and dental implant surgeons despite of huge efforts in using biocompatible materials face some challenging issues on complications which might appear even when using as inert metals as titanium. These problems may develop due to the penetration of aluminium and vanadium ions, found in negligible quantities in the implant alloys, into the body tissues. Failures in placing titanium implant can be caused by galvanic or electrochemical corrosion in the oral cavity due to release of titanium ions into the neighbouring tissues. Other possible failures in implant placement may develop due to bacterial contamination, and the development of implant inflammatory reaction supported by presence of macrophages may lead to implant rejection and loss. Released titanium ions inhibit the growth of hydroxyapatites. During corroding process metal ions or corrosion products penetrate body tissues and enter the body cells. Their local activity is known as ’metallosis’. From the biological point of view this results in tissue damage. Another possible adverse effect that might be caused by metal implants and their corrosion is allergic reactions. Side effects are rare as physical and chemical properties of titanium, first and foremost, its biocompatibility, define it as s recommended material to use in oral surgery, endodontics, prosthetics and orthodontics.

Key words: titanium, alloy, implant placement, adverse reaction.

The aim of this work was to highlight some as-pects in applying titanium and its alloys in dental restorations based of available literature recourses.

Titanium is a widespread element makes up 0,61% of the Earth crust. It is a light, grey metal found in such minerals as ilmenite, rutile and titanite [1].

Titanium whites have been widely used for years in the building construction, dyeing and car industries. Fragmentation of metal particles to the nanoparticle scale has made it possible to broaden the spectrum of its application. Nanoparticles are used in medicine, dentistry, pharmacy and as food additives [2]. Due to extensive application of tita-nium, its permanent presence in the environment (water, soil) is increasing. There have been numer-ous studies done over the past few years on the in-fluence of titanium white nanoparticles on plants. The results of the studies vary. Titanium is a bio-stimulator that affects the growth and yielding of vegetables, orchard and ornamental plants [3]. Ac-cording to Michałowski, titanium provides a positive effect on the increase of iron ions activity, intake of nutrients, as well as plant health [4]. Other aspects of wide use of titanium include its polluting effect on the environment and its toxicity for living organisms [5]. The mean dose of titanium intake is 0,8 mg. The tests show that most of the dose is not

absorbed but has the potential of accumulating in plant tissues (from 1 ppm to 80 ppm). Titanium dioxide nanoparticles may reach lungs, liver, spleen and brain via respiratory or digestive tract. They cause imbalance of biochemical parameters and changes in gene expression and consequently the damage of internal organs [6].

The acceptable level of titanium dioxide nanoparticles concentration is 0,3 mg/m3.

Titanium takes the form of two allotropes: low-temperature alpha and high-temperature beta. In the ambient temperature, there is alpha phase with dopants like oxygen, hydrogen, iron, nitrogen, and all they can influence properties of titanium alloy to various degrees (e.g. oxygen increases titanium hardness, while hydrogen increases its brittleness) [7].

The use of titanium in medicine is possible due to its biocompatibility with living tissues and resis-tance to corrosion [8,9,10]. Moreover, titanium is resistant to diluted acids i.e. hydrochloric and sul-phuric acids, organic acids, sulphides, chlorides, hydrogen sulphide, hydrogen peroxide when it is dissolves in concentrated acids.

There is a marked affinity between titanium and oxygen, and titanium creates a tight and durable layer of oxides, mainly titanium dioxide on the metal surface. The layer of titanium dioxide is not dissolved in the oral cavity and titanium ions, which might react with the living body tissues, are not re-leased. Biological inertness of the oxides layer has a positive influence on the healing process and bone tissue re-modelling [11].

An important parameter of titanium is its low Young's elasticity modulus similar to the cortical bone elasticity modulus, which when properly cho-sen can prevent bone resorption, overstraining and implant destruction.

Titanium alloys have higher material fatigue re-sistance than pure titanium [12,13,14,15]. In prac-tice, the most common alloys are titanium and va-nadium or titanium and aluminium (Ti6Al4V) [13].

Resistance to corrosion that decreases along with decreasing material homogeneity, is the obvi-ous advantage of titanium alloys. It has been proven that titanium alloys of decreased homoge-neity can release increased number of titanium ions to the environment [13]. Implants can be made from pure titanium and their surfaces modified in the process of sandblasting or other preparation techniques, e .g. machine processing. The use of pure titanium or its alloy processed by sandblasting does not significantly influence the surface structure or chemical composition. The rough implant surface obtained by preparation has good contact with bone tissues [11,12,16].

Titanium was mostly found on the surfaces of implants prepared by machine working; no oxygen was detected. In the samples prepared by sand-blasting method, the contents of titanium and oxy-gen were similar and aluminium and sodium were also present. The presence of these elements in the pure titanium samples could be the consequence of using abrasive. Thus, the implant surface composition depends both on the chemical composition of the material used for machine working and on the preparation method. Metalworking of titanium and its alloys, hence dental restorations made from them, present a serious challenge [12,17].

Based on the results of tests, Tani has proved that titanium an alloy sandblasting requires more time than sandblasting other alloys, e.g. Au-Ag-Pb and Ni-Cr. Some patients with titanium restorations complained of oversensitivity (Muller, 2006) and slight metallic flavour [18].

Dental plaque build-up on titanium crowns is similar to the plaque formed on the crowns made up of other metal alloys [19]. Probste et.al (1991) showed that titanium restorations: 'have the ten-dency to develop plaque on the surface' [20].

The process of osteointegration that according to Branemark: 'is a direct structural and functional connection of live bone with the surface of a loaded implant', is vital in the dental treatment [21]. The procedure of implant placement is influenced by the bone condition, the technique applied, biocompatibility of the material, physical and chemical properties of the implant surface.

Studies have shown that activity of body cells, which are in direct contact with an implant is sus-ceptible to implant properties such as chemical composition of the surface, roughness, thickness of

the oxides layer. Medium-rough implants intensify the osteointegration process [11, 16, 22, 23,].

Due to its physical and chemical properties and excellent biocompatibility titanium and its alloys are used in oral surgery, endodontics, prosthetics and orthodontics [24].

Titanium casting is a real problem as dental restoration casts exhibit empty spaces which, if big, produce some quality problems. Empty spaces can be detected by X-ray, and can not during clinical evaluation [13]. Despite of many advantages of dental implant placement, there are some contraindications for this type of restoration, they include:

– cardiovascular diseases e.g. valvular heart diseases
– kidney diseases
–osteoporosis
– diabetes
– radiotherapy
– drug addiction, smoking, alcoholism

Among relative contraindications there is preg-nancy, systemic diseases, immune suppressed conditions, mental disorders, some anatomical conditions, for example, atrophy of bone surface. Age is not as a contraindication for implant place-ment although age-related diseases may be re-garded a limitation [8, 24].

Both medical and dental implant surgeons de-spite of huge efforts in using biocompatible materi-als face some challenging issues on complications which might appear even when using as inert met-als as titanium.

These problems may develop due to the pene-tration of aluminium and vanadium ions, found in negligible quantities in the implant alloys, into the body tissues.

Morphology of oral cavity mucous membranes, especially lamina propria is designed to provide protection. Ions released from implants are ab-sorbed by the mucous membrane and their spread-ing within the body is limited [25,26]. Failures in placing titanium implant can be caused by galvanic or electrochemical corrosion in the oral cavity due to release of titanium ions into the neighbouring tis-sues. Such corroding activity of titanium-containing materials differs depending on the environmental pH and chemical composition [27].

Other possible failures in implant placement may develop due to bacterial contamination, and the development of implant inflammatory reaction supported by presence of macrophages may lead to implant rejection and loss. Released titanium ions inhibit the growth of hydroxyapatites [10, 16, 22]. Therefore, it seems quite appropriate to apply pure, class IV titanium, which has physical parame-ters similar to titanium alloys and is characterised by good strength and corrosion resistance. Ele-ments made of titanium alloys are covered by a thin layer of titanium oxide forming so- called passive layer in the oxidizing atmosphere.

During corroding process metal ions or corro-sion products penetrate body tissues and enter the body cells. Their local activity is known as ’metallo-sis’ by Nicole [30,31,32]. From the biological point of view this results in tissue damage [33].

Another possible adverse effect that might be caused by metal implants and their corrosion is al-lergic reactions. Most often they are reactions to trace quantities of chromium, nickel, cobalt [34].

Another unfavourable reaction caused by the presence of metal implants and their corrosion are allergic reactions. There are available studies that suggest unfavourable reactions after pure titanium implant surgeries with complications involving fistu-las, matallosis or allergic reactions [35,36,37].

Some of these reactions may be delayed and appear as bone or bone marrow inflammations and are described during orthopaedic treatment [38]. Patients after dental procedures may experience skin allergic reactions that disappear once the im-plants are removed [39].

Valentine-Thon et al. suggest that allergic reac-tions are reactions to trace quantities of nickel, co-balt and palladium, although the implants are re-ported as the pure titanium ones [40].

There is no scientifically confirmed evidence that titanium causes allergic reactions [35].

There are also no titanium specific skin tests that should be administered to supersensitive pa-tients whose implants might be rejected [41].

Side effects are rare as physical and chemical properties of titanium, first and foremost, its biocompatibility, define it as s recommended material to use in oral surgery, endodontics, prosthetics and orthodontics.

The research conducted by Makuch has proven that the content of titanium in oral mucosa membrane covering endogenous dental implants varied and most probably depended on the type of implant placement method used. Titanium content is estimated at 0.00 μg/g to 122.5 μg/g [42] while the implant location, age and sex of the patient has no impact on the titanium content in the mucous membrane tissues. .

Conclusion

Despite objections of some scientists, titanium has been proven as a material worth recommending and using in medical implant surgery.

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КЛІНІЧНИЙ ВИПАДОК

HEART VALVE ABNORMALITIES IN NOONAN SYNDROME: LITERARY REVIEW AND CASE STUDY

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Key words: Noonan syndrome, congenital heart defects, combined heart valve abnormalities, diagnosis, cardiac surgery.

The article presents the literary review of already described heart valve abnormalities in Noonan syn-drome as well as describes a case in authors' own practice. Noonan syndrome belongs to the group of RAS-pathies, based on the genetic defect coding intracellular messenger of signal transduction. Noonan syndrome is characterized by a clinical picture of congenital malformations of various organs and systems and by high inclination to cancer. The most important determinant of life expectancy for patients with this disease is the nature and severity of congenital heart valve abnormalities. The most common congenital heart defect in Noonan syndrome is stenosis of the pulmonary artery, which is detected in more than half of the patients. Hypertrophic cardiomyopathy ranks the second place (is diagnosed in about one out of three patients) and mitral valve pathology ranks the third place. The article describes a clinical case of Noonan syndrome in an adult woman who had planned consultation visit. The hereditary nature of the disease in this case was not proven. The patient has stigmas characteristic of the Terner phenotype with the preserved fertility. The combined heart valve abnormality was found: a bicuspid aortic valve and a mitral valve prolapse. It was impossible to evaluate the functional incapability level as patient has severe muscular dystrophy. The degree of compensation for hemodynamic disturbances was not so significant (confirmed by physical examination test and echocardiography) that refrained us from referring the patient to pass through the cardiac surgical treatment. Thus, it can be concluded that the patient-centred approach toward the choice of clinical tactics in managing patients with Noonan syndrome, characterized by a variety of congenital heart defects should always be taken into account.

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TYPE B1 THYMOMA ASSOCIATED WITH MYASTHENIA: A CASE REPORT

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Key words: thymoma, myasthenia, myocardial infarction, correlation pathomorphology.

Thymomas are the most common tumours of the mediastinum in adults. Patients with thymoma are diag-nosed to have myasthenia gravis in 24-40% of cases. The correlation between these two diseases has not been studied sufficiently and requires a detailed investigation, including not only the clinical and morphological manifestations of their combination, but also the prognosis with regard of the concomitant pathology in patients. The paper presents a lethal case of the patient with pathomorphologically confirmed type B1thymoma associated with myasthenia. No inconsistency between the clinical and post-mortem diagnoses was found and diagnosis of underlying disease was made easily. However, the patient's medical history included the acute and recurrent myocardial infarction, which was not confirmed by the pathomorphological study. Apparently, the clinical signs of myocardial infarction occurred as a manifestation of myasthenia or its specific treatment. Notwithstanding the fact that the greatest probability of occurrence of myasthenia is noted in the presence of organ-specific type B thymomas, it is still not possible to predict the development and course of myasthenia, including the one concomitant with cardiovascular pathology. Clinicians should be alert in treatment of myasthenia patients who can potentially develop myocardial infarction. Early recognition of clinical signs of myocardial infarction, except for electrocardiography, should be confirmed by laboratory parameters and is vital for immediate treatment, as well as for the prevention of cardiovascular complications in the future.

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