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# SUMMARY

## MEDICAL SCIENCE

**T. G. Vstavskaya, V. I. Larkin, V. V. Volchenko**  
**Changes of parametres of caused deckman acoustical potential in patients with cervical trauma of backbone**

The assessment of functional neurophysiologic condition of structures of brain in 48 patients on the age of 18–48 years with cervical trauma of a backbone is carried out. Acoustical caused potentials (ACP) in patients with a trauma of cervical part of backbone on early and intermediate phase are analyzed. Examining patients some signs of dysfunction of deckman structures of brain with prevalence of dysfunctions on pontomedullar level have been revealed. It has been revealed that the degree of expressiveness of infringement ACP depends on severity level of the cervical trauma of backbone.

Keywords: acoustical caused potentials, trauma of cervical department, dysfunction of deckman structures.

**V. E. Vysokogorskiy, E. S. Efremenko, D. E. Bykov, O. Y. Zhukova, G. A. Lopukhov**  
**Disturbance of glutathione metabolism in alcoholism**

Condition of the glutathione metabolism is described in the article under alcoholic withdrawal syndrome, as well as at combination of the alcoholism with diabetes mellitus. It is shown that in condition of the alcoholic dependency appear the different disorders of the glutathione metabolism.

Keywords: glutathione, alcoholism, diabetes mellitus.

**I. A. Grichechkina**  
**Psychological factors and gastroesophageal reflux disease**

Some psychological features of the person of patients with GERD and their connection with current of disease are investigated for the first time. In research high frequency of neurotic reactions, uneasiness and desadaptives types of behaviour in conditions of illness, prevalence of aggression over animosities which psychological correction can influence success of treatment is revealed. Absence of correlation connections between duration of a sour reflux in a gullet and psychological parameters has been marked.

Keywords: GERD, psychological features.

**Zh. V. Gudinova, A. V. Mordyk, L. V. Puzyreva, O. G. Ivanova, M. A. Plekhanova, M. P. Tatarinceva, S. N. Rudneva, T. G. Podkopaeva**  
**Tuberculosis in Omsk from 1991 through 2009**

Dynamics of development of epidemiological situation on tuberculosis in the city of Omsk from 1991 through 2009 is defined. It is established that level of primary disease in the city remains at the level of epidemic and for 19 years has grown almost in 3 times. The reasons for adverse epidemiological conditions on tuberculosis in the city of Omsk are untimely revealing for the first time revealed sick a tuberculosis, low efficiency treatment, and, as consequence of it, accumulation of contingents sick of the active tuberculosis, leading to the further distribution of an infection.

Keywords: tuberculosis, epidemiological situation.

**K. K. Kozlov, E. Zh. Kopin, M. S. Korzhuk, S. V. Chernenko, K. V. Zavodilenko**  
**The experimental motivation for usage of smooth stent with outwardly-internal treatment tracheal stenosis**

By experiments on animals it is simulated tracheal stenosis. Investigation technique for tracheal endoprothesis with stent fixation for internal and external fixative is developed. Comparative morphological characteristics changing emerging smooth stent insertion with author's commit against models are obtained. Smooth stent shows the lowest impact on the mucous membrane of trachea.

Keywords: tracheal stenosis, stent, simulatec for tracheal stenosis, traheoskopy, treatment for tracheal stenosis.

**E. N. Kravchenko, S. S. Sinitsyna**  
**Problems and perspective premature partus with extreme low birth weight infants in Omsk region**

The organized analysis upshot and reasons of reproductive losses at the period of 22–27 weeks with extreme low birth weight (ELBW) infants for 15 years (1995–2009) in Omsk region. The specific weight infants

with ELBW in general is not changed and has formed 0,31 % in 1995, 0,3 % — in 2009. Survival infants with ELBW is 14,3–49,2 %. The reasons for disease and death-rate of infants with ELBW for the last decennial event have changed: the share of dead from infection is increased for perinatal period, the share an respirator frustration is reduced. The essential reserve for reduction perinatal losses is the improvement of tacticians conduct to pregnancy including preventive measures to immature partus, preventive measures to respiratory distress-syndrome.

Keywords: premature birth, extreme mass of the body.

**A. G. Mingairova, E. B. Pavlinova, T. I. Safonova, A. P. Breil, T. Yu. Korneyeva**  
**The influence of different schemes of basic treatment on control level for asthma in children**

The influence of different schemes of basic treatment for asthma on its control level in children has been analyzed. The studies demonstrate that the use of the combination therapy better enhances control level, than the monotherapy of inhaled corticosteroids. The main cause of the low control is irregular basic therapy.

Keywords: asthma, children, control level, basic therapy.

**A. V. Mordyk, M. A. Plekhanova, E. A. Tsygankova, Yu. V. Rudneva**  
**Basic factors of development of risk of tuberculosis among the children of early age**

The comparative analysis of the influence of epidemiological, social and biomedical factors on the development of tuberculosis in children of up to three years was carried out. The basic factors, which influence the development of tuberculosis among the children of early age are: contact with the tubercular patients, the low effectiveness of BCG vaccination, the presence of the associated pathology and low social status of family.

Keywords: tuberculosis, the factors of risk, the children of early age.

**S. N. Moskovskiy, V. P. Konev**  
**Pathology of bone tissue under chronic alcoholic intoxication**

On the grounds of studies are installed qualitative features of bone tissue in persons with chronic alcoholic intoxication, which will enable the dynamic check of bone tissue using the medical documents for identification studies.

Keywords: densitometria, chronic alcoholic intoxication.

**E. B. Pavlinova**  
**Bronchopulmonary dysplasia: a problem current state**

Development of perinatal medicine, perfection of methods of intensive therapy and respiratory support of newborns raises survival rate in premature infants with very low weight of body, and also the newborns who have transferred respiratory distress syndrome. However, there is a problem of formation at the given contingent of sick chronic diseases of lungs, first of all bronchopulmonary dysplasia (BPD). In the review the modern data on the reasons, clinic, diagnostics and treatment of the given disease is presented.

Keywords: premature infants, bronchopulmonary dysplasia (BPD).

**M. A. Plekhanova, E. S. Dovgopolyuk, A. V. Mordyk, G. A. Kalacheva, E. A. Tsygankova**  
**HIV-infection and tuberculosis in children in the Siberian federal region**

The carried out analysis of epidemiological situation on the HIV-infection in children in the Siberian federal region showed that morbidity by HIV-infection in the region 1,8 times higher than all-Russian. Simultaneously with this, there was noticed an increase in the primary morbidity and damage by the HIV-infection of children from 0 to 14 years. Each second child from 0 to 14 years with the HIV-infection in the region had the HIV-associated diseases, among which tuberculosis began to be recorded more frequently. In the structure of the reasons for death among the children with the confirmed diagnosis of HIV-infection tuberculosis occupies the 3rd place.

Keywords: HIV-infection, tuberculosis, children, epidemiological situation.

**N. A. Polyanskaya**  
**Features a rotavirus and norovirus infections in children of early age**

The comparative analysis of the clinical and laboratory data rotavirus and norovirus infections in children of early age is carried out. The characteristic of the basic symptoms is described; a generality and distinctions in clinical cases of the given infections are defined.

Keywords: rotavirus and norovirus an infection, children of early age.

**A. M. Suzdaltsev, M. S. Korzhuk, V. M. Sitnikova, S. A. Sokolov**  
**Surgical approach for treatment of spontaneous pneumothorax in patients with undifferentiated connective tissue dysplasia**

A new surgical technique in the treatment of spontaneous pneumothorax in patients with undifferentiated connective tissue dysplasia is proposed.

Keywords: spontaneous pneumothorax, undifferentiated connective tissue dysplasia.

**Z. B. Tasova, O. P. Goleva**  
**About results of sociological survey of students in Omsk**

The article presents results of scientific research of sexual behaviors of students of vocational education in Omsk. The information about hygiene of sexual life is analyzed. The necessity of medical service establishment working with young people is proved. Students have opportunity to express opinion about medical service and work with young people taking into consideration for generating prophylactic measures.

Keywords: sexual behaviors, abortions, hygiene of sexual life.

**A. N. Usatov, V. P. Rodkin**  
**Condition of labor and health protection at aircraft manufacturing enterprises**

For the major workplaces of assembly shops of aviation manufacturing enterprises the presence of a complex of factors of industrial environment is presented. The estimation of working conditions in the basic trades corresponds to a class 3.1, 3.2. Leaders in the structure of the revealed diseases are illnesses of bodies of blood circulation, nervous system, a bone-muscular and connecting fabric. On the basis of the received data the preventive measures is proved.

Keywords: aircraft manufacturing, harmful production factors, preventive measures.

**I. P. Stepanova, Ya. S. Makarova, A. G. Patyukov**  
**Interrelation between standard and integral form of pro-oxidizing and anti-oxidizing test of blood system**

Correlation between indicators pro- and anti-oxidizing ability of blood by means of standard (products free radical oxidations of biomolecules, non-enzymatic and enzymatic components anti-oxidizing systems) and integrated (chemiluminescent method) testing forms is studied.

Keywords: pro-oxidizing abilities, anti-oxidizing abilities, chemiluminescent methods.

**T. N. Negriy, V. I. Larkin, Yu. N. Savchenko, V. M. Tatarnikova**  
**Hippocampus in an epilepsy genesis**

The result of dynamic observation of the patient with temporal epilepsy after the carried out temporal lobotomy on the right with the long favorable catamnesis and full retrogress of attacks is presented.

Keywords: hippocampus, epilepsy, temporal lobotomy, quality of life.

**O. S. Churina, S. V. Skalsky, L. V. Shukil**  
**Experience of Regional Centre of drugs side effects studying**

The analysis of the Regional Centre of drugs side effects studying has been done for the years 2005–2009. The structure of adverse side reactions to drugs has been also analyzed in Omsk region. The drugs safety monitoring system has been regulated in Omsk region. This system is one of the priority areas of pharmacology supervision. It is established to ensure safety and efficiency of drug therapy.

Keywords: adverse side reactions, Regional Centre of drugs side effects studying, drugs safety monitoring system.

**V. I. Ponomarev, E. S. Bocharnikov, M. Sh. Adyrbaev, G. N. Bereznyak, V. N. Belov, A. S. Shalaginov**  
**Little invasion methods of treatment of post-burn cicatricial stenoses of gullet in children**

With the purpose of increase of efficiency of treatment and reduction of its period we offer the method of cryolysis area of stenosis with using medical nitrous oxide as a cryoagent. It affects the cicatricial tissue of gullet with circular damages promotes efficiency of treatment under considerable reduction of its terms and improvement the quality of patients' life.

Keywords: stenosis, gullet, cryolysis, nitrous oxide.

**V. I. Larkin, I. I. Larkin, Yu. V. Lalov, L. A. Sitco, V. V. Troyan, N. N. Chigrik**  
**KT-morphometric estimation of tumors of cerebrum in children**

Morbidity of tumors of brain among baby population of Omsk region has rate 7,26 out of 100 000. The estimations of the proliferative activities

(the test Ki-67) is an important prognostic criterion of tumors. The degree of the malignancy of formations depends on velocities of the growing: than tumor grows quicker, so more malignant it is. The masses-effect of the tumors in children can reach the value exceeding 40 %.

Keywords: tumors of brain, velocity of growing.

**O. I. Cherkashina, A. G. Patyukov**  
**Specific features of speech formation in children attending nursery schools and compensatory type specialized kindergarten**

The speech function at nursery school children with speech malformation has been investigated. It is reported that education and upbringing of children with disorders of speech development at a specialized pre-school institution yield results. The above mentioned fact is supported not only by emergence distinctive speech tendency at kindergarten leavers but also with timely maturation of other higher brain functions involved in cognitive activity process.

Keywords: pre-school children, speech, speech malformation, higher brain functions.

**A. D. Yatsenko, T. M. Lutikova**  
**Structural and metabolic plasticity of rodent spinal marrow lateral nuclei neuronal populations**

The cervical and lumbar spine lateral nuclei motoneuronal populations in rodents, having adapted to different surroundings in the process of historical development, have been studied. The morphometric characteristics — values of numerical density, nuclei, cytoplasm and neuron body sizes, structural and nuclear cytoplasmatic coefficient have been detected; cytochemical differences applied to the content and concentration of structured proteins, its functional and regulator coefficients, that is possible to be depended on locomotion character, phylogenesis and surroundings characteristics.

Keywords: spinal column, lateral nuclei, motoneuron, morphometry, citophotometrie, rodentia.

**E. R. Bikmetova, I. A. Menshikova, E. R. Farshatova, T. I. Ganeev, G. V. Ivanova**  
**Effectiveness of the mechanically activated amorphous form of calcium gluconate and antioxidant vitamin complex on the metabolism of bone tissue in chronic intoxication chlorinated hydrocarbons**

Two-month intoxication of dichloroethane with low concentration intensification of catabolism in bone tissues, processes resorption intensification, phosphorus calcium disturbance, are conditioned by progress oxidation stress with accumulation of products lipoperoxidation, reduction antioxidant enzymes activity and hormone balance disturbance. Obtain results indicate about effectiveness of therapy by antioxidant vitamins preparation and its combination with nanodispersed amorphous forms of calcium gluconate.

Keywords: dichloroethane, metabolism of bone tissue, antioxidation therapy.

**O. M. Kapuler, F. Kh. Kamilov**  
**Peculiarities of endogenous intoxication intensity observed in patients suffering from psoriasis**

There have been studied the stages of endogenous intoxication depending on the damaged area and psoriasis severity (PASI) and psoriasis duration time. Patients aged 5–18 and 18–67 (76 people) have been examined. Detecting molecules of low and average mass and polypeptides in blood plasma, erythrocytes and urine allows us to find out that intoxication intensity correlates with PASI and doesn't depend on psoriasis time duration. It can be evident through the stages of compensation, subcompensation and inverse decompensation.

Keywords: psoriasis, endogenous intoxication, clinical characteristics.

**O. V. Lobyreva, G. M. Abdullina, F. Kh. Kamilov**  
**The antioxidant enzymes activity and efficiency of iodinated polysaccharide complex in experimental hypothyroidism**

The objective of this study was to evaluate the efficiency of the iodinated polysaccharide complex in the correction of oxidative stress in the liver of rats with mercazolil-induced hypothyroidism. It has been revealed that experimental hypothyroidism is associated with the decrease of the antioxidant enzymes activity in the rat liver. The supplementation of hypothyroid rats with iodinated polysaccharide complex normalized the activity of antioxidant enzymes. The data obtained indicate the potential thyrotropic activity of the investigated iodinated biopolymer.

Keywords: experimental hypothyroidism, superoxide dismutase, glutathione peroxidase, catalase, iodinated biopolymers.

**T. F. Sergeeva, E. I. Demina, E. I. Erlykina**  
**State of pro- and antioxidant systems in nerve tissue and blood under short-term hypoxic preconditioning**

The intensity of free radical oxidation and activity of antioxidant system in the nerve tissue and blood have been studied in hypoxia and in short-term hypobaric preconditioning. Acute cerebral ischemia leads to activation of the free radical oxidation. It destabilizes the membrane structures of nerve cell, disturbs functioning of the neuronal enzymes and they appear in blood. The short-term hypobaric preconditioning has a protective action on the membrane of nerve cells. It creates the conditions for optimal functioning of the membrane-associated enzymes and adaptation to hypoxia.

Keywords: hypoxia, free radical oxidation, hypobaric preconditioning, membranes.

**F. N. Gilmiyarova, V. M. Radomskaya, E. M. Gilmiyarov, I. A. Zubova, A. V. Babichev, Yu. A. Shukhorova, K. I. Kolesova, M. V. Korableva, E. A. Sazonova, E. S. Golovina, O. A. Dolgova**  
**New estimation ability of connective tissue's condition**

It's revealed that antibodies to gliadin and transglutaminaza can be used as a markers the connective tissue's condition. Obtained data reveals that levels of types A and G immunoglobulins to transglutaminaza and gliadin in blood and oral fluid are associated with types of blood groups ABO-system. It is established that the level IgA to transglutaminaza is more higher in the patients with parodontitis of A (II) group of blood, minimum — by bearer of AB (IV) group. IgA and IgG to gliadini, which is absent at healthy people, were revealed in the oral liquid of patients. Additional gradation of laboratory tests dater belonging to groups of blood could advance personalization of metabolism index.

Keywords: connective tissue, immunoglobulins, transglutaminaza, gliadin, the groups of blood.

**D. A. Kozochkin, A. I. Snytnsky, T. G. Timofeeva, D. A. Romanov, L. A. Strelnikova, I. V. Strelnikov, T. A. Filimonova, V. E. Tselikman**  
**Relationship between lipid peroxidation and protein oxidation in blood and brain in dynamics of 30 days hypokinesia**

The dynamics of 30 day hypokinesia in the blood and brain are observed reciprocal relationship between lipid peroxidation and protein carbonylation. With the reduction of the molecular content of LPO products found to increase protein carbonilated content.

Keywords: hypokinesia, lipoperoxidation, protein carbonilation.

**M. A. Samoilov, I. A. Tkalenko, I. A. Karpova, P. Ya. Shapovalov, A. Sh. Byshevski**  
**The effect of estrogens and progestogens on coagulation and platelet hemostasis of the continuous-rolling of intravascular blood and reduced tolerance to thrombin and its correction with antioxidants**

Ethinylestradiol and levonorgestrel in doses are adequate to apply for medical purposes and accelerate peroxidation of lipids in blood platelets, which leads to their activation and acceleration of continuous-rolling intravascular blood and reduced tolerance to thrombin e.i. for development of thrombophilia. In the presence of antioxidant complivit these effects are limited.

Keywords: hemostasis, estrogen, progestins, lipidperoxydation.

**S. E. Govorova, M. V. Verzhinina**  
**The effectiveness of rehabilitation program on patients with bullous emphysema and spontaneous pneumothorax in connective tissue dysplasia center**

The paper presents a comprehensive program of rehabilitation of patients with bullous emphysema and spontaneous pneumothorax and connective tissue dysplasia. To assess its effect 64 patients are examined with first episode of spontaneous pneumothorax before and after the rehabilitation course. As a result the improved lung function and cardiac activity, noted as positive dynamics of the emphysematous changes according to computed tomography, decreased the number of recurrent spontaneous pneumothorax, and improved quality of life indicators.

Keywords: connective tissue dysplasia, bullous emphysema, spontaneous pneumothorax.

**V. V. Dmitriev, V. P. Konev, A. F. Sulimov**  
**Regeneration at fractures of mandible with dysplasia of connective tissue: markers of collagen exchange and type of bone callositas**

The comparative estimation of protein and carbohydrate components of a connective tissue in blood and daily urine at patients with dysplasia of connective tissue and in control group statistically significant distinctions have been revealed. The general tendencies characterizing

an orientation of metabolic processes at a trauma of the lower jaw are established.

Keywords: lower jaw fracture, dysplasia of connective tissue, oxyproline, glycosaminoglycan.

**L. G. Galtsova, V. E. Smyalovski, I. V. Druk**  
**Complex ultrasound examination of cerebrovascular system in patients with connective tissue dysplasia**

120 patients with signs of connective tissue dysplasia and 35 normal controls are studied. Morphological variants and diameter of cerebral vessels are analyzed by means of transcranial Doppler, duplex scanning and magnetic resonance angiography. Functional features of cerebral haemodynamics have been described in the patients with dysplasia of connective tissue.

Keywords: connective tissue dysplasia, intracranial haemodynamics.

**G. I. Nechaeva, E. A. Lyalyukova, N. I. Orlova**  
**Parameters of abdominal blood flow in patients with different somatotypes**

Parameters of ultrasonic dopplerographia defined at research portal, top mesenteric veins, the general hepatic, splenic and upper mesenteric arteries in patients with a various somatotype at the age from 16 till 40 years are presented. Differences in diameter and volume rates of a blood flow are taped in investigated vessels.

Keywords: a somatotype, diameter of arteries and veins, rate of blood flow.

**M. I. Shupina, E. N. Loginova, A. A. Semenkina**  
**Hypertension in young patients: the effectiveness of current preventive technologies in outpatient practice**

To study the effectiveness of preventive technology «School of a young patient with hypertension», comparing to the standard non-drug therapy, dynamics of the lifestyle-related risk factors was estimated at baseline, and 6, 12 and 36 months after cycle of training in 59 patients and in 55 patients attending regularly consultative appointment.

The study demonstrated the high efficiency of the school in decrease of lifestyle related cardiovascular risk factors occurrence, dynamics of blood pressure and total cardiovascular risk in young individuals with hypertension compared with the standard non-pharmacological therapy. The results allow to recommend it for widespread use in hypertensive patients of young age in ambulatory practice.

Keywords: arterial hypertension, patient education, cardiovascular risk, young people.

**V. S. Shurupov, V. V. Ryabov, T. E. Suslova, V. A. Markov**  
**The meaning of stiffness of main arteries in dynamics of chronic heart failure after myocardial infarction in the presence of preserved left ventricular ejection fraction**

The modern methods of treatment of acute myocardial infarction allow to avoid the early postinfarction remodelling but increase the number of patients with chronic heart failure and preserved systolic function of heart. According to the results of our study, the stiffness of the great arteries is increased among patients with chronic heart failure and preserved left ventricular ejection fraction, developed after myocardial infarction. In addition the severity of heart failure depends on the increase of pulse wave velocity. The positive correlations between increased stiffness of the great arteries and the levels of BNP and NT-pro-BNP are determined among chronic heart failure patients with preserved left ventricular ejection fraction in one year after myocardial infarction.

Keywords: arterial stiffness, chronic heart failure, pulse wave velocity, myocardial infarction.

**G. I. Nechaeva, I. Yu. Kalinina, N. V. Kiseleva**  
**Severity of atherosclerosis among people at the age of 45–60 with undifferentiated form of connective tissue dysplasia**

We have fulfilled research of frequency of atherosclerosis development in brachycephalic vessels on 30 patients at the age of 45-60 with undifferentiated form of connective tissue dysplasia compared with the group of 30 patients without dysplasia. We have revealed risk factors which influence extremely on origin and development of atherosclerosis: smoking, male gender, low HDL cholesterol. We recommend ultrasonic examination of brachycephalic vessels as screening method of diagnosis of atherosclerosis among patients with undifferentiated form of connective tissue dysplasia.

Keywords: dysplasia of connective tissue, atherosclerosis, risk factors.

**A. G. Dubrovina**

**Comparative analysis of dental service in an rural area of Omsk region in 1985 and 2009**

Dental system, personnel and performance results in a typical rural area of Omsk region in 1985 (Soviet period), 2009 and on new terms of management have been analyzed in the paper.

Keywords: dental system, dental personnel, dental service performance results, rural area.

**O. M. Zueva, Yu. I. Zueva**

**The condition of lipid-transport system and functional-metabolic activity of phagocytes under subclinical hypothyroidism**

It is given data on interconnection of a lipid-transport system and a phagot immunal reply at revealed hypothyroidism that need to be considered during the treatment of the given pathology.

Keywords: subclinical hypothyroidism, lipid metabolism, cholesterol, immunity, phagocytosis.

**E. Zh. Kopin, V. M. Gershevich, S. V. Chernenko, A. S. Vyaltsin**  
**Endoprothesis for the treatment of patients with tracheal stenosis and other tracheo-bronchial disorders**

By animal experiment it is modeled stenosis of trachea. The method for endoprothesis of the trachea with mounting the stent is developed by means of internal and external fixators. A comparative evaluation of the results between stenting smooth endoprothesis fixation with the author, prickly and metal in the experiment is carried out. The experience of diagnosis and treatment of 103 patients with tracheal stenosis is presented.

Keywords: scar stenosis of the trachea, the stent model cicatricial stenosis of the trachea, traheoskopiya, treatment of cicatricial stenosis of the trachea.

**V. V. Pedder, M. V. Naboka, V. K. Kosenok, D. S. Durina, Yu. V. Zvereva, A. V. Tanikov, Yu. A. Sizykh, V. N. Mironenko, S. P. Popov**

**Substantiation report of thermo- and photochromo-ultrasonic treatment of soft tissues fibrosis of cancer patients**

Complications after radiotherapy is an important problem of clinical oncology. Authors developed, theoretically proved and technically supplied an innovative method of thermo- and photochromo-ultrasonic treatment of soft tissues fibrosis

Keywords: soft tissue fibrosis, low frequency ultrasound, ozone, monooxide of nitrogen, photochromo-ultrasonic treatment, superoxide dismutase

**L. N. Semenova, N. A. Morova, D. V. Scherbakov**

**Acute thoracic aortic dissection: clinical signs, early diagnosis, hospital outcome of patients with Stanford Type A aortic dissection**

Acute aortic dissection (AAD) is uncommon and associated with high morbidity and mortality rates. Stanford Type A aortic dissection is a life-threatening disease. In this retrospective descriptive study, we identified all patients with the final diagnosis of AAD. A 16-year clinical experience of medical and surgical treatments in 53 patients with acute type A aortic dissection was retrospectively analyzed. The diagnosis of acute thoracic aortic dissection is difficult to make and often missed. In this article we try to determine how frequently physicians suspected the diagnosis in acute aortic dissection (AAD). Most patients with thoracic aortic dissection have severe pain (pooled sensitivity, 90 %) of sudden onset (sensitivity, 81 %). Earlier diagnosis remains essential to improve the survival rate.

Keywords: type A aortic dissection, diagnosis, clinical signs.

**P. P. Zolin, V. D. Konvay**

**The influence of ribose on hypoxanthine incorporation in brain, liver and heart at postresuscitation period**

Experiments are performed on rats exposed to 6,5 min asphyxia with following resuscitation. Rats are killed in 30 min after resuscitation were compared with reference animals. The increase of 14C-hypoxanthine incorporation in brain during the early postresuscitation period is found. D-ribose intravenous injection (50 mg/kg) just after the resuscitation has a beneficial effect on 14C-hypoxanthine incorporation in cells of blood and liver. We suppose it to be associated with ribose phosphorylation and phosphoribosyl diphosphate formation. The latter provides the hypoxanthine inclusion in salvage pathway and prevented its inclusion in xanthine oxidase reaction.

Keywords: hypoxanthine, postresuscitation disorders, ribose, brain, liver, heart.

**V. A. Aikin, M. A. Ogorodnikov, S. K. Poddubny**

**The use of functional tests to assess the cardiovascular system of children in scuba diving**

In order to investigate the effect of scuba diving on the functional state of the cardiovascular system in children of 12 years old at the beginning of the diving course there is examined the response of the cardiovascular system to the test Martinet-Kushelevski — heart rate variability at rest and orthostatic test before and after immersion in 28 healthy boys.

Keywords: diving, children, cardiovascular system, variability of a warm rhythm, the central hemodynamic

**VETERINARY SCIENCE**

**V. V. Shitikov**

**Changes in haematological indices and non-specific protecting factors in down calvers treated with the Immunofan**

The effect of immunomodulator Immunofan on down calvers at single intramuscular dose 0, 375 mg/kg is studied. It is found an increase in number of erythrocytes and haemoglobin concentration as well as the eosinophil content. Simultaneously, Immunofan causes an increase of CIC's level, a phagocytic number and index.

Keywords: haematological indices, non-specific protecting factors, immunofan.

**E. A. Zubareva**

**Definition of joint functional state in horses during training and competition in the field**

In this article the method for evaluation of joint functional state in horses is developed by device for simultaneous registration any joint sounds and angle of joint flexion and extension of limb in training and competition in the field. Also here is reported some methods for data analysis and its explanation in the anatomical and physiological points of view for using this device for preventive diagnose and for diagnose of many joint diseases in animals.

Keywords: artrophonography, electrogoniometry, carpal joint, horse, training.

**ECOLOGY**

**A. E. Gagloeva, V. V. Bazhenov**

**Developing the model of polluting of substances from water surfaces in atmospheric air**

The article describes the model defining the quantity of polluting substances evaporating from water surface. For verification of the model the experiment is carried out.

Keywords: model, polluting substances, evaporation.

**E. M. Milenina, E. O. Kargapolova**

**The influence of vehicles on noise pollution of Omsk**

Noise is any unwanted sound for humans. According to experts, the noise in cities is increasing annually by about 1 dB. There are all new heavy-duty sound sources. Very high levels of industrial noise. Therefore, the World Health Organization (WHO) has developed a program to reduce noise in urban areas, as well as including some kinds of pollution of the physical environment (noise, electromagnetic radiation, etc.) among the most important environmental problems of today.

Keywords: noise, dynamics, impact, intensity, level protection.

**L. V. Novgorodtseva, E. N. Karlyuk**

**The influence of physical and chemical impact of enterprise «Progress» on Omsk environment**

The physical-chemical structure of emissions is studied, the influence on ecological conditions of atmosphere at the working zone of enterprise «Progress» and other sources of pollution of October District of Omsk are estimated. The research data can be applied to the complex estimation of influences on environment of various enterprises, and as in research of influence of quality of atmospheric air on growth of diseases in population of Omsk.

Keywords: polluting substances, an ecologic-economic damage, ecological examination.

**L. V. Kubrina**

**The analysis of toxic activity of snow samples in the series of primary screening on a plant cell (Lepidium sativum)**

The analysis of toxicity of snow samples in a series of primary screening for plant cells (cress (Lepidium sativum)) is done. For the first time determined the toxicity of snow samples in a series of primary screening

for plant cells. The data obtained extend the concept of genotoxic effect of snow samples on living systems.

Keywords: toxicity, primary screening, snow samples.

**S. V. Kulikov, N. A. Voronkova**  
**Agroecological influence of chemicals on the quality of crop production**

The research carried out at a long stationary experiment with a systematic application of fertilizers on chernozem soils in the southern forest-steppe zone of Western Siberia it is found that the content of nitrate nitrogen, heavy metals and pesticide residues in wheat grain, barley, green mass of alfalfa did not exceed maximum allowable concentrations.

Keywords: fertilizer, nitrate nitrogen, heavy metals, pesticides, crop production, ecology, agrocenosis.

**Yu. A. Kurilo, A. I. Grigoriev, E. V. Donets**  
**Bioelectric reaction of cells of the high plants to stress-impact**

The peculiarities of the change of bioelectric activities in high plants are considered. The key problems showing dependency of the resistance from ecological conditions are discussed. The dependency of spreading the electric resistance in a cell of wood plants in condition of the oil contamination in pool buffer pond OAO «Gazpromneft-«Omskiy oil processing plant (ONPZ)» is revealed.

Keywords: high plant, bioelectric activity, electric resistance, ecological conditions, stress.

**A.V. Sindireva, N.A. Golubkina**  
**Evaluation of selenium status of the territory of Omsk region**

The human selenium status in 32 districts of Omsk region is determined, serum selenium being in the range 73–116 µg/L. Significant differences in selenium accumulation coefficient in plants is shown to depend on the type of soil. Methods of the human selenium status optimization are discussed.

Keywords: Omsk region, selenium status, deficiency, correction, ecology evaluation.

**S. B. Chachina**  
**The use of the higher water plants: *Vallisneria spirali*, *Eichornia crassipes*, *Lemna minor*, for additional cleaning of sewage at «Gaspromneft refinery»**

Accumulative ability of the higher water plants — *Vallisneria spirali*, *Eichornia crassipes*, *Lemna minor* is studied. For the first time the comparative characteristic of the higher water plants on ability to take from sewage is spent and to accumulate phosphates, phenol, nitrogen connections, having fallen down, chlorides, sulphates and mineral oil. The data of research can be applied to creation of biological ponds and use for additional cleaning of city and industrial sewage of the higher water plants.

Keywords: sewage, additional cleaning of sewage, the higher water plants.

#### BIOLOGICAL SCIENCE

**A. M. Dobrenko, P. E. Khvostorezov, A. V. Goryaga**  
**The influence of constant magnetic fields on embryo development of a bird**

In the work it is considered pre-incubation influence of constant magnetic field on eggs of hens. Hypotheses about positive influence of the energy of magnetic field on incubation process are offered.

Keywords: magnetic field, deductibility, embryo live of bird, hypothesis.

**V. V. Kornyakova, V. D. Konvay, E. V. Fomina**  
**The activation of lipid peroxidation in liver of rats with intensive physical activity, mechanisms of development, correction**

The intensive physical activity is accompanied by lacto- and ketoacidosis, reinforcing catabolism by purines to urate. This phenomenon is associated with the intensification of production reactive oxygen metabolites by ksantinooxidase, excessive lipid peroxidation of membrane structures of hepatocytes exhausted of the antioxidant system. The injection to rats of ribose contributes to inhibition of lipid peroxidation of membranes and improve the antioxidant defense system.

Keywords: blood, liver, enzymes, ribose, physical activity.

**A. N. Krasnogorova, S. I. Andreeva, N. I. Andreev**  
**Variation in shells of *Sphaerium levinodis* Westerlund, 1876 (Mollusca, Bivalvia) from the Western Siberian waterbodies**

The variability of *S. levinodis* shells in the Western Siberian waterbodies does not exceed specific range, however, significant differences between samples from waterbodies of different type have been reported. In particular, we observed differences between morphometric indices of shells from samples collected in brooks, supplementary waterbodies and non-floodplain lakes.

Keywords: bivalve molluscs, variability, Western Siberia.

**O. N. Kudrya**  
**On the regulation of carbohydrate metabolism during muscular activity**

The study identifies age-related peculiarities of vegetative regulation of carbohydrate metabolism during muscular activity. Lack of functional activity of the sympathetic part of autonomic nervous system in young athletes causes the reduction of blood glucose during physical stress. In athletes 17–25 years of negative changes in blood glucose level during physical stress is probably due to the depletion of the sympathoadrenal system and a reduction of adaptive the capacity of the organism.

Keywords: carbohydrate metabolism, glucose, lactate, muscle activity, autonomic nervous system, athletes.

**E. A. Lazutkina, S. I. Andreeva, N. I. Andreev**  
**Findings of *Digyracidum bourguignati* (Paladihe, 1869) in the waterbodies of the Urals and Western Siberia**

The South-European species of snails *Digyracidum bourguignati* is for the first time found in the waterbodies of the Urals and Western Siberia. Its description is given as well as the data on its geographical distribution and morphology. The paper is illustrated by photos of shell and the penis.

Keywords: Bithyniidae, *Digyracidum bourguignati*, Western Siberia, Urals.

**L. V. Chernaya**  
**The species composition of ciliates endobiontnyh of a sheep domestic (*Ovis aries*)**

The study found 10 species of ciliates endobiontnyh belonging to 4 genera of the family Ophryoscolecidae Stein, 1859, and two genera of the family Isotrichidae Břtschli, 1889. This article describes the differential diagnosis of endobiontnyh ciliates — the inhabitants of the rumen sheep home (*Ovis aries*). Material was collected in the agricultural enterprises of the Omsk region.

Keywords: ofreoskoletsidy (Ophryoscolecidae), izotrihidny (Isotrichidae), sheep domestic (*Ovis aries*).

#### EARTH SCIENCE

**I. V. Karnatsevich, G. G. Bikbulatova, K. V. Ryapolov**  
**Perspectives of genetic method for calculation of elementary run-off on daily intervals**

The mathematical model of humidifying and drying of soil during transformations of atmospheric moisture on earth surface under influence of run-off and evaporation allows to generate rows of the hydrographs with the daily resolution. The model uses only meteorological elements obtained on meteorological stations. The first outcomes of the genetic description of run-off on meteorological data and monitoring of their correctness are indicated.

Keywords: meteorological elements, daily intervals, run-off.

**G. G. Bikbulatova**  
**The analysis of atmospheric moisture on the territory of Siberia and Far East**

The article discusses the features of the spatial distribution of atmospheric moisture in Siberia and Far East. There are the latest maps of precipitation based on the data of recent years.

Keywords: Siberia, Far East, atmospheric moisture, precipitation.

**A. S. Kostyuk**  
**Features aerial photographs by ultra-light unmanned aerial vehicles**

In the article features the choice of digital cameras and calculation of the parameters of aerial photographs by ultra-light unmanned aerial vehicles (UAVs) are considered. The presented method for rapid assessment of the quality of aerial photography from unmanned aircraft is developed.

Keywords: unmanned aerial vehicle, digital camera, calculation of the parameters of aerial photography, photogrammetric processing of images.

**A. V. Karaeva, I. V. Karnatsevich**  
**Number of days in the year with daily maximum air temperature in Russia and nearest countries**

The number of warm days for each summer in Russia and closest countries is calculated. The graphs and maps are designed.

Keyword: maximum temperature of an air, number of days.

**I. V. Karnatsevich, A. V. Karaeva**  
**The driest summer in Omsk**

In the summer of 2010 in Omsk — since April till October — the sum of atmospheric precipitation gave only 145 mm of water — the minimum one during 20 century.

Keyword: atmospheric precipitation, Omsk, 2010.

**AGRICULTURAL SCIENCE**

**I. A. Bobrenko, N. V. Goman, V. I. Popova, E. P. Boldysheva**  
**The efficiency of the basic zinc fertilizers for winter grain crops on meadow-chernozem soil in Western Siberia**

In the field experiments on meadow-chernozem soil it is established that plants of winter grain crops positively respond to zinc fertilizers. Agrochemical standard parameters of a mineral food of winter wheat and rye are defined.

Keywords: winter wheat, a winter rye, meadow-chernozem soil, productivity, quality, carrying out, zinc fertilizers.

**Yu. I. Yermokhin, N. N. Tischenko**  
**The value of accumulation of available nitrogen in the soil and its practical use**

Optimum parameters of available nitrogen accumulation in the soil under plant *Achillea millefolium* L. is determined during the field experiments. This allowed to develop optimal levels of nitrate nitrogen in the soil layer 0–30 cm of 45 mg/kg soil in the average years of research for the southern forest-steppe of Omsk region, to produce a crop of dry matter *Achillea millefolium* L. up to 10 t/ha.

Keywords: nitrate nitrogen, *Achillea millefolium* L., nitrogen uptake from the soil, fertilizers.

**V. P. Shamanin, I. V. Pototskaya, S. P. Kuzmina, A. Yu. Trushchenko, A. S. Chursin**  
**Breeding of spring bread wheat for resistance to leaf and stem rust in the conditions of Western Siberia**

The results of evaluation of hybrid populations of the Kazakhstan-Siberian Shuttle Breeding Nursery are presented. The initial material is

selected for breeding for resistance to leaf and stem rust in conditions of Western Siberian. The breeding value of the population created by the shuttle breeding program between the scientific institutions of Kazakhstan and Western Siberia and CIMMYT is shown.

Keywords: spring wheat, shuttle breeding, breeding estimation, resistance, leaf and stem rust, yield.

**A. S. Garagul, A. A. Langlets**  
**Fertilizer, crop and quality of a spring false flax on ordinary chernozem of Western Siberia**

The materials field experience and on the basis of diagnostics of soil derived and presented formulas for calculating the optimal doses of mineral fertilizers to obtain high yields of spring false flax. The formula for predicting the fat content in seeds of false flax is given depending on the doses of fertilizers.

Keywords: spring false flax, soil diagnosis, level of mineral nutrition, yield forecasting and quality of oilseeds.

**E. Ya. Semerkhanova, V. I. Shmakov**  
**Dynamics of stocks of water in ground and deficiencies of humidifying of an active layer of ground in conditions of southern forest-steppe of Omsk Priirtyshie**

Under conditions of southern forest-steppe of Omsk Priirtyshie of zones of irrigated agriculture, the major question of an intensification of technological process of cultivation of cultures at an irrigation is optimization of a water mode in a settlement layer of ground which capacity, in opinion of researchers, depends on the depth of penetration and capacity of root system of cultures. Last years many authors recommend at watering to accept overhead irrigation the depth of humidifying equal to capacity of biologically active layer which capacity depends not only from features of cultivation of cultures, but also from a water mode of ground. The given work is devoted to specification of a settlement layer of humidifying in view of natural moisture stores in ground.

Keywords: resources, technology, irrigation rate, evaporation, deficit

**A. N. Orlov**  
**Theoretical research of the forces acting on a layer of soil on the claw of cultivator**

A cultivator moving of a layer from the beginning of cross-section of the ridger to target cross-section occurs by function  $z=f(x)$ . Thus, there is a change of a soil layer position on axes  $x$  and  $z$  and speed of motion  $V$  changes. For definition of the force necessary for moving of a layer of soil in the concrete ridger it is necessary to express angle  $\alpha$  in the length of the ridger.

Keywords: cultivator, ridger, a soil layer, speed of motion, traffic, function.