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## SUMMARY

## MEDICAL SCIENCE

**Yu. A. Krotov**  
Otolaryngological service of Omsk

**N. V. Bemukhambetova, O. G. Ivanova, A. V. Mordyk, N. V. Bagisheva**  
Some clinical features of pulmonary tuberculosis and concomitant somatic pathology

The peculiarities of tuberculosis upper respiratory tract and its combination with other diseases are discussed. Tuberculosis of the upper respiratory tract is often encountered in practice of otolaryngologist, but almost it is secondary one. There is revealed that 100 % of the loss of upper respiratory tract is associated with lung disease, making it difficult treatment and accompanied by multi-drug resistant. In a number of cases there have been detected combination of tuberculous lesions in otolaryngology with other diseases (chronic laryngitis, laryngeal and other sites, COPD).

Keywords: tuberculosis, upper respiratory tract, diagnostics, clinic, course, COPD.

**S. Yu. Krotov, Yu. A. Krotov, I. N. Putalova, A. B. Pavlov**  
Features of morphofunctional modifications of regional lymph nodes of tympanum at experimental acute otitis media

Regional lymph nodes response is studied in the presence of experimentally induced acute otitis media. Morphofunctional modifications are developed on day 4 and 12 indicating an active inflammatory process running both in tympanum and regional lymph nodes. These modifications are to be noted while treating acute otitis media.

Keywords: acute otitis media, lymph nodes.

**A. I. Musienko**  
The alternative method of restorative osteogenesis with using growth factor for purpose of removing some defects of maxillary sinuses

The urgent clinical problems to be connected with maxillary sinuses perforations occurring both during extraction of teeth

side group and during long terms after surgical intervention are considered in this article.

Application of tissue growth factors for speeding up regeneration is becoming increasingly common. Concentrated autologous thrombocyte plasma (FRP) to be obtained by patient blood fractionation is one of the thrombocyte growth factors source. Some clinical items of FRP application and the assessment of its effectiveness are discussed here. This applied method of operative treating some defects of maxillary bones according the author's methodology results in morphofunctional restoration of tissues and it can be used in practical dentistry.

Keywords: growth factor, regeneration, paraimplantation, thrombocyte plasma, perforation.

**Yu. A. Krotov**  
Tactics of surgical rehabilitation of ear and hearing rehabilitation in chronic suppurative otitis media

The analysis of surgical treatment in 669 patients with chronic suppurative otitis media, out of which 377 patient with cholesteatoma, 292 ones with carious form is done when cholesteatoma sanitizing operations conducted by «open» method. For carious forms there is developed separately-step tactics microsurgery, where the first stage is performed by sanitizing operations of 'closed' method on the second, planned plastic microsurgery tympanum on the operated ear. Character of treatment is individualized for tubotympanal and epiantral carious forms of otitis media. The ratio of morphological and functional results of the «closed» sanitizing operations defines indications for the second phase of microsurgery.

Keywords: cholesteatoma, carious form, the operation of the Open method, the operation of the closed method, morphological effectiveness, functional efficiency.

**K. I. Nesterova**  
Low-frequency ultrasound technology for noninvasive treatment of purulent rhinosinusitis

Low-frequency ultrasound technology developed non-invasive rehabilitation paranasal sinuses improves the efficiency of the treatment of acute and chronic sinusitis by 40–60 %, and increase the share of crops sterile sinuses 8 times. Significant reduction and

expansion of sensitivity in most aggressive flora — *S. pneumoniae* is in acute sinusitis, staphylococci, anaerobes and *P. aeruginosa* (27, 24 and 18 %, respectively, before treatment) — chronic.

Keywords: purulent sinusitis, low-frequency ultrasound, microbial flora.

**O. G. Sokolova, I. S. Pogodin, I. N. Odarchenko, Yu. N. Yurgel**  
**Low-frequency ultrasound therapy of levocetirizine in patients with acute infectious rhinitis**

This article represents the results of research of low-frequency ultrasound with levocetirizine anti-inflammatory activity in patients with acute infectious rhinitis (AIR). Low-frequency ultrasound therapy with levocetirizine effectively reduces of rhinitis symptoms duration, such as nasal obstruction, sneezing, rhinorrhea, demonstrates of anti-inflammatory activity and reduces of topical decongestants requirement in AIR patients. The effectiveness of this therapy is estimated by objective and subjective methods.

Keywords: acute infectious rhinitis, levocetirizine, antihistamines, low-frequency ultrasound, rhinomanometry, interleukins.

**A. I. Drachuk, K. I. Nesterova**  
**Innovative approach to postgraduate education of otolaryngologists by new methodics**

Introduction into clinical practice of new technologies ultrasound therapy and surgery ENT-based devices developed in conjunction with the production «Automatic» (Omsk) necessitates the curriculum regulated by the unified program within 20 % of the total training time and adding 34 hours of hands-on labs clinic.

Keywords: otorhinolaryngology, uniform program postgraduate training of doctors, low-frequency ultrasound.

**A. A. Nesterova**  
**Treatment chronic adenoiditis in children with help of low-frequency ultrasound**

A comprehensive treatment of 170 children with adenoiditis using a low frequency ultrasound (n = 100) and traditional (n = 70) is done. Flora before treatment: *S. pneumoniae* 46 %, *H. Influenza* 14 %, *S. aureus* of 13 %, anaerobes 30 %, *M. catarrhalis* 7 %. After LFUS therapy: anaerobes 5 %, *S. pneumoniae* 15 %, *P. aeruginosa*, *E. coli*, fungi are absent. In traditional treatment: anaerobes 14 %, *S. pneumoniae* 33 %, *S. aureus* 20 %. In cytograms before treatment there are lymphocytes, a large number of neutrophils and epithelial cells in varying degrees of degradation after LFUS treatment — normalization of the composition and integrity of the mucosal cells.

Keywords: adenoiditis, low-frequency ultrasound, bacteria, cytoimmunology.

**E. V. Nadey, V. I. Sovalkin**  
**The role of trigger factors in formation of allergy in Omsk region**

Annual emissions of about 243600 tons of pollutants from stationary sources and up to 255000 tons from vehicles are reflected in the growth of morbidity in adults (196872 to 100,000 population) and children (978127) are the background and formation of allergic diseases in the Omsk region, with prevalence of allergy development airways with increasing number of patients with asthma 12050 to 18577 and 5390 with pollinosis to 8139 for 10 years. There is observed dependence of the number of patients from ecological trouble administrative districts of Omsk, which is 2–3 times higher than the number of patients with bronchial asthma, uncontrolled during which noted in 38,5% of them, the higher the frequency of concomitant allergic diseases (87,7%) and the presence of multivalent sensitization (84–92%), which has prognostic significance for the further course of the allergic process.

Keywords: bronchial asthma, pollinosis, morbidity, ecological trouble, dust.

**E. V. Nadey, K. I. Nesterova**  
**Programming currents and severity of atopic allergic airway diseases**

When pollinosis 87,7 % of patients have attendant of allergy (n = 652 to 744). When carrying out a year-round ASIT in patients with combined of allergy positive clinical effect observed by the end of the 1st year of therapy in 84,6 % of patients, 2nd year — 90 %, the third year in 94 % of patients. It is advisable to conduct at least three courses with individual selection ASIT allergens. A correlation of symptoms of asthma or allergic rhinitis with symptoms of other allergic diseases in combined of allergy is considered. A system for predicting the severity of symptoms of allergic disease by therapy — ASIT symptomatic base is developed.

Keywords: allergic rhinitis, bronchial asthma, allergic diseases, ASIT, forecasting results ASIT, associated table.

**V. P. Kazakovtsev**  
**The incidence of upper respiratory tract disease in the population of large industrial center**

The analysis of the influence of environmental factors on the incidence of upper respiratory tract of the adult population in a major industrial center of Western Siberia — Omsk. Health assessment of children and adults for implementation lyalas retrospective prospective materials and medical records from 1971–2013 is done. Used correlation statistical analysis is conducted using standard statistical software package Statistica 6.0, where highlighted leading risk factors affecting the incidence of upper respiratory tract population. Formation of chronic diseases of upper respiratory tract occurred against a background of high incidence of acute respiratory infections, acute bronchitis and bronchiolitis. Listed pathology correlates with the qualitative and quantitative characteristics of anthropogenic pollution of the urban environment and living conditions. Duration of follow-uniformity of quality improvements, no significant differences in the structure of health loss, increase in recent trends show regularities in losses from diseases of upper respiratory tract, the low social, environmental, economic protection of the population in the territory.

Keywords: environmental factors, upper respiratory illness, disease, risk factors.

**E. V. Bayke**  
**The analysis of content of short chain fatty acids in the lavage from tympanic cavity depending on shape of chronic suppurative otitis media**

A study of the content of short-chain fatty acids in the lavage of the tympanic cavity in 977 patients suffering from chronic suppurative otitis media is done. The direct dependence of short-chain fatty acids and the area of the pathological process and the high index in anaerobic caries-destructive forms of chronic otitis media is shown.

Keywords: chronic suppurative otitis media, short-chain fatty acids, anaerobic index.

**S. A. Karpishchenko, O. N. Sopko, E. V. Osipenko**  
**Management of patients in postoperative period after removal of frontal sinus and ethmoidal labyrinth's osteoma**

The article presents the problems of the management of patients in the postoperative period after endoscopic endonasal removal of osteoma of the frontal sinus and the ethmoidal labyrinth.

Keywords: osteoma, postoperative period, endoscopic endonasal approach.

**A. I. Kryukov, E. A. Kirasirova, N. V. Lafutkina, R. F. Mamedov, O. K. Pimindi, N. R. Gogoreva, R. A. Rezakov**  
**Surgical treatment of patients with bilateral laryngeal paralysis after strumectomy**

The damage of the recurrent laryngeal nerve is one of the serious complications of surgical treatment of thyroid diseases. Bilateral paralyse with laryngeal stenosis lead to organ, tissue and cellular hypoxia, which require urgent measures. Surgical treatment followed by rehabilitation of patients with bilateral paralysis of the larynx allows for full recovery of respiratory function.

Keywords: paralysis of larynx, stenosis, surgical rehabilitation.

**M. A. Likhanova, O. I. Bondarev, N. V. Mingalev, R. N. Lebedeva**  
**Polypoid rhinosinusitis — questions etiopathogenesis**

This paper summarizes the information about the etiopathogenesis of chronic polypoid rhinosinusitis. Clinical and laboratory, morphological and histochemical study in 100 patients with chronic rhinosinusitis polypous. The data obtained to assert that the formation and development of polyps affects epithelial-mesenchymal transformation of highly differentiated epithelial cells in a less differentiated state with the acquisition of fibroblasts and myofibroblasts functions is confirmed by immunohistochemical study data.

Keywords: chronic polypoid rhinosinusitis, etiopathogenesis, epithelial-mesenchymal transformation.

**V. D. Osipov, D. V. Surzhikov, E. S. Zabelin, R. A. Golikov**  
**Assessment of exposure to carcinogenic pollution in large industrial city as risk factor for formation of obligate precancer laryngeal**

One of the major causes contributing to the increase in the number of patients with chronic hyperplastic laryngitis is the deterioration

of ecological conditions in the industrialized cities. The examination of 2025 metallurgical plant workers is performed. Chronic laryngeal inflammatory diseases are detected in 142 (7 %) workers, of whom 30 (25 %) workers suffered from chronic hyperplastic laryngitis. The data presented here have favored a wide application of inhalation and gala therapy in workers of metallurgical enterprises, resulting in decreased rates of larynx cancer in workers at-risk.

Keywords: hyperplastic laryngitis, ecological conditions, inhalation and gala therapy.

**E. A. Stepanova, V. I. Sambulov, M. V. Vishnyakova**  
**Diffusion-weighted magnetic resonance imaging in middle ear cholesteatoma**

The purpose is to assess the efficiency of diffusion-weighted magnetic resonance imaging (MRI) for cholesteatoma. 25 patients are investigated by standard computed tomography (CT) and MRI research, including coronary and axial T1 and T2, and also diffusion-weighted imaging (DWI). The imaging findings are correlated with findings from surgery or clinical evaluations in all patients. Use of DWI is effective in diagnostics primary acquired and recurrent middle ear cholesteatoma.

Keywords: computed tomography, magnetic resonance imaging, diffusion-weighted imaging, cholesteatoma.

**N. V. Shcherbik, R. Sh. Yunusov, A. V. Starokha, R. I. Pleshko, E. N. Kologrivova, M. M. Litvak, E. Chichinskas**  
**Clinical and immunological features of otitis media with effusion in children under immunotherapy**

Present study describes the results of conservative treatment of 42 children with OME. All patients are prescribed with complex therapy consisted of drug therapy and mechanic therapy. Patients of observation group (n = 20) receive additionally local immune therapy with intranasal "Imunophan" spray according to new scheme of prescription (app. for Patent № 2014114122). Patients of control group (n = 22) are treated with only conventional methods.

In case of "Imunophan" treatment, clinical improvement, which was assessed with questionnaire, was observed after one month (points decreased by 1.6) and 3 months (points decreased by 2.1) in comparison with control group. Neutrophil myeloperoxidase activity is significantly increased after one month of "Imunophan" treatment in observation group demonstrated 2.2 points against 1.82 in control group (p < 0.05), and in 3 months almost reached physiological levels (2.86).

Keywords: Otitis media with effusion, hearing loss, myeloperoxidase, Imunophan.

**A. I. Kryukov, A. B. Gekht, S. G. Romanenko, E. V. Birukova, A. A. Kazakova, E. V. Lesogorova, D. I. Krasnikova**  
**Our experience of diagnostics and treatment patients with «globus sensation»**

A comprehensive clinical examination of 96 patients with a complaint of «globus sensation» aged of 18 to 65 years is analyzed. A neurotic disorders are found in 78 patients (81,2 %). All patients are treated according to the identified somatic, ENT and psychosomatic pathology. For the first time the method of biofeedback therapy is applied in the complex therapy measures in the treatment of 36 patients with complaint of «globus sensation». Application of this method leads to a significant reduction of symptom, which is confirmed by objective methods.

Keywords: «globus sensation», neurotic disorders, the biofeedback therapy.

**V. P. Sitnikov, El-Refai Hoosam, S. V. Shil'ko, N. T. Dzhaynakbaev**  
**Use of new technologies of prostheses based on modified teflon with dlc-nanocoating in ear surgery(experimental study)**

The objective of the present study is to establish common and local tissue reactions characteristics of experimental animals (rats) on radiation-modified polytetrafluoroethylene (PTFE)-based implants with DLC-nanocoating and DLC-nanocoating containing dispersed nanoparticles of silver.

Keywords: middle ear reconstructive surgery, implants, biocompatibility, PTFE-based polymer material, DLC-nanocoatings, silver nanoparticles.

**R. K. Tulebaev, B. K. Yersakhanova, N. M. Papulova, B. Z. Zhusupov, T. M. Azhenov, A. Zh. Baymenov**  
**Changes in immunity after treatment of acute rhinosinusitis**

The analysis of immune status of patients, who received traditional therapy and flogenzim, confirmed the absence of

increased (pronounced) dynamics in the side of quantitative and qualitative indicators of cellular immunity. During the usage of immunomodulatory therapy we can observe positive dynamics in the side of non-specific phagocytic chain (increase phagocytosis and the number of phagocytic cell and there is a trend to restore metabolic activity of neutrophils in NST-test). There are significant changes in humoral as reducing the concentration of CIC, however, there is no changes in CD 20 records. It can be assumed that further studies will clarify the evidence and justify the most appropriate route of the usage of systemic enzyme therapy in complex treatment of acute rhinosinusitis.

Keywords: immunity, conventional treatment, Phlogenzym, acute rhinosinusitis.

**E. A. Gilifanov, V. A. Nevzorova, S. A. Artyshkin, L. B. Ardeeva, T. V. Tilik**  
**Parameters of the functional status and clinical status of the upper airways in patients with chronic obstructive pulmonary disease in remission**

The publication addresses the functional and clinical status of the upper airways in patients with chronic obstructive pulmonary disease stage 2–3 in remission.

Keywords: chronic obstructive pulmonary disease, upper airways.

**N. L. Kunelskaya, L. A. Luchikhin, A. L. Guseva, E. A. Dovlatova, S. D. Chistov**  
**Sensitivity, specificity, and predictive value of vestibular posture, coordination and gait tests in examination of dizzy patients**

In our study we investigated sensitivity, specificity and diagnostic significance of such widely used vestibular posture, coordination and gait tests, as finger-nose-pointing test, finger-pointing test, Barre-Fisher test, test on diadaochocinesia, Romberg test, tandem Romberg test, flank gait, straight gait and Fukuda stepping test. Patients with peripheral, central and mixed vestibular lesion are examined and their results are discussed. The most appropriate tests for differentiation between peripheral vestibular and central vestibular forms of vertigo are suggested.

Keywords: vestibular tests, dizziness, vestibular dysfunction.

**I. A. Shulga, E. V. Zubova**  
**The question of pathogenesis essential nasal congestion during pregnancy**

Analyzed qualitative indicators rheoencephalography in pregnant women with essential nasal congestion during pregnancy, evaluate changes in the concentrations of serum estradiol at various stages of gestation in 87 pregnant women. The analysis of the dynamics of the concentration of estradiol in women with essential nasal congestion during pregnancy compared with the results rheoencephalography in this group shows the relationship of the vascular bed of the level of concentration of estradiol.

Keywords: essential nasal congestion during pregnancy, rheoencephalography, estradiol concentration.

**A. I. Kryukov, S. G. Romanenko, O. G. Pavlikhin, E. V. Lesogorova, A. A. Kazakova, D. I. Krasnikova**  
**Therapeutic approach at polypoid degeneration of the vocal cords marked with clinical and functional states of the larynx**

It is studied the clinical and functional states of patients larynx with polypoid degeneration of the vocal cords (Reinke's edema) and the treatment algorithm has been developed taking into consideration the severity of polypoid process. So some indications for conservative and surgical therapy are determined as restoration of voice cure in the post-surgical treatment. This therapeutic approach gives a permit for the treatment optimization in the pre-surgical and the post-surgical treatment, and also we can reduce the recovery time voice in the post-surgical treatment.

Keywords: polypoid degeneration of the vocal cords, Reinke's edema, postoperative treatment polypoid degeneration of the vocal cords.

**S. A. Karpishchenko, G. V. Lavrenova, S. V. Baranskaya**  
**Specific course and treatment choice in chronic tonsillitis in elder population**

The article presents the problems of the chronic tonsillitis. Pathological process in the elder population has outstanding characteristics that affect the treatment choice. An article describes the herbal therapy and cryotonsillotomy for treating a chronic tonsillitis.

Keywords: chronic tonsillitis, elder population, herbal therapy, cryotonsillotomy.

**A. V. Starokha, A. V. Balakina, M. M. Litvak,  
E. N. Zueva, V. S. Ivanova**  
**Assessment of cochlear implant efficiency from the point of  
quality of life**

Current paper describes results of quality of life in 71 patients of 10–67 years old with severe hearing loss after cochlear implantation. The study is conducted in 2 stages: during the activation of speech processor and 3 months after it with questionnaire SF-36. All patients are derived in to 2 groups according their age: first group — adults (n = 40), second — adolescents (n = 31). There are registered statistically meaningful results ( $p < 0,05$ ) in all clinical groups.

Keywords: surdopsychology, cochlear implantation, quality of life.

**I. A. Shulga, I. V. Raytselis**  
**Otoprotection as a method of prevention and treatment early  
clinical forms sensorineural hearing loss**

We evaluate clinical studies results devoted to the otoprotective effect of «Milgamma» medicine (prod. Worwag Pharma GmbH & Co. KG, Germany) tested on 100 workers of «noise-dangerous» professions identified sub-clinical and early clinical forms of sensorineural hearing loss exposed to combined effect of the complex of toxic hydrogen sulfide-containing substances. It is established, that the medicine has a marked otoprotective effect, which is the basis for the comprehensive prevention and rehabilitation professional sensorineural hearing loss.

Keywords: otoprotection, sensorineural hearing loss, milgamma.

**E. M. Pokrovskaya, V. N. Krasnozhan**  
**Reconstructive surgery tactics at frontal sinus disease**

This paper summarizes the experience with the treatment of patients presenting with diseases of the frontal sinus. Based on the results of the present study, recommendations have been developed to optimize surgical interventions for the enhancement of treatment efficiency.

Keywords: frontal sinus, plastic reconstruction of the anterior walls, mucocele, osteoma.

**S. F. Kudaibergenova, G. K. Jarkinbekova,  
D. Ye. Zhaisakova**  
**Prognostic significance of Interleukin 4 under the condition of  
allergic rhinitis**

There are studies made for identification of the presence of «atopic» cytokine IL-4 in blood plasma, also its concentration in lavage collected from impression smears from the nasal mucous membrane under different types of AR, Seasonal Allergic Rhinitis (SAR) and all-the-year-around Allergic Rhinitis (YAAR) with utilization of enzyme-linked immunosorbent assay technique (ELISA). The lavage collected from impression smears from nasal mucous membranes under different types of AR on the basis of a new method of differential diagnosis and preliminary confirmation of allergenic genesis of rhinitis it is appropriate to apply non-invasive physiological technique which is sufficiently informative for IL-4 identification in the nasal secretion.

Keywords: allergic rhinitis, different types of AR, IL-4.

**B. N. Zyryanov, N. A. Grisechkina,  
L. V. Andes, A. S. Goloviznina, D. E. Dosanova,  
Ch. A. Seytkasymov**  
**Correction of hygienic condition of periodontal with type 2  
diabetes in patients of middle and old age using a toothpaste  
containing ethylmethylhydroxypyridine succinate**

Diabetes mellitus is one of the most common diseases. The most common dental disease in diabetes are gingivitis and periodontitis. Application of toothpaste with ethylmethylhydroxypyridine succinate results in a statistically significant improvement in the severity of gingivitis in patients with diabetes.

Keywords: diabetes mellitus, periodont, prevention, toothpaste, ethylmethylhydroxypyridine succinate.

**N. A. Zakorkina, I. A. Banyushevich**  
**Effect of medical and social factors on prevention of abortion  
among adolescents**

The reproductive potential of a nation depends primarily on the reproductive health of the rising generation. At present, abortion in adolescents does not lose its relevance. Study of the problem of preventing abortions among women of 15-17 year olds is a comprehensive study of all factors affecting the occurrence of unwanted pregnancy and its resolution by artificial abortion. Dispersion method of factor analysis examines family and personal, educational, medical and social indications (totally 37). The primary role in the prevention of abortion among adolescents

is a healthy way of life of the family, the nature of family relations, the presence of trusting relationships between children and parents, including issues related to sexual life. In addition, it is very important to have a basic and optional programmes on sex education for students with training in medical-biological, psychological and social aspects.

Keywords: adolescents 15–17 years, abortion, prevention, factors.

**O. M. Zueva, E. D. Dalenov, N. V. Slivkina**  
**On the formation mechanisms of scientific basis of health  
and healthy meal among adolescents and youth of the North  
Kazakhstan region**

Features environmental, demographic, socio-economic, climatic and geographical, health, and other factors of the North Kazakhstan region require a focused, consistent study and prevention of risk factors on adolescents and youth in order to maintain and strengthen. All this determines the short-and long-term management concept health and nutrition of adolescents and youth.

Keywords: adolescents and young adults, healthy eating, disease risk factors, methods of rehabilitation, preventive measures.

**O. M. Zueva, N. V. Slivkina, Yu. I. Malakhova**  
**On dominant risk factors for secondary school students in  
Astana**

Among effective preventive measures there is particular importance struggle with risk factors for diseases. Risk factors for several chronic diseases begin to actively influence on their teens and a lead role school risk factors. Their prevention should be based on the development of health-system technology.

Keywords: risk factors, health-technology, high school students, chronic diseases, health methods.

**N. A. Morova, V. N. Tsekhanovich, I. L. Fayl**  
**Clinical and anatomic features of coronary heart disease in  
patients resistant to acetylsalicylic acid**

Platelet aggregation indices are investigated in 49 males with coronary artery disease who had indications for coronary artery bypass grafting surgery. Insufficient decrease platelet aggregation while taking acetylsalicylic acid (ASA) is revealed in 12 of 37 patients. FC IV angina is significantly more frequent reported in ASA-resistant patients than in ASA-sensitive men. The average number of affected arteries and stenoses of the coronary arteries do not differ between the groups. The coronary artery occlusions are frequently found in ASA - resistant patients and amounted to 27,5 % of all the affected arteries against 12,9 % in the ASA — sensitive group ( $p < 0,05$ ). ASA-resistant patients often have the Q-wave myocardial infarction (91,67 %), ASA-sensitive patients had myocardial infarction in 56,8 % ( $p < 0,05$ ).

Keywords: acetylsalicylic acid; aggregation; efficiency; occlusion.

**K. V. Vetkova, M. A. Borisenko,  
A. V. Chekina, Yu. Yu. Agafonova,  
V. V. Makevnina**  
**The efficient improvement of endodontic treatment with the use  
of operating microscope**

The article is dedicated to the research of quality improvement of root canal obturation with the use of dental operating microscope. The authors draw attention to the importance of root canal irrigation, the use of nickel- titanium instruments ProTaper and modern three-dimensional methods of sealing system BeeFill. For the quality assessment of obturation was used radiovisiographical analysis and are studied transversal teeth cuts. It was concluded that the use of an operating microscope enhances the quality of endodontic treatment.

Keywords: endodontic treatment, ProTaper, system BeeFill, obturation, operating microscope.

**T. M. Lyuboshenko**  
**Clinical and immunological characteristics of patients with  
cytomegalovirus infection**

There are studied clinical and immunological parameters of 385 patients with verified cytomegalovirus (CMV) depending on the phase of infection. In patients with active CMV infection compared with patients with latent is often recorded over her infectious syndrome. There are no significant differences between patients with different phase current detection rate of CMV infection on allergic and autoimmune syndromes. In patients with CMV infection is predominated phagocytic cell, isolated cell types and phagocytic immunodeficiency.

Keywords: cytomegalovirus infection, laboratory diagnosis, clinical characteristics, immune status.

**T. N. Fedorova, R. P. Popov**  
**Correction of functional violations of cardiovascular system at genual arthritis at I–II stage and accompanying arterial hypertension**

Diseases of joints are in most cases accompanied by pathology of cardiovascular system, in particular, arterial hypertension that complicates carrying out rehabilitation actions. The analysis of influence of a technique of a kinezotherapy is presented to the I-II stage in the article at genual arthritis on a functional condition of cardiovascular system at AG confirmed its efficiency.

Keywords: genual arthritis, arterial hypertension, rehabilitation, genual, physical rehabilitation.

**Yu. N. Argat**  
**Primary disability of children due to mental disorders and behavioural disorders in the Omsk region in 2007–2013**

In the article the dynamics and structure of primary disability due to mental disorders and behavioural disorders in children under the age of 18 years at the Omsk region in 2007–2013.

Keywords: disability, children, mental disorders and behavioral disorders.

**Yu. N. Argat**  
**Repeated disability in children due to mental disorders and behavioural disorders and mental retardation in the Omsk region in the period 2007–2013**

The paper studies dynamics and structure repeated disability due to mental disorders and behavioural disorders and mental retardation in children under the age of 18 years at the Omsk region in 2007–2013.

Keywords: disability, children, mental disorders and behavioral disorders, mental retardation.

**S. M. Gorev, E. V. Elokhina, K. V. Vetkova**  
**Choice of painkillers after the endodontic treatment for patients with somatic pathology**

This article is based on results of the clinical research of treatment and devoted to the problem of prescribing of painkillers to patients after the endodontic treatment. The matters of the effectiveness of using different painkillers by patients with the post-filling pain are taken. The dynamics of the intensity of post-filling toothache is studied. The frequency of the manifestation of side effects of various anesthetizing drugs is determined. The most optimum scheme of prescribing of non-steroid anti-inflammatory drugs for patients after the endodontic treatment according to the pathology of a gastrointestinal path is worked out on the basis of the received results.

Keywords: endodontics, post-filling toothache, analgetics, non-steroid anti-inflammatory drugs, gastritis, peptic ulcer.

**V. A. Lyapin, N. V. Semenova, E. A. Demchuk**  
**Feeding behavior of students of different university profile**

In the article various types of feeding behavior of students of higher education institutions of the city are described. The comparative analysis of indicators between Higher education institutions of different profile is carried out. The leading corrections of way of life provide: change of diet and qualitative characteristics of delivery.

Keywords: students, alimentary behavior, delivery, health.

## AGRICULTURAL SCIENCE

**I. A. Bobrenko, E. E. Kantarbaeva**  
**The efficiency of mineral fertilizers in cultivation of various hybrids of maize for green mass on ordinary chernozem**

Mineral fertilizers significantly enhance the growth and development of plants corn in conditions of the North Kazakhstan region of Kazakhstan. Optimal dose of complete mineral fertilizer in the cultivation of maize hybrids for green mass is N60P90K30.

Keywords: maize, hybrid, productivity, mineral fertilizers.

**L. Ya. Plotnikova, S. P. Kuzmina, A. T. Aydosova, A. I. Degtyarev**  
**Changing agronomic characters of Wheat–Agropyron elongatum hybrids when creating donors for wheat breeding adapted to forest-steppe zone of West Siberia**

The set of Wheat–Agropyron elongatum hybrids (WAH) of different generations are created. Effects of the parent varieties and number of backcrosses on WAH characters determined the

plant productivity are investigated. Drought resistant WAH that may be used as donors for wheat breeding are developed

Keywords: Wheat–Agropyron elongatum hybrids (WAH), productivity, drought resistance.

**A. V. Krasovskaya, A. F. Stepanov**  
**The effect of agricultural methods and meteorological factors on productivity of soybean in Western Siberia**

The effect of timing and method of seeding, seeding rate, meteorological factors on the soybean yield in the southern forest-steppe of Western Siberia is studied. There is identified: the optimal time and method of sowing, seed rate of soybean SibNIIK 315. The greatest impact on the productivity of soybeans has total active temperature and relative humidity during the formation — maturing of soybeans.

Keywords: grain yield, sowing time, method of sowing, seed rate, the sum of active temperatures, relative humidity.

**S. G. Sukhotskaya, N. A. Prokhorova, N. A. Bondarenko**  
**Peculiarities of growing and development of tulips in Omsk region**

The results of study peculiarities of growing and development of tulips in Omsk region are presented in the article. The frost resistant varieties of tulips, time of pass through phenological phases, necessary sum of effective temperatures are found, the factors which influence on the blooming period, biometric measurements and description of morphological features of varieties are conducted, evaluation of their ornamentality are given. Varieties of tulips Strong Gold, Barcelona, Princess Irene have high ornamental qualities and frost resistance and they are recommended for cultivation in Omsk region.

Keywords: tulips, sorts, frost resistance, phenological phase, sum of effective temperatures, morphological traits, ornamental qualities.

**M. P. Chupina, A. F. Stepanov**  
**The efficiency of cultivation silphium perfoliatum depending on method of planting and seeding rate in forests of Western Siberia**

There is shown the energy and economic evaluation of cultivation silphium perfoliatum to fodder and seeds depending on the method of planting and seeding rates. It has been established that fodder silphium perfoliatum profitable sown with aisle of 70–90 cm, with the norm of 0,7–1,0 million viable seeds/ha, and seeds — checkrow (70x70 cm) method with the seeding rate of 0,3–0,4 million pieces/ha.

Keywords: silphium perfoliatum, method of sowing, way of crops, norm of seeding, fodder, seeds.

**D. N. Galitskiy, V. P. Shamanin**  
**The dependence of accumulation of oil and fatty acid composition of environmental conditions in the seeds of flax oil in southern forest-steppe zone of Omsk region**

The article presents the results of ecological plasticity linseed cultivars. Adaptive properties are evaluated according to the method proposed by S.A. Eberhart, W.A. Russell. It is shown that the varieties Sokol, Isilkulsky, North, Surprise, Brook and Sky have relatively high productivity and responsiveness to growing conditions and, however, low stability. These varieties are recommended for the use as initial material in selection for high productivity and fertility.

Keywords: fatty acid composition, flax oil, variety, environmental flexibility, stability.

**S. A. Krevochenko, V. N. Kumpan, N. A. Prokhorova**  
**The influence of substrates on rooting of gooseberry green cuttings in forest-steppe of Omsk region**

The article is about analysis of the influence of microclimate and substrates on the gooseberry green cuttings callus and rooting process. The studies has shown that the callus formation on green cuttings are observed on the 10th day after planting, rooting is after the 15th day and is ended on the 30–35th day. The amount of annual plants depends on the substrate and their average ranged from 62 (peat-sand) to 91,3% (vermiculite-peat-sand).

Keywords: microclimat, green cuttings, substrates, callus, roots, amount of plants, gooseberry.

**V. S. Mogileva, S. K. Makenova**  
**The evolution of farms in Russia and Western Siberia**

The article tells about historical aspects of farms development in Russia and Western Siberia. It covers the period from natural

production till the basic agricultural production forms in rural settlements nowadays.

Keywords: peasant community, landowning, individual farm, state land surveying, Stolypin reform.

## ECOLOGY

**L. O. Shtripling, V. V. Bazhenov, S. V. Belkova, Yu. V. Kalinin**  
**The analysis of the reasons of falling of «black snow» on the territory of Omsk city**

There are considered the issues of search for the culprit unauthorized release of contaminants. For example, the atmospheric emission in February 2014 in the city of Omsk of «black snow» shows the need for a comprehensive approach to the analysis of the situation.

Keywords: pollutants, emergency release.

**L. O. Shtripling, E. A. Maltseva**  
**The applicability of regulatory concepts for identifying the activities of waste management (disposal or reuse)**

The criteria for characterizing and defining activities for the disposal and management of hazardous waste are presented in the article. The list of regulatory tools which will substantiate and prove the selected activity is represented. The correct identification of neutralization or using, accurately recorded in the regulations are allowed to avoid the administrative measures practice to a nature user.

Keywords: waste, disposal, use.

**S. I. Artyukhova, I. V. Kirgizova**  
**Modification of culture medium using biotechnological methods of micropropagation potatoes in Omsk region**

This article examines the modern biotechnological method associated with the actual problem of mass propagation of virus-free potatoes for the Omsk region, in order to obtain national disease-free seeding material free of viral infection for several years, and for the use in industrial potato Omsk region. The selected theme is most relevant to the Omsk region, due to the large percentage of infected seed potatoes viral infection, resulting in great economic losses.

Keywords: micropropagation, thermotherapy, phytopathogens, in vitro, plant hormones.

**N. A. Popolzukhina, N. A. Yakunina, P. V. Popolzukhin**  
**Evaluation of spring wheat resistance to adverse abiotic and biotic factors of southern forest-steppe zone of Western Siberia**

The evaluation of samples of spring wheat breeding by GNU SibNIISKH and TOO NPTSZH named after A. I. Baraev is done. The resistance to a number of biotic and abiotic factors of southern forest-steppe zone of Western Siberia is considered. There are identified varieties and breeding lines as the most adaptive and promising for the future use.

Keywords: abiotic and biotic factors, adaptability, spring wheat, cultivar, breeding line, grain yield.

**E. S. Denisova**  
**The accumulation of some crop plants anthropogenic dust of carbon factories**

In the article it is considered the ability of crops to accumulate technical carbon at various distances from the carbon factories and after artificial application. The effect of carbon dust on the water regime of plants is studied.

Keywords: ability to absorb gases of plants, pollution, bioindication, carbon black, water deficit plants.

**E. S. Deniova**  
**Using the white willow in landscaping sanitary protection zones Western Siberia**

In the article it is considered the gas resistance and the accumulation ability of white willow at various distances from the carbon factories, and soot after application and exposure by saturated and aromatic hydrocarbons, sulfur oxides. For the first time is studied the ability of willow of gas consumption during production of carbon black revealed the effect of soot on the plant in West Siberia. These studies can be used in landscaping areas and sanitary protection zones of enterprises in Western Siberia.

Keywords: ability to absorb gases of plants, gas resistance of plants, white willow, atmospheric pollution, bioindication.

**B. Yu. Kassal**  
**Species diversity of fish, amphibians and reptiles of Omsk region**

There is presented species composition of fish, amphibians and reptiles in the region and its conservation status. There is proposed changing the list of Red Book species of the Omsk region.

Keywords: fish, amphibians, reptiles, conservation status, the Red Book, the Omsk region.

**B. Yu. Kassal**  
**The avifauna of Omsk region and its conservation status**

There is presented the species composition of birds in the region belonging to trophic guilds and its conservation status. There is proposed changing the list of Red Book species of the Omsk region.

Keywords: birds, conservation status, the Red Book, the Omsk region.

**E. N. Ozyakova, N. A. Popolzukhina**  
**Yield and quality of soybean depending on the actions of abiotic factors and genotypic characteristics**

The article shows the effect of hydrothermal conditions of growing and genotype varieties on the formation of the yield and quality of soybean. There is experimentally proved its interdependence.

Keywords: abiotic factors, soybeans, crop capacity and grain quality, genotype varieties.

**S. B. Chachina**  
**The use of earthworms: muckworm (e. fetida) and californian worm (e. andrei) for decomposition of industrial wastes**

Muckworm *E.fetida* are more resistant to soil pollution with industrial waste. Thus, dung worm can be used for the disposal of industrial wastes to produce vermicompost.

Keywords: earthworms, microorganisms, waste.

**S. B. Chachina, A. V. Dvoyan**  
**The production of bioethanol from organic materials**

In the article the methods for ethanol production from different kinds of organic raw materials: potatoes, beets, bananas, manure horse, cow dung, poultry manure, straw, sawdust, fallen leaves, straw, sawdust, fallen leaves. Obtaining ethanol from plant material (potato, bananas, beet) demonstrated low efficiency and high cost of bioethanol. From beet and bananas received a small amount 340–380 ml of alcohol with a low percentage of 40 % to 60 %. The use of waste-breeding complex has allowed to receive the output of 95 % alcohol from 165 to 200 ml. of the most effective and economically advantageous is the production of alcohol from cellulose-containing wastes (straw).

Keywords: biofuel, ethanol, ethyl alcohol.

**S. B. Cuchina, O. S. Karavaeva**  
**Vermicomposting of domestic waste using earthworms: muckworm (e. fetida) and californian worm (andrei e.) for reception of biohumus**

In laboratory experiment there is studied indicators dung worm (*fetida*), Californian worm (*andrei E.*) in a contamination of the substrate coal ash (50 g/kg), 100 grams of cellulosic waste, 200 g/kg of food waste. In the process of rehabilitation of soils contaminated coal ash decreased the content of arsenic and Nickel by 0.47 mg/kg of manure by a worm and a marked increase in the content of humus Californian worm 10–12,6 %, and dung worm by 9 %.

Keywords: earthworms, microorganisms, wastes.

**A. D. Auzhanova, N. A. Popolzukhina, O. F. Khamova, E. V. Paderina, A. A. Bozhko**  
**Microbiological activity of meadow-chernozem soil depending on agro-ecological conditions of cultivation of different genotypes of spring wheat were inoculated associative diazotrophy**

Inoculation of seeds of spring wheat biologic associative nitrogen fixers helps to increase the number of individual groups of microorganisms in the rhizosphere of culture. These three-factor analysis of variance suggests that microbial activity is strongly influenced by soil conditions. The proportion of the contribution of individual genotypes is 14,6 %, the contribution to the variability of microbial indicators of various kinds of interactions of factors is ranging from 12,7 to 14,0 %. Mineralization of organic matter prevails over the processes of immobilization.

Keywords: associative nitrogen fixation, rhizosphere, spring wheat, the coefficients of mineralization, immobilization, transformation.

**S. E. Bayakhmetova, N. A. Yakunina, N. A. Popolzhukhina, A. T. Babkenov, S. M. Dashkevich**  
**Evaluation of milling and baking qualities of grain varieties and lines of spring wheat in arid steppes of Kazakhstan**

The studies found that the conditions of the arid steppes of Kazakhstan are favorable for a high quality of grain of spring wheat. Sorts are highlighted as Omsk and Kazakhstan selection, characterized by high performance milling and baking properties.

Keywords: spring soft wheat cultivar, breeding line, grain quality, abiotic factors.

**E. A. Maltseva**  
**State ecological expertise: problems and collisions of the existing environmental legislation**

Environmental legislation prerequisite is availability of positive conclusion of the State Ecological Expertise if using licensed activities on waste management. The analysis of the main problems and collisions in the rules of the existing legislation on State Ecological Expertise is an actual process for enterprises of the Russian Federation. Systematization of the main features can reduce the role of negative impact on the environmental, as well as reduce the level and complexity of the administrative measures in the implementation of the State Ecological Expertise objects.

Keywords: state ecological expertise, waste, legislation, rendering harmless, disposal.

**V. S. Mogileva, V. K. Popov**  
**Assessment of the pollution of the geological environment of the farm lands by agricultural producers**

This article is devoted to the topic of current interest — the problem of flushing the waste of livestock farms, organization of storages for the waste from production and the consequences for the surrounding territories. The reasons of the serious impact on the land are determined in this article. These are: high concentration of animals in the farm premises, technical imperfections of the systems of removal and disposal of manure, unnecessary use of a large amount of water in the processes of production.

Keywords: farms, source of pollution, disposal of animal waste, manure storage.

**M. A. Grigoriev, I. I. Bogdanov**  
**Ecological-phenological peculiarities during mass activity of meadow tick (*Dermacentor reticulatus* F.) in the vicinity of Omsk**

The paper discusses the environmental aspects of beginning of meadow tick activity in the vicinity of Omsk.

Keywords: ticks, sap flow, bloom, snow cover.

## EARTH SCIENCE

**O. V. Mezentseva, E. V. Grushevaya**  
**Geography of recreations and medical and improving tourism in Omsk region**

The article is devoted to cartographical generalization of rest and recreations of the Omsk region. In the article the directions of realized in the Omsk region recreational activity are systematized. The map of placement of sanatorium establishments, recreation facilities, camp sites, children's recreation camps are offered. The map is intended for tourists and the organizations which are engaged in development of tourism and recreations in the territory of the Omsk region.

Keywords: rest, recreation, medical and improving tourism, map.

**V. I. Sologaev, D. A. Chernov**  
**Modeling unsteady filtration in pressure flows in the turbulent motion using spreadsheets for the design of protection against flooding**

In this article derive a formula for modeling turbulent flow in a soil of low power finite difference method in spreadsheets with non-stationary plane-parallel filtering with a constant level of water

in the source of flooding during the forecasts of flooding and drainage in reclamation, urban and road construction. Moreover, by modeling in spreadsheets empirically found a new stability criterion for turbulent models in water filtration in coarse-grained environments.

Keywords: simulation, spreadsheets, plane-parallel water filtration, turbulent flows, design automation protection against flooding in land reclamation, urban and road construction.

**S. A. Timonina**  
**Optimization of land use on the basis of municipal program-oriented management of rural territories**

The paper presents the characteristics of the existing system of municipal land management and set priorities for its development. The methodical recommendations for optimizing land use on the basis of an efficient system of land management within the boundaries of the municipality.

Keywords: system of municipal land management, integrated assessment of land, land, land use planning and cadastral registration, formed piece of land, optimization of land use.

**S. A. Timonina**  
**Formation and evaluation of united real estate in system of state land management**

The paper considers the notion of united real estate. The role of state real estate cadastre in creating unified registry of real estate is presented. A technique for determining the cadastral value of the property is developed.

Keywords: improved part of the land, land-property complex, united real estate, state real estate cadastre, cadastral valuation.

**I. A. Trotsenko, M. V. Tarasova**  
**The impact of drainage systems on water-salt regime irrigated lands in conditions of Omsk Irtysh region**

The use of irrigation of agricultural crops on areas operated without implementation of complex ameliorative measures (in particular, of dewatering system in the form of drainage), leads not only to a decrease in the percentage of water-stable aggregates to a critical level and change in filtration properties of the soil, and to the accumulation of soluble salts and absorbed bases in the surface layers.

Keywords: irrigation, melioration state, absorbed bases, water-salt regime, soil salinization.

**I. V. Tsyplenkova**  
**Modern problems of land monitoring to ensure effective management of agricultural lands**

The paper proposes a classification of land according to its suitability for agricultural use. Land classification, summarized in the form of fitness classes, is a prerequisite for monitoring the use of materials for certain administrative solutions. Availability of materials on land classification and other complete and accurate information obtained as a result of monitoring of land is the most important factor when making any managerial decisions.

Keywords: land monitoring, management of agricultural lands, sustainable land use, land classification, fitness class, characteristic classes.

**I. V. Tsyplenkova, N. V. Gavrilova**  
**Long-term program of monitoring studies on land degradation in Omsk region**

The article presents a long-term program of monitoring studies on land degradation in the Omsk region, that would create a database of information on the status of the land of the Omsk region, reasonably judge the degree of cumulative impact of negative processes and phenomena reveal regularities in the development and timely diagnosis and assessment of these processes and phenomena, to develop measures for prevention and elimination of negative influences of natural and manmade, at a higher level to monitor the state of the land, their use and protection.

Keywords: monitoring works, land degradation, land monitoring, forecast changes in land condition, negative processes, landscape and ecological zoning.