

## ABSTRACT&amp;REFERENCES

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**PROGNOSTIC ROLE OF BIOMARKER-GLYCO-PROTEIN IN DIAGNOSTICS OF PATHOLOGICAL CHANGES IN PATIENTS WITH ARTERIAL HYPERTENSION AND DIABETES MELLITUS 2 TYPE**

p. 4-9

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**Aim** – To study the influence of galectin-3 level on metabolic disorders progression and structural-functional changes of myocardium and vessels in patients with the associated course of arterial hypertension (AH) and diabetes mellitus (DM) type 2.

**Materials and methods.** Under conditions of the specialized department of arterial hypertension and kidney diseases SI “Institute of therapy, named after L. T. Malaya, AMS of Ukraine” were examined 92 patients with AH of II stage, 2 degree. They were divided in groups: 1 group – patients with AH without disorders of carbohydrate metabolism; 2 group – patients with AH and pre-diabetes; 3 group with the associated course of AH and DM type 2. The control group was maximally comparable with the studied one by age and sex.

There were examined the parameters of carbohydrate metabolism, insulin resistance and galectin-3 level. The echocardiography with the heart functional state determination was carried out. For the assessment of the thickness of the general carotid intima-media complex, the duplex ultrasound scanning was realized.

**Results:** In patients of 2 and 3 group was revealed the positive correlation between the insulin level of peripheral blood, hypertrophy of the left ventricle myocardium and the thickness of the general carotid intima-media. Hypertrophy of the left ventricle myocardium was more expressed in patients with AH and DM type 2 comparing with ones of 1 and 2 groups and the control group ( $p < 0,05$ ). Galectin-3 level was higher in the group with associated course of AH and DM types 2 than in 1 and 2 group and the control one ( $p < 0,05$ ). The positive correlation between galectin-3 level and insulin resistance parameters and structural-functional of vessels and heart remodeling was observed.

**Conclusions.** It was established that the increase of galectin-3 level in blood serum may participate in insulin resistance progression, myocardium and vascular wall remodeling in patients with the isolated AH and with the associated course of AH and DM type 2

**Keywords:** arterial hypertension, diabetes mellitus type 2, insulin resistance, cardiovascular remodeling, galectin-3

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## CYTOKINE RESPONSE AFTER RADICAL OPERATIONS FOR TUMORS OF THE COLON

p. 10-14

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*In cancer patients, who underwent wide planned surgical operations as to a tumor of the colon, in postoperative period immune suppression may be caused by an inflammatory reaction that directly influences the number of postoperative complications.*

**Aim of research** – the comparative assessment of the influence of postoperative anesthesia methods on the cytokine response of an organism.

**Materials and methods.** There were examined 102 patients with tumors of the colon. All patients after operations were hospitalized at the department of intensive care. The control group ( $n=53$ ) was anesthetized by non-steroid anti-inflammatory preparations together with opiates. The studied group ( $n=49$ ) received the continuous prolonged epidural analgesia within multimodal anesthesia. There were studied the pain level (by 10-point visually analogous scale), influence on the change of anti-inflammatory and inflammatory cytokines on the cytokine response. The levels of IL-1 $\beta$ , IL-4, IL-10 and TNF were studied.

**Results.** The study of cytokines level demonstrated that at 3 day after the operation in the studied group of patients (continuous prolonged epidural analgesia) the level of anti-inflammatory cytokines decreased and the level of inflammatory ones increased. It allows to note the positive influence of the continuous prolonged epidural analgesia on the cytokine response in the organism of patients, operated as to colon tumors.

**Conclusions.** The prolonged continuous epidural analgesia within multimodal anesthesia provides the adequate postoperative analgesia after operations as to colon tumors. It favors the stable anesthesia and excludes periodical exacerbations of pain syndrome. It stimulates anti-inflammatory cytokines production, decreases the cytokine response of the organism to the operative trauma after the surgical treatment of colon tumors

**Keywords:** prolonged continuous epidural analgesia, colon tumor, cytokine response, postoperative anesthesia

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**RESEARCH OF ULTRASTRUCTURE OF THE RAT'S NORMAL BLOOD CAPILLARIES OF THYMUS AND ITS CHANGES UNDER INFLUENCE OF METHYL TRET-BUTYL ETHER**

p. 15-20

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**Aim of research** is the study of the influence of benzene component, namely methyl tret-butyl ether on the structure of hemomicrocirculatory bed of a thymus. It is known that a thymus is a central organ of the immune system that plays an important role in the formation of the immune response to

*endo- and exogenous antigens. In the connection of growing environmental pollution, the number of diseases, connected with immune system pathologies essentially increased. Experts think that the increase of the number of immune diseases is a result of soil contamination as an inalienable factor of life activity.*

**Methods of research:** terms and conditions of water contamination with methyl tret-butyl ether, approximated to real ones were created for the study. The minimum for contamination is 1/1000–1/2000 of the mean toxic dose. Hemomicrocirculatory bed of rat's thymus and its cells were studied under the influence of different doses (500 mg/kg; 50 mg/kg; 5 mg/kg; 0,5 mg/kg) of methyl tret-butyl ether. White laboratory rats were selected for the study because of well developed thymus and its morphological similarity to a human one.

**Results:** general changes of hemomicrocirculatory vessels are reactive and adaptive ones (I and II stages of pathological process), dystrophic and alterative (III stage), changes of endotheliocytes and basal membrane in all links of hemomicrocirculatory bed.

The manifestation of reactive changes is the change of endotheliocytes configuration, microclasmatos and vesiculation. The adaptation of reactive changes is directed on stabilization of the endotheliocyte order. It is manifested as vesiculation transformation from the transport to membranoplastic type.

**Conclusions:** Morphological study of the vascular ultrastructure of hemomicrocirculatory bed using electric transmissive microscopy proves that at methyl tret-butyl ether penetration in rat's organism, its effect results in ultrastructural changes of the microhemocirculatory bed and has a cumulative character

**Keywords:** thymus, hemomicrocirculatory bed, methyl tret-butyl ether, endothelial cells, dystrophy, alteration, adaptation

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## OZONE THERAPY OF THE ADENOMYOSIS AT WOMEN WITH STERILITY AND HYPOTHYROIDISM

p. 20-24

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**Aim of research** – specification of hormonal-immunologic shifts and increase of the effectiveness of sterility treatment in patients with adenomyosis and hypothyroidism.

**Materials and methods.** There were examined 90 women with the primary sterility, who participated in the program of auxiliary reproductive technologies (ART) – extracorporal fertilization ART, among them 60 with adenomyosis and hypothyroidism (main group), the control group included 30 patients without thyroid pathologies without gynecological diseases. The main group was divided in 2 clinical groups: 30 patients, who underwent the traditional treatment and 30 whom the ozone therapy was additionally prescribed to. The methods of ultrasound examination, MRT, determination of the hormonal and immunologic status, cytokines state before and after the treatment were used.

**Results.** At adenomyosis at the background of hypothyroidism were determined the changes of hypophysis and ovary function that may be caused by the increase of thyrotropic

hormone (TTG), follicles stimulating hormone (FSH), luteinizing hormone (LH) and prolactin secretion. Adenomyosis, associated with hypothyroidism disturbs the cellular and humoral immunity, favors shifts in the cytokine link of immunity. At the further observation over patients of the main group, the ART extracorporeal fertilization program demonstrated its more effectiveness in sterility treatment by the ozone therapy (26,7 %), comparing with the traditional treatment (16,6 %).

**Conclusions.** The use of ozone therapy favors normalization of hormonal and immune parameters in women with adenomyosis and thyroid pathology, resulting in the increase of auxiliary reproductive technologies (ARD) effectiveness

**Keywords:** adenomyosis, hypothyroidism, sterility, auxiliary reproductive technologies, ozone therapy

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## FEATURES OF METABOLIC DISORDERS IN PATIENTS WITH HERNIAS OF LUMBAR SPINE ASSOCIATED WITH ARTERIAL HYPERTENSION

p. 25-28

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*The combination of arterial hypertension (AH) with the spine pathology is a natural manifestation of connected structural-functional disorders.*

*Aim is to determine the features of metabolic disorders in the organism of patients with hernias of lumbar spine, associated with arterial hypertension (AH), on the base of clinical-biochemical and immunological markers.*

*Materials and methods.* The study was carried out in 2016 on the base of SI "Institute of spine and joints pathology, named after prof. M.I. Sitenko, NAMS of Ukraine". There were examined 37 patients with lumbar spine hernias: 23 – without concomitant pathologies, 14 – in association with AH of I–II degrees of I–II stage. The control group – 30 persons, 13 men and 17 women. General protein, glycoproteins, chondroitin sulfates, C-reactive protein, glucose, urea, creatinine,  $\beta$ -lipoproteins, calcium, ALAT, ASAT, CPK, LDG, IL-1, IL-4 and IL-6 were determined in blood serum.

*Results of research.* The content of interleukins in the group of patients with AH was higher than in the group of patients without it. In the group of patients with AH IL-1 was increased in 10,5 times, IL-6 – in 5,3 times that testifies to heavier immunologic disorders in patients with AH. The content of glycoproteins in patients without AH was increased by 55,8 %, in patients with AH – in 2,1 times comparing with control. The content of chondroitin sulfates in patients with hernias without AH was increased in 2,8 times, in ones with AH – in 4 times. LDG was increased, CPK – decreased

in both groups.  $\beta$ -lipoproteins in blood of patients without concomitant AH was increased by 44,6 %, in patients with AH – by 67 %.

**Conclusions.** In patients with lumbar spine hernias, associated with AH were observed heavier inflammatory-destructive disorders in the cartilage tissue. The increased content of  $\beta$ -lipoproteins in blood of patients with lumbar spine hernias, associated with AH comparing with patients without it may indicate age disorders of lipids metabolism. IL-1 and IL-6 in patients with lumbar spine hernias, associated with AH were higher comparing with patients without it

**Keywords:** lumbar spine, hernias, arterial hypertension, biochemical markers, interleukins, metabolic disorders

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## OPTIMIZATION OF APPROACHES TO THE IMPROVEMENT OF PATIENTS' COMPLIANCE TO TREATMENT OF THE HARD SEVERITY DEGREE OF DIABETES MELLITUS 2<sup>ND</sup> TYPE BY FAMILY THERAPY INVOLVEMENT

p. 28-32

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**Aim.** To improve the quality of the treatment of patients with DM type 2 of hard severity degree at the expense of the increase of medicamentous compliance to patients by family therapy involvement.

**Materials and methods.** There were observed 174 patients with DM type 2 of hard severity degree, who underwent out-patient treatment. They were divided in groups depending on applied tactics of psychoprophylaxis of compliance disorders.

**Methods of research:** clinical-anamnestic; clinical-psychopathologic; psychodiagnostic, statistical.

**Research results and their discussion.** It was established that the one of node dyscompliance factors in patients with DM type 2 of hard severity degree is a disorder of cognitive functions that testify to the necessity of a side help involvement, including patients' relatives into the control of medical prescriptions realization. The other dyscompliance factor of patients with DM type 2 to the therapy is an attitude of relatives to his/her disease. There were established two types of patients' reaction to medical recommendations, appeared as a response of patient's family members of his/her disease. All these reactions had dyscompliant character that conditioned a necessity of the correction work with patient's relatives as a factor psychoprophylaxis of disorders of compliance to the therapy in patients with DM type 2. The elaborated system of prophylaxis of disorders of medicamentous compliance to the therapy in patients with DM type 2 of hard severity degree consisted of two links: indirect work with patients and work with patients' family members with family therapy involvement. The high effectiveness of the elaborated the system of prophylaxis of disorders of medicamentous com-

pliance to the therapy in patients with DM type 2 of hard severity degree was proved. In all patients, who underwent psychoprophylaxis by the elaborated system, the compliance level increased to maximal values.

**Conclusions.** There were established the factors of dyscompliance to the medicamentous therapy in patients with DM type 2 of hard severity degree. The influence of family members' reaction to patient's disease on features of patient's attitude to the therapy was determined.

The system of prophylaxis of disorders of medicamentous compliance to the therapy in patients with DM type 2 of hard severity degree that included family therapy and direct work with patients' relatives was elaborated. Its high effectiveness was noted

**Keywords:** diabetes mellitus type 2, compliance, dyscompliance, psychoprophylaxis, psychodiagnostics, cognitive disorders, psychopathology

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### THE COMPARATIVE CHARACTERISTIC OF LEVEL OF MATRIX METALLOPROTEINASE-9 AND HIGH-SENSITIVE C-REACTIVE PROTEIN INDICATORS AT COMORBID COURSE OF ARTERIAL HYPERTENSION AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE

p. 32-36

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*The pathogenetic connection between the hypertonic disease and the chronic obstructive pulmonary disease (COPL) is little studied. Aim of research is to study the level of matrix metalloproteinase-9 and high sensitive C-protein indicators at the hypertonic disease and the chronic obstructive pulmonary disease.*

**Methods.** There were examined 40 patients: 30 with the diagnosis of hypertonic disease of II stage, combined with the chronic obstructive pulmonary disease, and 10 patients with the chronic obstructive pulmonary disease. Matrix metalloproteinase-9 and high sensitive C-protein levels in blood plasma and also parameters of elastic properties of the pulmonary artery were determined in all patients.

**Results.** At the data analysis it was established that indicators of matrix metalloproteinase-9 and high sensitive C-protein were higher at the comorbidity of the hypertonic disease and the chronic obstructive pulmonary disease comparing with the group of isolated chronic obstructive pulmonary diseases. The analysis of elastic properties of the pulmonary artery demonstrated the essential increase of its hardness at comorbid states comparing with chronic obstructive pulmonary diseases.

**Conclusions.** In patients with the hypertonic disease and the chronic obstructive pulmonary disease matrix metalloproteinase-9 and high sensitive C-protein levels increase comparing with isolated chronic obstructive pulmonary diseases that may testify to the role of these markers in the injury of target organs of the cardiovascular system. The monitoring

of the dynamic of chronic obstructive pulmonary disease development and system inflammation is possible at the expense of the determination of matrix metalloproteinase-9 and high sensitive C-protein levels

**Keywords:** matrix metalloproteinase- 9, high-sensitive C-reactive protein, chronic obstructive pulmonary disease

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#### ASSESSMENT OF THE QUALITY OF LIFE IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE AT CONCOMITANT DISORDERS OF PSYCHO-EMOTIONAL SPHERE

p. 36-41

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**Aim** – to study quality of life (QOL) indicators at different types and expressiveness of concomitant psycho-emotional disorders.

**Materials and methods.** There were examined 206 patients with COPD (158 (76,7 %) men and 48 (23,3 %) women, whose mean age was  $64,4 \pm 0,8$  years, mean disease duration –  $8,8 \pm 0,4$  years) using clinical-functional and questionnaire methods of research. The psychic status of respondents was determined using the complex of standardized questionnaire methods. QOL was assessed using the Ukrainian version of the international questionnaire on QOL MOS SF-36. The statistical processing of data was realized using the package of statistical programs SPSS 20.0 for Windows by parametric and non-parametric methods according to the type of variables distribution.

**Results.** It was established, that patients with COPD had statistically reliably higher mean values than practically healthy persons by scales of neurotization ( $(44,97 \pm 1,27)$  %,  $p=0,005$ ), state anxiety ( $(42,82 \pm 0,64)$  points,  $p<0,001$ ), trait anxiety ( $(44,95 \pm 0,63)$  points,  $p<0,001$ ) and depressive states ( $(41,00 \pm 0,65)$  points,  $p<0,001$ ). There were established the prevalence of psycho-emotional disorders in patients with COPD: neurotization (26,2 %), state anxiety (37,9 %), trait anxiety (49,5 %), depressive states (16,5 %).

It was revealed that patients with COPD have reliably lower mean values than practically healthy persons by all indicators of physical, psychic and general statuses of QOL and change health comparing with the previous year.

It was established, that each separate psycho-emotional disorder essentially influences QOL indicators of patients with COPD that is manifested in the reliable decrease of mean values by all scales of MOS SF-36 form.

**Conclusions.** In the result of the study there were assessed QOL indicators of patients with COPD and also established their dependence on the type and expressiveness of concomitant psycho-emotional disorders

**Keywords:** chronic obstructive pulmonary disease, quality of life, neurotization, anxiety, depressive states

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#### HYPERALGESIA SYNDROME IN ANIMALS AND METHODS OF ITS TREATMENT ACCORDING TO EXPERIMENTAL DATA AND MORPHOMETRY

p. 42-46

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**Aim.** The assessment and choice of analgesia method relative to hyperalgesia development in the experiment.

**Methods.** Antiflogogenic effect of preparations was studied on the model of caragenin edema in 147 white non-linear rats with the mass 120–150 g. As a hyperalgesia model was used a caragenin edema. It was reproduced by the subplanar administration of 0,05 ml of 1 % caragenin solution in the right back extremity of the animal.

**Results.** The combined use of bupivacaine regional analgesia manifested the moderate antiflogogenic effect (AFA was 25,3, 20,9 and 11,6 %, respectively), whereas fentanyl administration is, on the contrary, associated with the growth of prostaglandin edema. The conducting anesthesia with bupivacaine led to the more expressed analgesic effect that was proved by the level of corticosterone in blood. In 5th group (bupivacaine) the corticosterone level was 102,8±8,1 ng/ml that is 2,5 times less than in 2 one (fentanyl) and in 3 group (ketamine) ( $p < 0,05$ )

**Conclusion.** The complex study of reactions of pain behavior, physiological rates and laboratory stress tests demonstrated that the use of bupivacaine conducting anesthesia led to the more expressed analgesic effect

**Keywords:** hyperalgesia, analgesia, cortisol, hyperglycemia, caragenin, conducting anesthesia, bupivacaine, fentanyl, ketamine

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## CHARACTERISTICS OF THE PREVALENCE AND COURSE OF COMMUNITY-ACQUIRED PNEUMONIA

p. 47-51

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**Aim.** To reveal gender-age features, season prevalence, specificity of prevalence and course of severe community acquired pneumonia to raise the effectiveness of the course prognostication, improvement of the diagnostics of patients with community acquired pneumonia of severe course by optimization of the assessment of the clinical-functional state of patients.

**Materials and methods.** For attaining the set aim there were examined 88 patients with the diagnosis “severe community acquired pneumonia”, who underwent the treatment at 3 clinical departments of Dnipro city: MI “Dnipropetrovsk municipal clinical hospital № 2, DRC”, MI “Dnipropetrovsk municipal clinical hospital № 6, DRC” MI “Dnipropetrovsk municipal clinical hospital № 16, DRC” that are the clinical bases of SI “Dnipropetrovsk medical academy, MHP of Ukraine”. Patients were divided in 2 groups depending on the clinical group of pneumonia and also on gender sign. All patients underwent the assessment of the clinical-functional status, careful collection of the anamnesis, clinical-laboratory examinations.

**Results.** In the result of research were received reliable data about differences of features of season prevalence of morbidity, dependence of disease course severity on age and sex, risk factors of severe course of community acquired pneumonia were formed.

**Conclusions.** Severe community acquired pneumonia has its season prevalence that differs from the known epidemic periods. SCAP is more hard in men, especially of elder age group that led to the more frequent necessity of hospitalization of such patients in IC

**Keywords:** severe community-acquired pneumonia, age-appropriate, especially of pneumonia, pneumonia, the prevalence of pneumonia

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