

ABSTRACT&REFERENCES

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FORECASTING THE COURSE OF A HEART FAILURE IN PATIENTS WITH A NON-TOXIC GOITER, ACCOUNTING FUNCTION OF THE THYROID GLAND

p. 4-9

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The aim: to determine prognostic criteria for the course of heart failure in patients with non-toxic goiter.

Material and methods. In the study 381 patients with heart failure on the background of post-infarction atherosclerosis were included. Of these, 218 patients had non-toxic

goiter. The levels of TSH, T_{3fp} , T_{4fp} , T_{3r} , NT-proBNP were evaluated. An echocardiography, an ultrasound examination of the thyroid gland were conducted. We studied the course of heart failure for 2 years.

Results. In patients with heart failure that occurs on the background of non-toxic goiter, compared to patients without it, a percentage of women is higher (respectively, 42.7 % versus 16.6 %, at $p=0.001$); they more often have IVNYHA FC (respectively – 13.3 %, against 5.5 %; $p=0.043$), 33.4 % higher level of NT-proBNP ($p=0.001$) and lower serum content of T_{3fp} (2.30 pmol/L vs 2.76 pmol/L, at $p=0.0001$); higher end-diastolic dimension of the left ventricle by 3.8 % ($p=0.006$), end-diastolic volume by 8.9 % ($p=0.006$), end-systolic dimension by 5.4 % ($p=0.002$), end-systolic volume by 13.2 % ($p=0.002$), 6.5 % less ejection fraction ($p=0.02$); high frequency of the “low T_3 ” syndrome (odd ratio (OR)=7.94 (4.04–15.61), $p=0.0001$) and subclinical hypothyroidism (OR=5.21 (1.52–17.90), $p=0.004$), a high risk of re-hospitalization (OR=3.037 (1.85–4.99), $p=0.0001$) and a composite endpoint (OR=2.53 (1.60–3.995), $p=0.001$). Patients with non-toxic goiter without the “low T_3 ” syndrome did not have a significant difference in the course of heart failure. In the group of patients with heart failure that flew on the background of non-toxic goiter and “low T_3 ” syndrome, there were high risks of re-hospitalization (OR=6.82 (1.38–33.72), $p=0.022$) and achievement of the composite endpoint (OR=4.76 (1.17–19.41), $p=0.047$) during 2 years of observation.

Conclusions. In heart failure with non-toxic goiter, with the “low T_3 ” syndrome, it is possible to predict an unfavorable disease course during 2 years of observation: a high risk of re-hospitalization and composite endpoint

Keywords: heart failure, non-toxic goiter, “low T_3 ” syndrome, risk, course, prognosis

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DYNAMICS OF CLINICAL AND LABORATORY PARAMETERS IN PATIENTS WITH CORONARY HEART DISEASE IN COMBINATION WITH TYPE 2 DIABETES MELLITUS AND THEIR EFFECT ON THE STRUCTURAL AND FUNCTIONAL STATE OF THE HEART AND BLOOD VESSELS IN VARIOUS CASES OF CHRONIC HEART FAILURE

p. 10-17

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The aim: determination of the characteristics of the dynamics of clinical, laboratory and ultrasound parameters in patients with ischemic heart disease in combination with type 2 diabetes mellitus with various types of heart failure

Material and methods. After the course of therapy, 100 men with CHF were examined in the hospital against the background of the combined course of IHD and type 2 diabetes with LV EF ≥ 50 %, CHF of the II function-

al class, with glomerular filtration rate ≥ 50 ml/min/1.73 m², NT-proBNP ≥ 125 pg/ml.

Patients were divided into groups depending on the nature of the course of heart failure: group I (n=66) – patients with a stable course, group II (n=34) – patients with an unfavourable course. Patients of group II, in turn, were divided into three subgroups depending on the nature of the adverse course: CHF: IIa (n=7) – who died during the year of observation, IIb (n=13) – with a decrease in LV EF, II in (n=14) with a violation of the state of diastolic function of the heart at the end of the observation period.

An analysis of complaints, cardiological history, objective research was conducted, the level of NT-proBNP, total cholesterol, high-density lipoproteins, low-density lipoproteins and triglycerides were studied, and the atherogenic coefficient was calculated, glycosylated haemoglobin (HbA1c) was examined, serum glucose, insulin level, insulin resistance index (HOMA) were calculated.

Transthoracic echocardiography (echocardiography) was performed, and endothelium-dependent brachial artery vasodilation (EDD) was examined.

The Mann-Whitney U test was used to determine the differences between independent samples. The frequency of symptoms in groups was compared using the χ^2 criterion. One-way analysis of variance was performed using the non-parametric Kruskal-Wallis test.

Results. Adverse course of CHF in patients with CHD and type 2 diabetes, which progressed and ended in death, was associated with a significantly older age of men, with a longer history of CHD and type 2 diabetes, decreased tolerance for exercise, high levels of AH which is arguably a potential cause of CHF. I degree of diastolic dysfunction, despite the fact that the size of the left atrium did not go beyond normal, was noted in all patients, but the average size was significantly larger in the dead. Significantly fewer of these patients had LV EDV, indicating greater disruption of LV diastolic filling processes.

Patients with a decrease in LV systolic function after 12 months of follow-up were characterized by a significant decrease in LV EF medians (by 21.5 %) and test distance with a 6-minute walk (by 4.1 %), while there was a tendency to increase endothelial dysfunction in the form of a decrease in the median EDD of the brachial arteries. Significant positive dynamics of the medians of all indicators of carbohydrate metabolism showed good control of the carbohydrate profile. Medians of lipid metabolism parameters did not experience significant dynamics, but tended to positive changes. The median NT-proBNP blood level was significantly reduced by 14 %. A decrease in systolic function of the heart was associated with a tendency to increase the diastolic size of the left atrium and a significant increase in LV ESV.

Conclusions. Two-thirds of CHD patients with CHF with preserved LV EF of the heart in combination with type 2 diabetes receiving pathogenetic complex therapy have a stable course of CHF observed during the year, which is characterized by improvement of the clinical and laboratory status of patients and parameters of the structural and functional state of the heart and vessels.

An unfavourable course of heart failure during the year against the background of pathogenetic complex treatment in patients with CHD in combination with type 2 diabetes is accompanied by a decrease in systolic and/or diastolic LV heart function, exercise tolerance with a simultaneous absence of worsening dyslipidaemia and dysglycemia.

In patients with CHD in combination with type 2 diabetes and retained LV EF, fasting glycemia and HbA1c levels significantly affect the state of LV systolic and diastolic function, which indicates the important role of concomitant type 2 diabetes in heart remodelling in this category of patients.

Keywords: progressive heart failure, type 2 diabetes mellitus, unfavourable course, lipid metabolism, carbohydrate metabolism, structural and functional state of the heart and blood vessels

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CARDIOVASCULAR DISORDERS IN PATIENTS WITH COMBINED COURSE OF OBSTRUCTIVE SLEEP APNEA AND GASTROESOPHAGEAL REFLUX DISEASE

p. 18-23

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The aim: to investigate cardiovascular disorders in patients with combined obstructive sleep apnea (OSA) and gastroesophageal reflux disease (GERD) flow.

Materials and methods: 165 patients aged 48 (36; 58) years were divided into four groups: I – 31 patients with GERD, II – 32 patients with OSA, III – 72 patients with comorbid OSA and GERD, control group – 30 practically healthy persons. All patients underwent: cardiorespiratory monitoring, ECG dispersion mapping (DM), daily ECG monitoring, echocardiography.

Results: index “Myocardium” in group III according to DM ECG was by +14 % higher than in group II ($p < 0,05$). Analysis of heart rate variability revealed in patients of group III the growth of SDNNi component by 1,6 times ($p < 0,05$), RMSSD by 1,71 times, pNN50 – by 4,49 times compared with parameters in the control group ($p < 0,05$). The HF component in group III exceeded the indicators in group I by 1.87 times, and the parameter LF was higher than in group II by +20,5 % ($p < 0,05$). In group III, the TR component increased in 2,4 times compared with the control group ($p < 0,05$). In patients of group III, every fourth has a daily profile of «night peaker», and every second – has a «non-dipper». The E/A ratio according to echocardiography in group III is less than – 18 % in group II ($p < 0,05$). According to the results of ROC analysis, the index “Myocardium” is >18,28 % as a prognostic marker of cardiovascular disorders in patients with OSA and GERD combined flow.

Conclusions: In patients with comorbid OSA and GERD revealed the most significant disorders of the cardiovascular system. In order to determine the cardiovascular disorders treatment effectiveness in patients with OSA and GERD, it is advisable to conduct dynamic monitoring of heart rate variability and echocardiography parameters

Keywords: obstructive sleep apnea, gastroesophageal reflux disease, cardiovascular disorders, autonomic nervous system

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L-ARGININ IN THE COMPLEX TREATMENT OF THE PATIENTS WITH ARTERIAL HYPERTENSION AND DIABETES MELLITUS IN PERIMENOPAUSE

p. 23-28

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The aim of research was comparing the influence of basic therapy (lisinopril or amlodipine) as a monotherapy and its combination with nitrogen oxide donator – L-arginin in the patients with arterial hypertension in perimenopause with comorbid diabetes mellitus and without it.

Material and methods of our investigation: we examined 104 patients using biochemical (endothelin's level determination) and instrumental (Doppler echocardiography) diagnostic methods.

Result. Results have shown that on the background of treatment, myocardial function improves and diastolic dysfunction is regressing in all patient's groups. The most pronounced changes we can see in the subgroup of the patients, who additionally used L-arginine. The endothelin's-1 level changes are also the most pronounced in patients, who used L-arginine. The feasibility of L-arginine adding is justified as it has positive influence on the endothelial dysfunction, which manifested itself in a decreased endothelin's-1 level.

Conclusions. We have shown that on the background of treatment the myocardial contractility become better. The most pronounced changes we can see in the subgroup of the patients, who used L-arginine (diastolic dysfunction regressed from the second to the first type in 21 patients (47.7 %), which prove a positive influence on the left ventricular filling pressures)

Keywords: arterial hypertension, diabetes mellitus, endothelial dysfunction, myocardium, perimenopause, nitrogen oxide donator, L-arginin

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CLINICAL AND LABORATORY CHARACTERISTICS OF PATIENTS WITH CARDIOPULMONARY COMORBIDENCE

p. 29-35

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Comorbidity of bronchial obstructive diseases and arterial hypertension (AH) is an important medico-social problem due to the increased incidence, the severity of complications, the tendency to increase mortality and disability of patients. However, the clinical characteristics and role

of the major markers of inflammation in the pathogenesis of conditions such as chronic obstructive pulmonary disease (COPD) and asthma-COPD overlap (ACO) against AH and their impact on the course of the disease remain poorly understood.

The aim of the study is to study the main clinical and laboratory parameters of patients with ACO and COPD with concomitant AH compared with each other and patients with isolated AH and with ACO without AH.

Materials and methods. To participate in the study, we selected 100 patients with ACO on the background of AH, 30 patients with ACO without AH, 30 patients with COPD on the background of AH, 30 patients with AH. Examination of patients included: clinical methods – analysis of complaints and anamnesis of patients, standard clinical examination with measurement of blood pressure and heart rate, anthropometric study with the determination of body mass index (BMI), spirometric study with a test for reversibility of bronchial obstruction, the concentration of interleukin 6 (IL-6), interleukin 8 (IL-8), tumor necrosis factor α (TNF- α) and C-reactive protein (CRP) in serum were determined by enzyme immunoassay.

Results. Patients of the surveyed groups did not differ significantly in age and gender composition. There were no significant differences in smoking status and major indicators of respiratory function in the ACO and COPD groups, unlike the AH group. However, the FEV1 increase after bronchodilator inhalation was significantly higher in the ACO groups than in the COPD group and only AH. No significant differences were found between the study groups on TNF- α . At the same time, the group of patients with ACO on the background of AH was significantly different from the group of only ACO, COPD with AH and only AH in terms of CRP and IL-6; for IL-8 there was a significant difference compared with the groups with ACO and COPD with AH, and there were no significant differences with the AH group.

Conclusions. The less prolonged exposure of the smoking factor with the background of bronchial asthma leads to pronounced changes in respiratory function, similar to changes in COPD with greater exposure to smoking. ACO patients have a better reversal of bronchial obstruction in response to bronchodilators than patients with COPD, which may indicate a potential better response of this group of patients to bronchodilator treatment. The course of ACO on the background of AH is accompanied by more pronounced chronic inflammation

Keywords: COPD, asthma COPD overlap, AH, systemic inflammation, CRP, IL-6, IL-8, TNF- α

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CONDITION OF INDICATORS OF ANTIMICROBIAL RESISTANCE IN PATIENTS WITH ALLERGIC DERMATOSES COMPLICATED BY STAPHYLOCOCCAL INFECTION, DEPENDING ON THE SEVERITY OF THE DISEASES

p. 35-40

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The aim of the work: To determine and analyse the results of indicators of antimicrobial immunity in patients with an uncomfortable and aggravated course of allergic dermatoses using auto-serums and auto-strains of *Staphylococcus aureus* obtained from patients with atopic dermatitis (AD) and true eczema (TE).

Methods of research: In the study, 107 patients were examined for AD and TE who were hospitalized in the Department of Dermatology of the SE “Institute of Dermatology on Venereology of the National Academy of Medical Sciences of Ukraine” in 2016–2019, which included an analysis of complaints and medical history data, an assessment of the severity of the disease according to the SCORAD scale and EASI, conducting general clinical, bacteriological and immunological studies.

Examination of patients was carried out during an exacerbation of the disease.

Results: As a result of the studies, it was found that changes in immunological reactivity in patients with AD were more pronounced than in patients with TE, which was manifested by significant inhibition of almost all indicators of the functional activity of blood leukocytes (both indicators of the phagocytic reaction, and spontaneous and induced HCT test) from moderate to severe, this is especially noticeable in the group of patients with severe course of AD.

It was shown that in patients with AD and TE in the acute stage, the formation of a secondary immunodeficiency state is observed, which is manifested by a decrease in the leukocyte phagocytic activity, which may be an indication for inclusion in the complex treatment of immunocorrective therapy.

Keywords: allergic dermatosis, clinical course, antimicrobial resistance

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FEATURES OF ASTENIC AND OBSESSION SYMPTOMATICS IN PATIENTS WITH PRIMARY EPISODES OF BIPOLAR AFFECTIVE DISORDER

p. 41-45

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The aim of the work is to establish the features of asthenic, somatovegetative and obsessive symptoms in the primary episode of bipolar affective disorder, taking into account the gender factor and clinical variant.

Materials and methods. Clinically examined 153 patients with primary episode of bipolar affective disorder: with prevalence of depressive symptomatology (44 men and 75 women), with prevalence of manic symptoms (15 men and 8 women) and with simultaneous presence of depressive and manic symptomatology or with rapid or severe manic symptoms and 5 women).

Results and discussion. Feeling depleted and reduced energy potential were found in 40.3 % of all patients, 40.9 % of men and 40.0 % of women with depression, and 45.5 %, 66.7 % and 20.0 % with mixed variant; decrease in working capacity – in 68.9 %, 65.9 %, 70.7 %, and 81.8 %, 83.3 %, 80.0 %; rapid fatigue – in 68.1 %, 65.9 %, 69.3 %, and 54.5 %, 50.0 %, 60.0 %; attention disorders – in 45.4 %, 36.4 %, 50.7 %, and 72.7 %, 83.3 %, 60.0 %. In the manic variant, there is only a violation of concentration of attention: 56.5 %, 46.7 % and 75.0 %. In the depressive variant, 62.2 % of all patients, 59.1 % of men and 64.0 % of women were obsessive, while 18.2 %, 33.3 %, and 0.0 % had mixed opinions, ideas of self-humiliation – in 40.3 %, 29.5 % and 46.7 %, and in 27.3 %, 33.3 % and 20.0 %. Somatic vegetative disorders in the depressive variant were found in 98.3 % of all patients, in 97.7 % of men and in 98.7 % of women; at manic – in 30.4 %, 26.7 % and 37.5 % respectively; when mixed – 100 %. Gender differences in asthenic, somatovegetative, and obsessive symptoms are insignificant.

Conclusions. The prevalence of asthenic, somatovegetative, and obsessive symptoms in the primary episode of bipolar affective disorder is determined by the clinical option, and gender differences are insignificant

Keywords: bipolar affective disorder, primary episode, asthenic, obsessive symptoms

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RISK FACTORS AND PREVENTION OF POSTMASTECTOMIC SYNDROME IN BREAST CANCER SURGERY

p. 46-50

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Postmastectomy syndrome (PMES) is considered one of the most frequent complications after radical operations in patients with breast cancer (BC).

The aim of the study was to identify risk factors and develop preventive measures for PMES after radical operations in BC patients.

Materials and methods. The immediate results of surgical treatment of 147 women with BC who underwent radical surgery were analyzed: the frequency of postoperative edema and PMES depending on the initial clinical and pathological parameters and treatment features using descriptive statistics, χ^2 criterion, and correlation analysis.

Results. PMES during the observation period was diagnosed in 17 (11.6 %) patients, including: I st. – in 7 (4.8 %); II st. – in 9 (6.1 %) and III st. in one case (0.7 %). In most cases, its development was associated with postoperative edema, which was detected in the early postoperative period in 15 (88 %) of these patients. The dependence of the incidence of PMES on BMI and the age of patients with a tendency to increase it with the use of adjuvant radiation therapy and decrease with primary breast plastic surgery has been established. The use of a complex of preventive measures led to a decrease in the frequency of PMES (from 17 % to 2 %).

Conclusions. In patients with BC, a frequent complication of radical surgery is postoperative edema of the up-

per limb and/or PMES, the risk of which increases with increasing age and BMI, as well as with the use of adjuvant radiation therapy. The use of a complex of preventive measures helps to significantly reduce the frequency of these complications

Keywords: breast cancer, radical surgery, postoperative edema, postmastectomy syndrome, risk factors, prevention

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MORPHOMETRIC PARAMETERS OF HEPATOCYTES IN EXPERIMENTAL COMPLETE EXTRAHEPATIC BILE DUCT OBSTRUCTION

p. 51-56

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Liver changes observed in complete extrahepatic bile duct obstruction (CEBDO) with consideration to its morphometric parameters, may reflect the upcoming decompensation of liver function and may serve as objective criteria for the disease prognosis.

The aim. To study the morphological changes of hepatocytes in experimental CEBDO using macro- and micro-morphometry.

Materials and methods. In 41 rats, the CEBDO was done by ligation and transection of the common bile duct. The time points were on postoperative Day 1, 3, 7, 14, 21, 28 and 35. Control group included 10 non-operated rats. The total blood bilirubin (TB), liver volume (LV), the area of hepatocytes (AH), the hepatocyte nuclear-cytoplasmic ratio (HNCR), the hepatocyte bulk density (HBD) were investigated. The LV and HBD parameters were used to calculate the total volume of hepatocytes (TVH).

Results. The highest mortality was recorded on Day 22–35 of the experiment (7 out of 11 animals). Bilirubin level was significantly higher than in the control group with its maximum on Day 1 (295 ± 100 vs. 8 ± 6 , $\mu\text{mol/l}$, $p < 0.001$). The highest LV value was observed on Day 14 (14.1 ± 1.1 vs. 8.4 ± 1.4 cm^3 , $p < 0.01$). The processes prevailing in the livers were cell proliferation, fibrosis with gradual displacement of hepatocytes by proliferating bile ducts, and complete loss of normal liver histostructure. The proportion of hepatocytes in the liver (HBD) was progressively decreasing from 0.94 (Control) to 0.44 (Day 35). In spite of that, the TVH level was initially increased (max $9.7 \pm 0.36 \text{cm}^3$ on Day 3 vs. $8.3 \pm 0.26 \text{cm}^3$ on Day 1, $p < 0.05$), but after Day 14 it decreased, with no significant differences from the Control group on Day 21 (8.2 ± 1.2 vs. $7.9 \pm 1.6 \text{cm}^3$, $p > 0.05$), with its lowest level ($5.0 \pm 0.9 \text{cm}^3$) on Day 35 ($p < 0.05$ compared with max value on Day 3). The HNCR index, which reflects proliferative activity of hepatocytes, had its maximum on Day 14 (0.53 ± 0.01 vs. 0.21 ± 0.05 in Control group, $p < 0.001$).

Conclusions. In experimental CEBDO, reduction of the HBD index less than 60 % and reduction of TVH less than the value of a normal liver are accompanied by highest mortality, i. e., are a sign of hepatic decompensation. That was preceded by the maximum proliferative activity of hepatocytes, the criterion of which is the HNCR index

Keywords: *experimental biliary tract obstruction, cholestasis, hepatocyte, liver morphology, morphometry*

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CHANGES IN PARAMETERS OF HEMODYNAMICS IN ABDOMINAL DELIVERY WITH DIFFERENT METHODS OF ANESTHESIA

p. 57-63

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The aim. *To study and evaluate changes in the basic parameters of central and peripheral hemodynamics of the maternal organs in caesarean section (CS) with different methods of anaesthesia.*

Materials and methods. *127 pregnant women were divided into 4 subgroups: Ia (n=31) – general anesthesia (GA) using Ketamine, Ib (n=31) – GA with Sodium Thiopental, IIa (n=31) – spinal anesthesia (SA), IIb (n=34) – SA with Ondansetron 8 mg intravenous. The assessment was performed in 5 stages: 1 – initial; 2 – beginning of operation; 3 – fetal extraction; 4 – end of operation; 5 – 12 hours after operation. The main indicators of hemodynamics were analysed: systolic (SAP), diastolic (DAP) and mean (MAP) arterial pressure, stroke volume of the heart (SV), cardiac output (CO), cardiac index (CI), total peripheral vascular resistance (TPR).*

Results. *Maximum increase of SAP, DAP, MAP, CI, CO in GA groups was found at the prenatal stage. Decrease of SAP, DAP, MAP in SA groups was indicated. Hypotension in IIa subgroup required correction with Mesatone in 23 women, while only five patients from IIb subgroup had a correction of hypotension with Mesatone.*

Conclusion. *In subgroups Ia and Ib, major hemodynamic changes were noted at the prenatal stage, which is manifested in energetically less favourable functioning of the cardiovascular system. CS with SA using Ondansetron was accompanied by favourable hemodynamic shifts at all the stages (especially at the prenatal stage), what is indicating “hemodynamic safety” of that method of anaesthesia.*

Keywords: *caesarean section, central and peripheral hemodynamics, general anaesthesia, spinal anaesthesia, hemodynamic types of circulation, risk, arterial hypotension*

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USE OF β -TRICALCIUMPHOSPHATE IN THE COMPOSITION OF GRANULES IN TREATMENT OF LONG-BONE FRACTURES

p. 63-67

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A promising direction in the treatment of bone defects in traumas and tumours is a method of using materials to replace a bone defect based on β -tricalcium phosphate ceramics and bioglass.

The aim: to analyse the results of surgical treatment in patients with bone defect replacement by β -tricalcium phosphate granules and bioglass.

Materials and methods: the results of treatment of 41 patients treated at the Department of Orthopedics of the ZOKL named after M. P. Novak from 2016 to 2019.

Inclusion of patients in the study suggested the presence of bone defects of traumatic or destructive origin.

The patients were divided into three groups. They underwent surgery with osteosynthesis and plastics of bone defects with β -tricalcium phosphate ceramics, and in four patients the defect was replaced with a bioglass.

Results. *The results of treatment were studied in 39 patients based on the criterion score. Two patients did not appear at the last clinical examination. The observation period was 1–1.5 years after surgery. In 43.59 % of cases the results were good, 51.28 % were satisfactory. In two patients, the results were unsatisfactory due to the fracture of the metal retainer. These patients underwent reosteosynthesis with re-filling of the defect.*

Conclusions. *The use of β -tricalcium phosphate for long bone defect plasticity improves treatment outcomes by stimulating reparative osteogenesis in the bone, which contributes to the restoration of limb function and the quality of life of patients.*

β -tricalcium phosphate granule ceramics is the gold standard in the treatment of long bone defects of traumatic and tumorous origin

Keywords: *bone tissue, defect, long bones, fracture, tumor-like diseases, false joint, osteosynthesis, implant, β -tricalcium phosphate ceramics, bioglass*

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