CHRONIC RENAL DISEASE – A GLOBAL PROBLEM IN THE XXI CENTURY
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In 2002, it was proposed to consider functional renal disorders 3 and more months in duration under the general name chronic renal disease (CRD) bearing in mind the common mechanism behind progressive nephropathy and high cardiovascular mortality of such patients. The prevalence of CRD in Russia is unknown; it is supposed that every tenth adult in the world has CRD. Diagnostics of CRD requires at least measurement of serum creatinine, calculation of the glomerular filtration rate by CKD-EPI formula, and determination of albuminur. A main cause of CRD is cardiovascular disorders. Complicated relationships between cardiac insufficiency and CRD account for 5 types of cardiorenal syndrome. CRD patients are at risk of terminal renal insufficiency requiring replacement therapy; moreover, CRD enhances cardiovascular morbidity and predisposes to acute renal lesion that in turn accelerates progress of CRD. Taken together these events account for the global character of the CRD problem.
Key words: albuminuria; cardiorenal syndrome; acute renal lesion; glomerular filtration rate; chronic renal disease.

MICROALBUMINUREA AS AN EARLY INDICATOR OF RENAL LESION IN ARTERIAL HYPERTENSION
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Arterial hypertension (AH) is undoubtedly associated with progressive renal dysfunction. Microalbuminuria (MAU) is a reliable indicator of the early stage of renal disease and predictor of AH progress as well as an independent risk factor of cardiovascular mortality and death. The main pathophysiological mechanisms of MAU in AH are enhanced glomerular hydrostatic pressure, structural changes and endothelial dysfunction in glomerular capillaries. Also, an important role is played by AH-related progressive chronic preclinical inflammation as appears from positive correlation between MAU and CRP, fibrinogen, and cytokines. It is concluded that evaluation of MAU as an indicator of cardiovascular risk needs to be widely used in clinical practice for the improvement of AH treatment and the reduction of probability of complications.
Key words: arterial hypertension; early stage of renal disease; microalbuminuria.

HYPOGLYCEMIC ACTIVITY OF HYPOLIPIDEMIC PREPARATIONS
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The system of glucose metabolism regulation is millions of years older than the insulin system and locomotor function. For this reason, the hypoglycemic activity of the hormone is mediated through fatty acid (FA) metabolism. Insulin blocks the ability of mitochondria to oxidize ketone bodies, short-, medium- and long-chain FA and makes them oxidize glucose, i.e. a physiologically unoptimal substrate. The relationship between FA and glucose in the Rnadle cycle is apparent only on the autocrine level (in the cell); they determine alternation of nutritive function (trophology) and biological exo/endo-reactions (after and without feeding respectively). Most antidiabetic medicines exhibit hypoglycemic activity, like insulin; they reduce the level of lipid substrates of oxidation in cytosol and mitochondria have to oxidize glucose. In these conditions, insulin increases glucose uptake by the cells mediated through GLUT4 transporters. Sulfonylurea derivatives enhance secretion of insulin by beta-cell. Biguanides covalently and irreversibly bind ketone bodies thereby preventing their oxidation by mitochondria. Fibrates, glitazones, flavonides, flavones, lipoic thio-FA, endogenous eicosanoids, derivatives of ω-3 and ω-6 essential polyenic FA, and conjugated unsaturated FA are agonists of peroxisome proliferator-activated receptors. They stimulate ω-, ω-, and ω-oxidation of all exogenous aphysiological FA and excessive palmitic saturated FA in peroxisomes which leads to cytosol hypolipidemia. Hypoglycemic preparations with the activity of oxidation beta-blockers arrest FA uptake by mitochondria. Hypoglycemic ω-3 essential polyenoic FA activate GLUT4 function. Type 2 diabetes in middle-aged patients is a symptom of atherosclerosis, i.e. deficit of essential polyenoic FA caused by disturbed phospholipid synthesis and GLUT4 function. Diabetes should be in the first place considered as pathological FA metabolism and only in the second place as glucose pathology. This inference needs to be taken into account in the treatment of diabetes and in strategic programs of its prophylaxis.
Key words: glucose; insulin; hypolipidemic medicines; fatty acids; phylogenesis.
SYNDROME OF DIABETIC FOOT: MODERN DIAGNOSTIC METHODS

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We summarize the literature data on diagnostics of diabetic foot syndrome including clinical examination and special invasive and non-invasive studies of the vascular system. The main methods are ultrasound dopplerography, X-ray contrast angiography, and ultrasound duplex scanning. Special attention is given to instrumental diagnostics of diabetic neuropathies. The golden standard for the evaluation of the function of the peripheral nervous system is electroneuromyography. Methods for the study of diabetic foot complications, such as osteoarthropathy and trophic ulcers, are discussed.

Key words: diabetic foot; diagnostics; study methods.

HELICOBACTER PYLORI INFECTION: WHAT ELSE BESIDES GASTRIC PROBLEMS?

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The role of Helicobacter pylori infection (HPI) in the development of chronic gastritis, ulcer disease, MALT-lymphoma, stomach cancer, and other diseases is considered. HPI is directly or indirectly associated with colon adenoma and colorectal cancer, hepatic disorders, coronary heart disease, idiopathic iron deficiency anemia and thrombocytopenia. The role of HPI in the development of gastroesophageal reflux disease remains to be elucidated. HPI is negatively related to bronchial asthma and chronic inflammatory intestinal diseases. Pathophysiological and clinical aspects of HPI and the aforementioned pathologies await further investigations.

Key words: Helicobacter pylori; gastroenterological and other diseases.

THE INFLUENCE OF STRUCTURAL AND FUNCTIONAL DISORDERS IN CARDIOVASCULAR AND RENAL SYSTEMS AND METABOLIC DISTURBANCES ON PERINATAL OUTCOMES IN PREGNANT WOMEN WITH CHRONIC ARTERIAL HYPERTENSION

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We studied the influence of structural and functional disorders in cardiovascular and renal system and metabolic disturbances on perinatal outcomes in pregnant women with chronic arterial hypertension. The study included 100 women with these pathologies and 30 patients with physiological pregnancy. Comprehensive evaluation of the cardiovascular system, metabolic status, and perinatal outcomes was undertaken. The results indicate that atherogenic dyslipidemia is significantly associated with the reduction of body mass while glomerular filtration rate, concentric and eccentric left ventricular hypertrophy with the decrease of both weight and height of the newborns.

Key words: pregnancy; chronic arterial hypertension; cardiovascular system; renal system; metabolic status; perinatal outcomes.

THE USE OF PIREBEDIL FOR THE PREVENTION OF FALLS IN ELDERLY PATIENTS WITH METABOLIC SYNDROME

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Effects of pirebedil used to prevent falls in elderly patients with metabolic syndrome are discussed. A prospective controlled study showed that therapy with pirebedil significantly decreases the frequency of falls, reduces severity of pro-inflammatory and pro-oxidative activities, improves cognitive abilities. Prevention of falls by virtue of improved cognitive abilities is a new clinical effect of pirebedil and gives reason to recommend it for the treatment of geriatric patients with metabolic syndrome.

Key words: falls; metabolic syndrome; pirebedil.
**ACTIVATION OF NEUROHORMONAL SYSTEM AS AN INDEPENDENT MECHANISM OF HEART REMODELING IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE**

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**Aim.** To evaluate the contribution of activation of cytokines and renin-angiotensin-aldosterone system to heart remodeling in patients with chronic obstructive pulmonary disease in the course of a 2 year study and to estimate its relation to severe pulmonary hypertension. Materials and methods. 117 patients with COPD underwent measurement of TNFα, IL-6 levels and renin levels, spirometry and echocardiography (mean pressure in pulmonary artery, MPPA)). The data obtained were compared with the degree of remodeling of right and left ventricles. After 2 years 30 and 33 of the 63 patients were referred to groups with aggressive and moderate remodeling of the right ventricle respectively. Regressive analysis was used to detect predictors of aggressive remodeling. Results. Initial remodeling severity and rate showed stronger correlation with TNFα, IL-6 levels and renin levels than with MPPA. Multifactor analysis demonstrated that renin activity and creatinine level were the most reliable predictors of remodeling (p=0.041 and 0.049 respectively). Conclusion: Neurohormonal and imunno-inflammatory changes stimulate remodeling of right and left heart chambers. They independently affect myocardium and their influence is only partly mediated through exacerbation of pulmonary hypertension.

**Key words:** chronic obstructive pulmonary disease; heart remodeling; rennin; inflammation.

**RESPIRATORY DISORDERS DURING SLEEP IN PATIENTS WITH CARDIOVASCULAR DISEASES AT THE STAGE OF REHABILITATION**

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High prevalence of cardiovascular and cerebrovascular diseases dictates the necessity of enhancing the efficacy of preventive and rehabilitative programs, elaboration and implementation of innovative medical technologies. Sleep disturbances and especially associated respiratory disorders are important risk factors of arterial hypertension, cardiac insufficiency, abnormal heart rhythms, cerebrovascular pathology, insulin resistance, and type 2 diabetes mellitus. Introduction of the methods for diagnostics and correction of sleep disturbances into rehabilitative programs improves immediate and long-term results of the treatment.

**Key words:** rehabilitation; cardiovascular diseases; sleep apnea; positive airway pressure therapy.

**AMBULATORY TREATMENT OF GOUTY ARTHRITIS**

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**Aim:** To estimate effectiveness of ambulatory treatment of gouty arthritis (GA) using non-steroidal anti-inflammatory agents (NAIA) and detect factors associated with the impairment of the functional state of kidneys during short-term therapy. Materials and methods: the functional state of kidneys in 100 patients with GA was estimated from creatinine clearance (CC) calculated by the Cockroft-Gault formula on day 2 after their examination in a polyclinic and prescription of NAIA to stop the gout attack or during the first days after hospitalization. Mean duration of NAIA therapy was 10.8±4.77 days. Results: 18% of the outpatients with CC<60 ml/min were given high doses of NAIA , 47% patients received them during the entire period of treatment, 36% were prescribed combined therapy with two or more NAIA. A short course of NAIA therapy resulted in the enhancement of CC in 46% of the patients and its fall in 54%. In 1 patient CC decreased by more than 50% compared with initial level; in 12 patients the decrease exceeded 25%. The risk of CC reduction under effect of NAIA increased in case of high NAIA doses (OR=1.52, 95% CI 1.05-2.20, p=0.024), combination of several NAIA (OR= 2.74, 95% CI 1.95-3.87, p=0.02), concomitant infection and antibiotic therapy (OR=11. 5 1, 95% CI 8.76-15.13, p=0.005), II-III NYHA FC chronic cardiac insufficiency (CCI) (OR=4.88, 95% CI 9.83-16.81, p=0.019). Conclusion: Physicians of outpatient facilities do not always take account of the functional state of kidneys when prescribing NAIA for the treatment of GA. Kidney conditions in such patients deteriorate in case of high NAIA doses or combination of two and more NAIA during the entire period of therapy, in the presence of infection requiring antibiotic therapy or CCI.

**Key words:** gout; gouty arthritis; uric acid; hyperuricemia; steroidal anti-inflammatory agents; creatinine clearance; renal function.
UROGENIC REACTIVE ARTHRITIS MORBIDITY IN KAZAKHSTAN
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Statistical data on osteo-muscular morbidity in Kazakhstan are presented. Their comparative analysis revealed a 5% rise in general morbidity and a 1% rise in the frequency of urogenic Chlamydial infection. The frequency of inflammatory joint diseases including urogenic reactive arthritis among the patients of a military hospital amounted to 51%.
Key words: urogenic reactive arthritis; morbidity; increased prevalence.

COMPARATIVE EVALUATION OF THE HEALTH STATUS OF DESCENDANTS OF PEOPLE RESIDING IN ENVIRONMENTALLY UNFRIENDLY REGIONS BY MEANS OF MATHEMATICAL MODELING
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The aim of the study was to evaluate reproductive health of descendants of people who experienced effects of adverse environmental factors, such as radiation and chemical contamination (the descendants themselves were unaffected by these factors). Reproductive health of women was assessed by mathematical modeling. Factors of greatest importance for the health status of the descendants were distinguished among the 76 ones studied. It was shown that reproductive health of the subjects descending from the people exposed to radiation deteriorated more significantly than of those whose ancestors were affected by chemical factors.
Key words: reproductive health; chemical factors; radiation; descendants; mathematical modeling.

SUCCESSFUL CORRECTION OF ARTERIAL FISTULA BETWEEN CORONARY ARTERIES AND PULMONARY TRUNK
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A case of congenital heart disease (fistula between left coronary artery and right pulmonary artery, right coronary artery and pulmonary trunk) diagnosed accidentally during planned medical examination is reported. Corrective surgery included disconnection of left coronary and right pulmonary arteries, right coronary artery and pulmonary trunk under artificial circulation and warm blood cardioplegia.
Key words: congenital heart disease; anomalies of coronary arteries; arterial fistula between coronary arteries and pulmonary trunk.