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Programm Abstracts

Europäische Akademie für Naturwissenschaften, e.V. Hannover
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ISBN 978-3-00-034634-7

ISSN 2194-3524

Herausgeber:

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Europäische Wissenschaftliche Gesellschaft
Sutelstr. 50A
30659 Hannover
Tel. +49 (0)511 390 - 8088
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H. A. Adams

DIE NOTFALL- UND INTENSIVMEDIZINISCHE GRUNDVERSORGUNG DES SCHWERBRANDVERLETZTEN

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Intensivmedizinische Grundversorgung

Führende Aspekte der intensivmedizinischen Grundversorgung, die weitgehend der bei Sepsis-Syndrom (SIRS, Sepsis, schwere Sepsis, septischer Schock) entspricht, sind:

- Suffiziente Atemwegssicherung; frühe Anlage eines plastischen Tracheostomas bei Patienten mit generalisiertem Ödem.
- Sog. lungenschonende Beatmung, Lagerungstherapie, Infusion von Ambroxol und ggf. von Broncholytika sowie gezielt indizierte Bronchoskopie.
- Sicherung der Kreislauffunktion durch Flüssigkeitsersatz mit balancierten Kristalloiden. Falls notwendig werden zusätzlich Gelatine-Lösung (wegen potentieller renaler Nebenwirkungen kein HES) und letztlich auch Dobutamin oder Noradrenalin (unter erweiterter hämodynamischer Überwachung) eingesetzt. Zielgrößen der Kreislauftherapie sind:
 - Kein Anstieg von Hämatokrit oder Hb-Konzentration,
 - MAP > 65 mm Hg, ggf. auch höher,
 - Diurese 0,5 ml/kg KG/h,
 - CVP 10 - 15 mm Hg, ggf. 20 mm Hg,
 - svO₂ > 70 %.
- Analgosedierung bevorzugt mit Esketamin und Midazolam, um die endogene Katecholamin-Homöostase nicht zu konterkarieren. Darüber hinaus ist diese Kombination katecholaminsparend und broncholytisch.
- Fortgesetzte oder frühe enterale Ernährung.
- Engmaschige Blutzuckerkontrolle, Ziel < 180 mg/dl (10 mmol/l).
- Gezielte Antibiotikatherapie nach mikrobiologischem Befund, keine „Abdeckung“.
- Subtile Überwachung bei Transporten und operativen Eingriffen.

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INTEGRATED PREVENTION MEASURES FOR LATE COMPLICATIONS OF ACUTE POISONING ACETIC ACID

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Acute poisoning with acetic acid characterized by the development of late

complications, the most dangerous of which are late esophageal- gastric bleeding (PPZHK) and cicatricial stenosis of the esophagus.

The purpose of the study. Evaluating the effectiveness of established mechanisms for early prevention of late complications in acute poisoning with acetic acid severe.

Material and methods. We examined 270 patients with acute poisoning acetic acid severe for 2007-2013. Age from 17 to 58 years. Free hemoglobin in blood from 5.2 to 34.6 g / l. Patients celebrated. The chemical burns of the esophagus and stomach III degree. Patients were analyzed 2 groups. I group - 128 patients (2012-2013), who underwent treatment for intensive therapy developed algorithm. Within 3-5 days of night were treated drug improves microcirculation - reosorbilakt, Refortan, high doses of corticosteroids - 180-240 mg prednisolone (21-28 days), injections cytoflavin by 20.0 mL, 10.0 mL for aktovegin in/2 times a day for 15-20 days. Nutritional support was carried out by infusion of amino acids (infezol, aminol) a day - for 10-14 days. Correction for enteral nutrition, with 3-4 days, using a balanced protein- carbohydrate mixture "Atlant" 3 times a day for 20-27 days. Daily total kalorazh parenteral and enteral nutrition was $38,5 \pm 6,4$ kcal / kg body weight. In group II, comparing 142 patients (2007-2010) received conventional intensive therapy. All determined in dynamics: the level of free hemoglobin in the blood and urine, complete blood count, total protein, urea, creatinine, bilirubin, ALT, AST. Studied markers of endotoxemia - SM, LII, OIN, coagulation (PI, TRP, fibrinogen), BCT. Endoscopic examination of the esophagus and stomach for 1- day 2 and in dynamics, chest X-ray, ultrasound of the liver and kidneys.

Results of the study. In the 1st day at endoscopy observed clinical II-III degree chemical burn. In dynamics, the patients of group 1 was observed on the night of 14-16 disappearance fibrinous plaque and redness and swelling of the mucous decreased already on the 1st day, largely stoped pain, 2 - 3rd day, patients were free to consume the liquid and semi-solid food . On the background of traditional treatment in patients 14-16 days to retain all the signs of fibrinous inflammation, it was shown preservation severe pain, drooling and difficulty swallowing.

Statistics late complications showed that the core group, only 11 (8.59 %) had the appearance of late esophageal-gastric bleeding (LEGB) and scar stricture developed in 25 (19.5%) patients.

Among the victims of group II LEGB occurred in 28 (19.7%), and scar stricture in 45 (31.6 %) patients, which is higher than the main group by 2.3 and 1.6 times, respectively. While mortality was in Group I – 10,7 %, in II – 19,4 %. Duration of hospitalization on average $16,9 \pm 1,4$ days in the study group and $24,3 \pm 1,4$ in the comparison group .

Conclusion. Instituting improved algorithm intensive therapy in complex treatment of acute poisoning with acetic acid is effective in the prevention of late complications in these patients.

N.S. Akhmadyar

ANALYSIS OF THE CONSUMPTION OF ANTIBACTERIAL DRUGS IN THE JSC "NATIONAL RESEARCH CENTER FOR MATERNAL AND CHILD HEALTH" IN 2013

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Purpose. Conducting clinical and pharmacoepidemiological economic analysis of consumption of antibacterial drugs in a multi profile hospital with 500 beds in 2013.

Methods. The financial cost of the purchase of antibacterial drugs were assessed using clinical and economic (ABC analysis). Frequency of use of antibiotics in patients evaluated pharmaco analysis.

Results. In general, there is an increase in funding costs by 29% to antimicrobials in comparison with the previous year, due to the discovery in 2013 at our Center for Pediatric Oncology Branch 30 beds. The most costly group of antibacterial drugs amounted carbapenems (72,4 million tenge) , in second place in the cost structure - cephalosporins (39, 4 million tenge), the third - penicillins (21,1 million tenge). Discrepancy cash costs and the level of consumption of carbapenems. In 2013, leaders of antibacterial agents were prescribed cephalosporins, which were treated with 27,7 % of hospitalized patients in our Center. In the second place, carbapenems (6,3 %); third place on 5,9% by frequency of use divide aminoglycoside and macrolide at a low level of consumption of penicillins (4,3%). In the group of the most frequently used cephalosporins - cefazolin and ceftriaxone. The highest consumption of antibiotics appeared in the department of oncology, where most children are treated with immunosuppression.

Conclusions. Monitoring of the consumption of antibacterial drugs allows to make strategic decisions to optimize antibiotic therapy in departments with a high intake of antibiotics, which require monitoring DDD - indicators to align the number and list of used antibacterial drugs with the profile of the hospital.

Audrius Andrijauskas

AN UPDATE ON THE DEVELOPMENT OF GOAL DIRECTED FLUID ADMINISTRATION METHODS AND AUTOMATED DECISION SUPPORT SYSTEMS

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Outcomes after major surgery depend on perioperative patient optimization by intravenous fluids and cardiovascular medication. Fluid loading is conventionally used for the treatment of arterial hypotension. However, administration of crystalloids may lead to

interstitial oedema. As a matter of fact, despite lower volume requirement, administration of colloids may show no clinical benefit compared to maintaining zero fluid balance. Even more, colloids may cause edema by facilitating interstitial accumulation of co-administrated crystalloids. That may explain why the goal directed therapy (GDT) guided by hemodynamic parameters is sometimes related to worse outcomes. A brand new trend follows an objective to noninvasively determine a threshold when the necessary fluid accumulation turns into edema. The mini Volume Loading Test (mVLT) was recently proposed for that purpose. Preliminary validation data are available from studies in healthy volunteers and major orthopedic surgery patients. Since GDT and mVLT fluid protocols are similar, there is a hypothesis that fluid infusion should follow hemodynamic targets until signs of imminent edema are detected. Cardiovascular medication should be applied for hemodynamic endpoints thereafter. Such clinical protocols require simultaneous evaluation of numerous parameters. Thus, we developed a decision-support system and applied it in a prototype semi-closed loop infusion system. The randomized clinical trial is currently going on aiming to investigating its safety and efficacy. Do we need and can we trust robotics?

Acknowledgement: Funded by the European Social Fund under the Global Grant measure.

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DERMATOLOGICAL AND NEUROLOGICAL MANIFESTATIONS OF HIV INFECTION IN EMERGENCY NEUROLOGY

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Retrospective analysis of 12 case histories of HIV-infected patients, delivered in neurological hospital with suspected stroke. The patients' age from 32 to 71 years ($51,4 \pm 16,5$ years), 11 men and 1 woman. Patients were with IY A (20, 66,6%) and IY B (10, 33,3%) stage of HIV infection. Statistical data processing was performed using the methods of variation statistics. Expected average values (M) and standard error (m). Results. Complaints at admission were on random dizziness (7, 58,3%), movement disorders (10, 83,3%): as a weakness in one of the upper limbs, weakness in the arm and leg simultaneously, the expressed pain in the spine with weakness and the lack of movements in the legs; on a speech disorder (10, 83,3%) - difficulty in pronouncing the words; pelvic floor disorders (2, 13,4%). History: viral hepatitis «C» in 7 (80%) patients within $9,5 \pm 7,9$ years, Ig G HCV «+» at the stage of latency - 4 (33,3%), hepatic steatosis 2 (13,35). Injecting drug users 8 (66,6%) patients. Multiple surgical interventions carried 4 (33,3%) with prescription of $15,6 \pm 4,2$ years. Vascular risk factors for stroke had 6 (50%). When you receive a systolic blood pressure recorded $161,1 \pm 50,8$ and diastolic $91,6 \pm 14,6$ mm Hg, which corresponded to the arterial hypertension stage III. In two

year old history of acute myocardial infarction in 2 (16,6%) patients. The last 3-4 years now, forgetfulness, lethargy, poor concentration, difficulty account and reading, apathy, limitation of motivation towards work and life values of all patients. In the reception office at the CT scan of the brain in 10 (83.3%) of patients diagnosed with acute ischemic stroke (CVA): 4 (33,3%) for the first time in 6 (50%) - repeated, episynndrome without stroke and its consequences - 2 (16.6 percent). MRI study diagnosed occlusion of the left internal carotid artery 2 (16,6%), ischemic stroke, spinal cord as a result of embarrassment extradural, intraperiosteal three-dimensional formation of 2 (16,6 percent). Neurological manifestations were impellent infringements as hemiplegia (10, 83,3%), the defeat of cranial nerves (4, 33,3%), the level of consciousness violated degree from stunned to coma stage III. Signs of sensomotor polyneuropathy severe identified 4 (33.3%) patients. HIV encephalopathy with emotionally-unstable disorder was diagnosed in 3 (25%) patients, HIV dementia in 1 (8.3 percent). Skin manifestations are different: herpes zoster, seborainey dermatitis, hairy leukoplakia language, angular cheilitis, onychomycosis.

Acute violation of cerebral circulation, developed in HIV-infected, common in patients aged $51,4 \pm 16,5$ years and every fifth without specific antiretroviral therapy leads to a lethal outcome. For differential diagnosis of stroke in HIV-infected important is transferred viral hepatitis «C» with a duration of not less than $9,5 \pm 7,9$ years, injecting drug use history, multiple surgical intervention with the prescription of $15,6 \pm 4,2$ years, and arterial hypertension. Examination of the skin and mucous should be included in the mandatory testing of neurologists in patients with stroke at a young age, because existing skin and mucous manifestations (herpes zoster, seborainey dermatitis, hairy leukoplakia language, angular cheilitis, onychomycosis) specific HIV-infected.

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PREVENTION OF CARDIO - VASCULAR DISEASES. CONTINUING EDUCATION IN CARDIOLOGY

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Cardio - Cardiovascular disease is the leading cause of morbidity and mortality in developed economies, both developed and developing. Prevention of cardio - vascular disease plays a major role in the fight against this disease.

A huge role in the primary prevention activities belongs to doctors who provide primary care to patients on an outpatient basis. However, the position that the commitment to prevention is almost entirely dependent on the patient, does not really fit. Commitment to bio-behavioral methods of correction of risk factors and treatment is determined by the positions of both sides of the therapeutic process - the doctor and the patient. Encourage the patient to change lifestyle - not an easy task. As shown by the baseline surveys, doctors often do not take into account the views of the disease the patients themselves.

Unfortunately, some doctors said the patient is emotional sphere of competence. Meanwhile, delivered in the most recent international recommendations aim to reduce total cardiovascular risk means that in the near future, the emphasis on the individual patient will be amplified (patient-based strategy). If we want to achieve the correction of several cardiovascular risk factors (most of which are behavioral) , the patient from a passive participant of the treatment process , must be converted into an active , interested shape with high motivation to change lifestyle and regular application of the recommended therapy. Also remains weak training of medical staff on prevention counseling major diseases of the cardiovascular system in continuing medical education , since until recently, approaches to physicians preventive measures aimed at combating the major risk factors were inconclusive and methodologically blurred, although the purpose of clearly formulated . The program «GLOB» in Moscow in the North and North-Western administrative districts in three health facilities: municipal polyclinics No. No. 151, 97 outpatient department city hospital number 81 patients conducted school prevention of hypertension in the program «GLOB», corrected the department staff internal Medicine.

To solve the problem, experts have developed a prolonged course on cardiovascular risk factors using computer technology for doctors and patients included in the study. In the Russian Federation system of training and advanced training of doctors always been strong in that it is a public system, and developing familiarize on this basis.

Successful implementation of training programs for doctors to CVD prevention depends on a number of external and internal factors, one of which is the quality of medical education and its continuity.

Thus, learning the principles of preventive medical counseling as a step in continuing professional development aimed at improving the professional competence, efficiency of physicians and patients to raise awareness about their condition will solve these problems and improve outcomes for patients.

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PREVENTION OF RECURRENT OPERATIONS ON LUNGS IN CHILDREN

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Relevance. Despite advances in the treatment of lung disease in children has not yet reduced the number of repeat operations on the lungs. According to various authors of repeat operations carried out in the early postoperative period is from 3.8% to 8.7%, and in the late period from 10.8% to 14.7%. The main reasons for, which are complications that developed in the early and late after surgery. It is also known that every repeated surgery conducted on the lungs of children do not care for the growing organism, increases the

risk of disability in children. Therefore all work aimed at forecasting and prevention of complications after lung surgery are relevant.

Purpose of the work. Optimize preventive measures aimed at reducing complications and reoperations on the lungs in children.

Materials and Methods. We analyzed the diagnosis and treatment of 776 children with various lung diseases over the past 20 years at the Department of Pediatric Surgery, Anesthesiology and Intensive Care TIPMT. At the age of 6 months to 15 years. In the long-term complications were observed in 87 (11.2%) patients: residual cavity after lung echinococectomy-9, -12 chronic empyema, long bronchial stump - 16, recurrent echinococcosis - 10, bronchiectasis - 41.

Results of the research. The reason for the development of pulmonary and pleural bleeding after operations on the lungs was a violation of coagulation due to blood loss during surgery and the consequences of inadequate correction of bleeding. It is known that every operative intervention, despite the meticulous hemostasis is sometimes accompanied by blood loss amounting from 500 to 1000 ml, and more. To fill the volume of circulating blood transfusion is often accompanied by the development of blood transfusion complications leading to the development of DIC syndrome. For the prevent these complications us during surgical procedures performed on lung moderate hypervolemic hemodilution combined with hyperoxic lung ventilation, which improved hemorheological properties of the blood, which helps decrease the true blood loss due to preservation of the globular part of the blood and improve the function of the oxygen-blood.

One of the most frequent causes of bronchial fistulas after echinococectomy is leaving unnoticed bronchial fistulas leaking or suturing. For the prevent these complications in the clinic, a special catheter is obstructive. From the beginning of the operation in which the affected lobe bronchus occlusive. During the operation, with the help of obstructive catheter pathological fluid constantly sucked. By leading dyeing an antiseptic substances (iodinal) established the presence of bronchial fistula. After the closure of the bronchial fistula, repeated conduct iodinala controlled of tightness stitched bronchial fistulas.

For the prevention of insolvency seams and leaving a long bronchial stump in pulmonary resection (segment share and lung), produce separate processing vessels and suturing the bronchial stump after excision of the bronchial mucosa at a distance of 1-2 mm using precision machinery.

The development of the residual cavity was associated with the elimination of the residual cavity unsuccessful at echinococectomy especially in large and giant echinococcus cysts. For liquidation of the residual cavity used method of creating slit between shared by A.T. Pulatov, where hemispheres were formed on the concave surfaces in contact and the last formed residual cavity. For the prevention of this complication, a new improved method for the elimination of the residual cavity in which, instead of one interlobar slit formed two or three intersegmental slit by dissection of the fibrous capsule along the vessels and bronchi. The free edges of the fibrous capsule was dissected within a functioning lung tissue. We used precision machinery.

Chronic empyema developed as a result of acute pulmonary or pleural suppuration pneumoempyema postoperative inefficient and its treatment. Therefore, to prevent this complication and necessarily washed pleural cavity aseptic solutions (furatsilin, dioxidine). In recent years, successfully and effectively apply the solution dekasana produced by Yuri Company - Ukraine. After the operation, provide adequate drainage of the pleural cavity with the appointment of effective antibiotic therapy methods such as regional lymphotropic antibiotic therapy conducted by catheterization of the mediastinum.

Long bronchial stump after developing of a typical resections using the apparatus SSL. In this regard, we have refused of atypical resections and began to apply only typical pulmonary resection with manual processing elements of the root of the lung.

The prevention of recurrent pulmonary echinococcosis is mandatory the use of chemotherapy in the postoperative period after echinococectomy lungs. In recent years, successfully applied Zentel (albindazol) rate of 15-20 mg per kg body weight of the child after a meal three times a day course of 15 days, a second course of two weeks.

Basically bronchiectasis developed during operations conducted on the lungs for chronic suppurative lung disease acquired. Cause of bronchiectasis was endobronchitis progression in the remaining segments or lobes existing before surgery and undertreated before surgery. In this regard, we have abandoned the use of traditional methods of preoperative preparation and applied optimized, differentiated preoperative preparation, including steam-oxygen inhalation with herbs, ultrasonic spray aerosol therapy drugs, remedial bronchoscopy with bronchoalveolar lavage local, regional lymphotropic antibiotic catheter mediastinum, and endobronchial outdoor laser cavitation immunocorrection endobronchitis severity, early functional rehabilitation and clinical examination with light control function recoverability

Conclusions. Thus, based on the study of the causes of postoperative complications developed ways to prevent complications contributed to the reduction in the amount spent reoperation on light in the early postoperative period ranging from 4% to 0.5%, and in the late period from 11.2% to 4, 5%.

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ISSUES OF THE SECOND ALTERATION OF THE INTESTINAL MICROFLORA

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A human organism and microflora inhabiting it are the single ecological system being in the state of dynamic balance. Environmental pollution and accumulation of xenobiotics of various action mechanism in it, the wide use of antibiotic medicines lead to evolutionary existing balance between the organism and the microflora inhabiting it, to the alteration of the endoecological status comprising the composition and functional activity of the microflora.

Dysbacteriosis, especially intestinal dysbacteriosis, has recently become a widely-spread condition and is practically registered in 65-90% of the population. The issues on the character of microflora alteration in dysbacteriosis of different intestinal sections are sufficiently detailed covered, the works on the biological properties of the opportunistic microflora are widely presented, the various treatment methods against this condition are offered. However, the mechanisms leading to the intestinal microflora disorder caused by the action of various xenobiotics on the organism including the antibiotics are far from being clear. It remains unknown whether the microflora disorder is a result or a cause of homeostasis alteration directly in the place of micro- and macro-organism contact (in epitheloid intestinal cells) and the body in whole.

One of the most important issues while treating respiratory diseases is the absence of effective antibiotics being able to fight against the pathogenic microorganisms without causing immunological shift and negative impact on the endogenous intestinal microflora.

It is proved in our scientific investigations and investigations by other scientists, that about 80 % of all immunocompetent cells of the body are located in the intestinal mucosa; it consists from immunologically active tissue (25%), and each intestinal meter contains 1010 lymphocytes. Any disease of the digestive system can become the cause of the intestinal microbiocenosis disbalance, primarily the diseases accompanied by the intestinal malabsorption as a result of which the composition of the internal intestinal environment and living conditions of intestinal microorganisms are altered. Another potential cause of intestinal dysbacteriosis development is the use of antibiotics, which have a direct impact on the microorganisms and substantially change the “microbial landscape” of the gastrointestinal tract (GIT).

It is rather difficult to find medicaments not having a negative influence on the GIT among the modern antibacterial ones. In abroad books the term antibiotic associated diarrhea (AAD) and its actual equivalent term “antibiotic associated intestinal dysbacteriosis” is often used for defining the alteration system in the intestine and corresponding clinical evidences connected with dysbacteriosis on the background of using antibiotics.

As the physiological approach to maintain and restore the personal intestinal microflora is in the use of probiotics, so the dysbacteriosis treatment as a result of the carried out antibiotic treatment is, perhaps, by putting various probiotics on.

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DYNAMICS OF GASTROINTESTINAL TRACT DISEASE RATE AMONG OIL REFINERY WORKERS

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Health of the population in whole and its separate indices represent the complex dynamic systems, which slowly change in time under the influence of different hygienic

and social factors. For revealing the key tendency in the dynamic row of the disease rate indices, we used the analytical approach. The most appropriate mathematical equation (approximating function) is selected with regard to real data in this approach. The least square method (LS method) is used for selecting the proper approximating equation, which allows to “minimize errors” by replacing real data to theoretical ones received as a result of solving equations.

So, among those working primarily in close contact with saturated hydrocarbons of the oil refinery, disease rate of the peptic ulcer has decreased by 1 %, of the gallbladder dyskinesia by 1,2 %, of the gallstone disease(3%), of the chronic cholecystitis (2,4%), of the chronic pancreatitis (12,5 %) and chronic hepatitis (2,2%). This, finally, had an impact on the formation of the total level of the digestive system disease rate (0,4%). Along with this the disease rate of the chronic gastritis among workers remains on the high level being 0, 8 % higher than the final indices rate. Improvement of the labor conditions at the plant had an influence on the disease rate of those working in close contact with unsaturated hydrocarbons.

The level of the gallbladder dyskinesia has decreased by 6,9 % and 2,0 % for the gallbladder disease, respectively. Along with this, unsaturated hydrocarbons are still the most dangerous risk factors for the oil refinery employers. The disease index of those working primarily in close contact with the unsaturated hydrocarbons has worsened significantly.

It happened because of the increase in the disease rate of the chronic gastritis by 4,7 %, of the peptic ulcer disease (47,4 %), of the chronic cholecystitis (4,3 %), and the chronic hepatitis (3,7 %). As a result, the disease rate of those working in close contact with unsaturated hydrocarbons raised by 2,6 % within the last 10 years.

The cause of the disease rate increase of the very group of workers can be explained by the high activity and aggressiveness of the unsaturated hydrocarbons being a threat to the digestive organs. The disease rate of those working in contact with aromatic hydrocarbons is on stably high level. Among the nosological entities of the digestive tract diseases taken into account, the insignificant increase tendency is for the chronic gastritis (1, 5 %), for the biliary dyskinesia (26,5 %), chronic cholecystitis (0,8 %), and the chronic hepatitis (0,3 %).

Thus, our investigations revealed that there are inherent risk factors for each group of the refinery processing units defined by the composition and activity of the chemical substances. So, the air pollution by saturated hydrocarbons is specific for the environment of the group I refinery processing units, air pollution by unsaturated hydrocarbons is specific for the environment of the group II refinery processing units, air pollution by the aromatic hydrocarbons is specific for the environment of the group III refinery processing units.

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**WOMEN PATIENTS OF CHRONIC OBSTRUCTIVE
PULMONARY DISEASE IN ASSOCIATION
WITH THE PATHOLOGY OF THE CARDIOVASCULAR SYSTEM**

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Chronic obstructive pulmonary disease (COPD) is one of the most important health problems, making a significant contribution to the growth of the temporary incapacity for work, the increase in the incidence of disability and premature mortality. It is well known that men suffer chronic obstructive pulmonary disease much more often (56%) than women (44%) and there are a number of explanations. However, the current worldwide trend to an increase in the incidence of COPD, but only in the last ten years, this figure has increased by 25 percent for men, while for women at 69%.

In view of the increasing number of women, COPD patients in southern Kazakhstan (South Kazakhstan province), it is necessary to examine in depth the features of formation and clinical course of COPD among women as compared with men. Particular attention should be paid to older women, COPD often occurs in association with diseases of cardiovascular system, the clinical picture to the fore, COPD is not diagnosed in time.

The purpose of research: to evaluate the impact of scientific work of pathology of the cardiovascular system in the course of COPD among older women living in South-Kazakhstan region.

Materials and methods: to assess the impact of cardiovascular disease on the course of COPD among older women, we compared the 3 groups of women. In the first group of 19 women suffering from COPD, the second 25 women with COPD combined with arterial hypertension, and a third group comprised 22 women with COPD combined with arterial hypertension and coronary heart disease. The comparison group identified a number of characteristics of the course of COPD.

Easy for COPD was almost the same percentage as in the group of women patients with COPD and in groups where COPD combined with pathology of the cardiovascular system. In the group of women, patients with COPD, dominated by patients with moderate disease (69,48%), to a lesser extent met patients with severe course of the disease (10,91%). In the group of women where COPD combined with arterial hypertension, the number of moderate forms of the disease decreased and amounted 56,49%, the number of patients with severe COPD increased to 23,36%. When combined with COPD hypertension and ischemic heart disease frequency of severe forms increased to 38.22%.

It was a complex clinical and instrumental examination with the analysis of complaints, anamnesis and laboratory and instrumental data.

At a combination of COPD to pathology of cardiovascular system at women of advanced age characteristics of such symptom as cough change. In the first group, the majority of patients (53,62%) noted rare cough mainly in the morning. Among COPD

patients in combination with pathology of the cardiovascular system, more than half of patients reported the presence of cough in the day. In the group where COPD combined only with arterial hypertension, this indicator was 68,12%, while in the group of COPD patients in combination with arterial hypertension and ischemic heart disease this indicator was 79,84%. In all three groups as the stage of the disease has seen an increase in the number of patients with complaints of persistent cough during the day, and a decrease in the proportion of patients that commemorate the coughing only during the morning hours.

Thus, we can assume that the presence of pathology of the cardiovascular system, including hypertension and coronary heart disease can increase the weight for COPD and worsen the prognosis of the disease.

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FEATURES OF COMPLAINTS COPD PATIENTS IN ASSOCIATION WITH PATHOLOGY OF THE CARDIOVASCULAR SYSTEM

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About 600 million people worldwide suffer from chronic obstructive pulmonary disease (COPD). According to the World Health Organization, the prevalence of non-communicable diseases of COPD ranks second in the world and has caused the death of 2 million 740 thousand patients. The particular relevance of concerns associated with the deterioration of the ecological environment on the planet, the prevalence of tobacco use, the influence of impurities, late diagnosis of obstructive syndrome.

In view of the increasing number of women patients with COPD, you need an in-depth study of peculiarities of formation and clinical course of COPD among women as compared with men. Special attention should be paid to older women, where COPD often occurs in Association with diseases of cardiovascular system (CVS), published in clinical presentation to the fore, and therefore COPD not diagnosed in time.

The purpose of research: to evaluate the impact of pathology CVS on the course of COPD in women of advanced age living in the South Kazakhstan region.

Materials and methods: to evaluate the impact of pathology CVS on the course of COPD in women older we compared the 3 groups of women. In the comparison, groups identified a number of characteristics of the course of COPD. In the first group of 19 women suffering from COPD, in the second 25 women at whom COPD was combined with arterial hypertension, and the third group was made by 22 women at whom COPD was combined with an arterial hypertension and coronary heart disease.

Easy for COPD were encountered almost the same percentage as in the group of women COPD patients, and in groups where COPD combined with pathology of CVS. In the group of women, patients with COPD, prevailed patients with moderate disease (69,48%),

to a lesser extent met patients with severe course of the disease (10,91%). In the group of women where COPD combined with arterial hypertension, the number of moderate forms of the disease decreased and amounted 56,49%, the number of patients with severe COPD increased to 23,36%. When combined with COPD hypertension and ischemic heart disease frequency of severe forms increased to 38.22%.

Typical complaint of patients was dyspnea. Shortness of breath most of COPD patients, were evaluated as breathing with the stress and the feeling of lack of air. We assessed the severity of dyspnea and its dependence on physical activity too, on a scale MRC. The percentage of the degree of restriction of shortness of breath activity of patients testified lower tolerance to physical activity in older women, COPD patients in combination with pathology of CVS. When comparing the tolerance to physical activity at all stages of the disease revealed differences in the groups.

At easy degree of a current of COPD without combination to pathology of cardiovascular system all women noted short wind existence only at vigorous physical activity. In the group of women where COPD is combined with arterial hypertension and in the group of women, where COPD is combined with arterial hypertension and ischemic heart disease with mild disease of the patients complained of shortness of breath when walking fast on flat terrain or when climbing on a small hill (40% in the second group, and 75% in the third).

In moderate and severe COPD, degree of breathlessness was comparable in groups of patients where COPD combined with arterial hypertension and ischemic heart disease. In women with isolated COPD, shortness of breath, to a lesser extent, limited the activity of patients and evaluated not exceeding 3 points.

Thus, it was established that women over the age of 60 years, COPD patients in Association with pathology CVS, including hypertension and coronary heart disease have a lower tolerance for endurance. It is at easy for COPD women with associated pathology estimated level of dyspnea in points higher grades on a scale MRC, compared with a women's group, COPD patients without pathology CVS. The same trend continued in moderate and severe COPD.

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INTERACTION OF DENTOFACIAL, OPTICAL AND MUSCULOSKELETAL SYSTEMS

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Relation between changes occurring at the level of dentoalveolar apparatus and oculomotor system are increasingly becoming the object of attention and profound studying in connection to the problems of post-urological nature. When considering dentoalveolar apparatus as a unified system consisting not only of the lower jaw and TMJ, but also of craniocerebral part, hyoid bone and muscles originating in the area of these structures, it is possible to understand how the transformations at the receptor level of the legs or at the photoreceptor level can

influence the occlusal balance (with changes of ascending character) and, conversely, how malocclusion affects the supporting function of foot and visual convergence (with changes of descending character). The role of the visual function in postural system balance has been proved by numerous neurophysiological studies; in order to understand the significance of this role it is necessary to realize that vision is the main source of kinetic perception, and that, as confirmed by Haji and Weber, the visual component is very fragile: the smallest changes of visual space can instantly result in a breach of postural control. Many works are focused on the role of visual function of particularly paracentral and peripheral visual fields, within the framework of balance maintenance, capacity for movement and motor coordination. This is due to the fact that about 20% of nerve fibers originating in the eyes form synapses with neurons originating from the motor areas of the brain before they reach the cortex. According to many studies, stimulation of muscles located around the eyes leads to obvious postural changes as a result of incorrect selection of glasses or contact lenses. Conversely, incorrect body position during a long period of time determines the impact on binocular coordination - for example, different visual adjustment of eyes, anisometropia enhancement, and imbalance of visual system. In addition, oculomotor ability is closely connected with the information coming from the cervical spine, which due to the "neck-oculomotor reflex" is a mediator between the convergence facilitating the transfer of C2 and C3 at the level of conoid part of medial contralateral Deiters nucleus, and the decelerating convergence at the level of medial ipsilateral nucleus. Mayer and Baron, speaking of cephalo-visual path, describe the presence of unilateral ascending path, starting from the trigeminus nucleus, which transmits information to the oculomotor nuclei, and the presence of unilateral descending path that carries the information to the spinal cord along the longitudinal fascia. Besides the relationship between conversions of the oculomotor system and postural system, it has been demonstrated how visus and/or visual convergence disorder of any nature (cranial trauma, seizures, drugs, fetal diseases) can affect dental occlusion through the same changes of head position occurring at the level of cephalo-visual system. Balance lost by the oculomotor muscles is reflected afterwards on the muscles of the neck and body, causing the "adaptive" skewing of shoulders and pelvis. It is clear that the spine is curved first in the cervical region, and then compensatory changes inevitably occur in the thoracic and lumbar regions.

From the scientific literature it is known that for the central control of visual and vestibular signals the head should be in the correct position in space; this position is regulated by physiological balance of masticatory muscles and of muscles surrounding the hyoid bone. Thus, there are identified such relations of dentoalveolar and oculomotor apparatus, which seem to be not functionally conditioned, but which "intersect" with each other at neurophysiological level, when the nuclei of the oculomotor and trigeminus nerves interact at the level of midbrain, as well as at neuromuscular level, defining ascending or descending type of communication. This relation is explained by the fact that with ascending changes the occlusion disorder creates problems of muscular nature, which in turn affect the oculomotor system; with descending changes eye defects eventually begin to adversely affect the dentofacial system.

Purpose of our study: assessment of the relation of dentoalveolar apparatus, oculo-, and locomotor systems, determination of changes in these systems after the application of splint therapy.

The study involved 23 patients of 15-25 years old with dentition pathology. At the same time oculomotor and locomotor systems were determined in all the patients. According to our examination scheme for each patient we determined the following: type of occlusion disorder, type of vision disorder, and type of foot biomechanics disorder. We performed the examination of dentoalveolar apparatus, and the assessment of oculomotor apparatus using test for convergence and cover-test, as well as the examination of feet using plantoscope, and posture assessment. All studies were conducted under the supervision of kinesiological and post-urological tests. After the examination each patient was provided with occlusal deprogramming splint with individual height made according to the Dr. Chechin procedure. In 10 days of the occlusal splint wearing we performed the additional studies according to the developed scheme, and processed the obtained data.

Occlusal splint with individually selected height allows to define the correct position of the mandible, and to restore the lost vertical dimension of occlusion, to optimize body position in space, and thereby to improve the convergence of oculomotor reflex (because an incorrect body position maintained for a long time determines the impact on the binocular coordination).

Studies have shown that for the central control of visual and vestibular signals the head should be in the correct position in space; this position is regulated by physiological balance of post-urological system. Balance lost by oculomotor muscles subsequently causes compensatory reaction in the musculoskeletal system. Furthermore, dentofacial system and feet are trailing parts in the system of musculo-fascial chains: the first one performs this function during teeth closure, the second one - in reliance on the surface.

As a result, splint therapy application allowed to achieve optimal correction of bearing area of feet and verticalization of musculoskeletal system. The obtained results require more in-depth studies involving more patients, which can confirm our results.

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NEW TECHNOLOGIES AND RECONSTRUCTIVE SURGERY IN THE TREATMENT OF VULVAR CANCER AND VULVAR DYSPLASIA

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It is well-known that reconstructive surgery in the treatment of vulvar cancer (VC) was first introduced in the 1980s. Due to the use of the reconstructive surgery, on the one hand, cosmetic and functional results have been improving and the number of complications, on the other hand, has been significantly decreasing (Knapstein P.G.,

1985; Bistoletti P. et al., 2005; Weikel W. et al., 2006; Fanfani F. et al., 2006). For a long time vulvar cancer was considered to be a disease of women in the menopause. Nowadays, vulvar cancer is more and more frequently diagnosed in the case of women of the reproductive age, which is connected to the increasing number of HPV infections.

The objective of the research was to assess direct results of traditional vulvelctomies and the experience of reconstructive surgery and new techniques in the treatment of vulvar cancer and vulvar dystrophies.

Materials and methods of the research. We monitored 54 patients between 46 and 82 years old with vulvar cancer and vulvar dystrophy of the I-III degree with and without lichen sclerosus. It would seem that the visual localisation of the pathology should lead to early diagnostics. However, the cytological examination leads to the confirmation of the vulvar cancer diagnosis in only 57% of cases. The remaining patients are diagnosed with dyskeratosis.

On the one hand, PDT leads to visualization (illumination) of the malignant cells and their selective destruction. On the other hand, PDT is a sparing therapy with almost no contraindications.

We applied PDD and PDT in case of 11 patients with vulvar dystrophy (VIN II-III) and with vulvar cancer in order to prepare the surrounding tissues for surgery, including 1 case of the VC relapse. The patients were 31-72 years old. As a photosensitizer, we used a new generation drug, chemically modified from a natural material – photoditazin, whose maximum accumulation in the tumour is 10-20 times larger than that in the surrounding tissues after 2 hours, and whose clearance takes place within 28 hours. The method leads to the generation of atomic (singlet) oxygen which kills atypical cells. The recovery was accompanied by the formation of thin scabs. After 1.5-2 months, full recovery and tissue restoration without deformation, with barely noticeable cicatricial changes, was stated in the case of 4 women. The patients were further monitored in the course of 1-3 years. Skin itch and residual focal leukoplakia recurrences were states in the case of 3 women, which, in our opinion, is connected to the insufficient exposure to the laser action to each zone by means of the manual scanning motion and photodynamic control, which can cause subjectivity and, therefore, a relapse.

In order to reduce the number of postsurgical complications in the VC treatment and to improve the cosmetic results, we performed advanced vulvectomy in the case of 62 patients. In order to close wound defects, we used full-scale fasciocutaneous flaps from the posterior surface of the thigh, which allow to choose an adequate scale of surgery and are well justified. Firstly, this area has the largest tissue surplus and is situated directly next to the wound. Secondly, this area has good blood supply due to 2 main arteries above the fascia lata, the inferior rectal artery and arteria perinealis, which are branches of the internal pudendal artery and the inferior gluteal artery. The fasciocutaneous flap surgery showed that it was possible to use cosmetic sutures without the intention by means of preliminary guiding interrupted nonabsorbable sutures. The

recovery took place by primary intention, with the exception of 3 cases ($4.8 \pm 2.4\%$). An important aspect of fasciocutaneous flaps was the formation of the organ appearance. In order to avoid the scattering and devitalization of malignant cells, the excision was always performed by means of a radio-wave scalpel. The tumour excision was preceded by its freezing up to $t^\circ 160-185^\circ$, using a ERBE-6 unit. On the part of the tumour, the excision was performed almost bloodlessly.

This way, the use of new techniques when taking into consideration the process character and the degree of the disease, is a promising approach in the treatment of vulvar cancer. Furthermore, it corresponds to the oncology principles and increases the cosmetic effect.

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ULTRASOUND DIAGNOSIS OF TENDON SHEATH SYNOVIAL CYSTS OF THE WRIST AND HAND

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Synovial Cysts – Are the most common benign soft tissue tumours of the hand and wrist. In our facility it makes up 33.8% of all benign soft tissue tumours of the hand and wrist - The Hand Surgery Clinic at the Faculty of Traumatology, Orthopaedics and Battlefield Surgery of the Russian National Research Medical University named after N.I. Pirogov . This study analysis the Ultrasound features of synovial cysts diagnosed in 176 patients with clinical symptoms suggestive of synovial cyst.

On ultrasound, synovial cysts are described as a well-defined, volume occupying lesion which is usually oval or round. It can be mono-compartmental or lobulated. The walls are visualized as echogenic stripes while the content is of a uniform hypoechoic (fluid like) echogenicity. Ultrasound has the advantage of defining the cystic nature, anatomical localization and dynamic compressibility of synovial cyst. It also assesses the relationship of the cyst with other anatomical structures such as the muscles, fascia, tendons, nerves and blood vessels. In arthro-synovial cysts the “pedicle” that connects the cyst to the adjacent joint is visualized. In tendon sheath cysts ultrasound shows the connection of the cyst with the tunica vaginalis and the concomitant sliding of the tendon with the cyst. Ultrasound is also used as a differential diagnosis tool to differentiate synovial cysts from other soft tissue tumours, tenovaginitis, tenosynovitis, stenosing ligamentitis and other specific inflammation processes.

All patients had synovial cyst diagnosis confirmed by histopathologic examination of excised surgical material. This study shows clear diagnostic criteria for ultrasound diagnosis of synovial cysts of the wrist and hand has recommended the method in clinical practice.

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DIAGNOSTICS OF HAND AND FOREARM FOREIGN BODIES

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We studied 114 patients with hand's foreign bodies. Among them the most commonly were used inorganic foreign bodies (94 – 82,5%). The foreign bodies with vegetable and animal origin were used rarely (20 – 17,5%). For diagnostics of foreign bodies were used the ultrasound, radiography and clinic research.

The radiography gave the possibility to detect foreign bodies only among 48 (42,1%) patients and had limited capability in visualization of small-sized foreign bodies. Topical diagnostics during radiography was limited by foreign body position determination relative to skin, bones and joints.

The ultrasound detected foreign bodies among 114 patients. In the ultrasound foreign bodies from both x-ray positive and from x-ray negative materials were visualized. The ultrasound gave the possibility to detect sizes of foreign body, to make accurate topical diagnostics including possible landmarks distance- skin folds, surgical and posttraumatic hems, foreign body disposition relative to neighboring joints, muscles, tendons and nerves.

The data received from ultrasound was used for choosing the optimal operative approach, considerably limited search zone of foreign body and it helped to shorten operation time and to avoid excessive injures of hand soft tissues.

Results of surgical treatment research showed ultrasound sensibility – 96,3%, specificity – 96,3%, diagnosis efficacy – 0,93 (radiography sensibility – 42,1%, specificity – 69,3%, diagnosis efficacy – 0,56). The findings of the research make it possible to state that ultrasound is a high-informative method for detecting foreign bodies of hand and forearm soft tissues.

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RESEARCH OF LIFE QUALITY IN PATIENTS WITH ISCHEMIC HEART DISEASE AFTER PERCUTANEOUS CORONARY INTERVENTION

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Objective. Examine the life quality (LQ) with patients with ischemic heart disease (IHD) after percutaneous coronary intervention (PCI).

Material and research methods. In the study included 293 patients with IHD, previously verified by clinical and instrumental examination. They were registered in the regional clinical cardiologic dispensary of Tver. Patient setting was formed on the basis of the retrospective

analysis of medical treatment records and case records. The criterion for selection into the main group was the fact of performing percutaneous coronary intervention in Scientific and Research Center of Preventive Medicine, Ministry of Health of the Russian Federation (Moscow). It included 164 patients (average age $63,5 \pm 5,6$ years) who underwent stenting and/or angioplasty of coronary arteries. The comparison group included 129 men and women (average age $61,4 \pm 6,3$ years). They received only conservative treatment. The groups were matched according to sex, age, main and concomitant pathology. The follow-up period lasted on average $3,6 \pm 1,3$ years. The study was carried out in accordance with the plan of scientific research of Research Center of the Ministry of Health of the Russian Federation (Moscow). The research of LQ characteristics was performed using SF-36 questionnaire. We analyzed the following parameters: General Health (GH) – general state of health; Physical Functioning (PF) – physical functioning; Role-Physical (RP) and Role-Emotional (RE) – influence of physical and emotional state on role functioning; Social Functioning (SF) – social functioning; Bodily Pain (BP) - intensity of pain; Vitality (VT) - viability; Mental Health (MH) – self-assessment of mental health. The patient survey was conducted by sending letters and/or telephone survey in 6, 12 and 24 months after inclusion into the research.

Results. Men who underwent PCI had indicators GH, PF, VT, RP and BP higher than in the comparison group (31,6%; 23,1%; 26,2%; 12,5% and 10,8% respectively; all $p < 0,05$). Women after stenting and/or angioplasty of coronary arteries had only the increase of PF values (at 18,2%; $p < 0,05$). Spearman rank correlation analysis showed that, in general, patients with IHD after PCI had a strong positive correlation between the parameters: PF and VT, RP and RE, and RP and VT ($R = 0,66; 0,68$ and $0,69$ respectively; all $p < 0,01$). In addition, gender differences were found. Men had a correlation between PF and GH, PF and RP ($R = 0,65$ and $R = 0,69$; both $p < 0,05$), while women – between RE and VT, MH and VT ($R = 0,65$ and $R = 0,73$; both $p < 0,05$).

Conclusions. Thus, the represented data show that regardless of gender IHD patients who underwent PCI have improvement of life quality. With men it is largely connected with possibility of doing physical activities, and with women – with improved emotional state and viability.

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VIEW ON THE ROLE OF NEUTROPHIL EXTRACELLULAR DNA AS A COMPONENT OF THE TUMOR MICROENVIRONMENT, IN CARCINOGENESIS

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Neutrophil granulocytes, as a permanent structure in the tumor “microenvironment palette” play an ambiguous role in oncogenesis. In response to microbial and non-microbial

stimuli neutrophils are shown to actively form net-like structures in the extracellular space. The structures consist of nucleic acids and enzymes - neutrophil extracellular traps (Neutrophil Extracellular Traps, NETs), which are able to capture and kill microorganisms (Brinkmann V. et al. 2004).

During the past few years researchers began cautiously to put forward a hypothesis about the role of extracellular networks formed by the activation of neutrophils, in the microenvironmental impact on tumor cells (Berger-Achituv S. et al., 2013) as well as more bold assumptions, using the term “traps” to define extracellular networks, and assuming that neutrophil extracellular traps capture circulating tumor cells and contribute to spread of metastases (Cools-Lartigue J. et al. 2013).

We observed the phenomenon that extracellular DNA spreads diffusely and by clusters in breast carcinoma tissues near the tumor cells. (Dolgushin I.I. et al. 2013). We hypothesized that neutrophils interact with tumor cells and emit their own DNA and granule components forming extracellular networks that can influence the tumor proliferation, angiogenesis, and spread of metastases.

In experiment we have shown that the induction of peripheral blood neutrophils in vitro by suspension of interwoven cell lines of HEP-2 tumor cells, RD causes neutrophil activation with the formation of extracellular networks consisting of deoxyribonucleic acid strands and bactericidal granules (Dolgushin I.I. et al., 2013).

Further we assumed that it is impossible to rule out nonspecific mechanism of extracellular DNA networks formation in response to exposure of tumor cells in the experiment as well as to exposure on latex particles and microorganisms, as well as quite different or at least not so unambiguous processes in neutrophils and tumor cells of an individual. We assumed that forming extracellular DNA networks on tumor cells cultures, neutrophils are able not to form them on “their proper” tumor cells.

The aim of our study was to refine the understanding of the processes of specificity of extracellular DNA networks formation by neutrophils in the tumor tissue.

Materials and Methods: Peripheral blood specimens were collected in 20 healthy donors and 20 patients with breast tumors by disposable instruments (needles) in disposable tubes at 8.00 a.m. on the day of surgery. Due to the fact that we could take tumor samples in four patients a day, the experiment lasted for 5 days. Blood was sampled daily in 20 healthy donors. To get neutrophils 15.0 ml of heparinized (10-15 U/ml of heparin) peripheral venous blood was used. Neutrophils were isolated from leukocyte suspension on double density gradient of Ficoll-Urografin sterile solutions (Pharmacia, Sweden, Schering, Germany). Breast tumors tissues of 20 patients were sampled into disposable containers with sterile scalpels for 10 minutes after radical mastectomy (Madden or Patey).

The diagnosis was histologically verified by tumor trepanobiopsy: invasive breast carcinoma of non-specific type, moderate grade (G2) of malignancy, luminal type B, negative Her. Mammary gland was dissected in the tumor projection, and a specimen was taken from the periphery of a nodule with a surrounding tissue 0.5cm×0.5cm×0.2 cm. Thereafter tumor tissue was mechanically ground in a homogenizer to obtain a fine-

dispersed homogeneous mass. To disintegrate the connective tissue mechanically and to isolate tumor cells, trypsin at a concentration of 0.25% in a ratio of 1:5 was added to tumor tissue homogenized suspension.

The obtained mixture was incubated at 37°C for 30 min, centrifuged at 1,500 rpm for 20 min. After that the obtained supernatant was decanted and the precipitate was washed off and adjusted to a concentration of 0.5×10^6 cells/ml by sterile sodium chloride saline using a standardized cell count method in the Goryaev chamber.

In the experiment 0.02 ml of a 1% trypan blue solution was added to 0.2 ml of a tumor tissue suspension to evaluate the viability of cancer cells after procedures. The obtained material was placed in a Goryaev chamber and examined under a light microscope. Quantification was performed on 100 cells. Over 80% of cells remained alive transparent (tripanonegative cells), less than 20% of cells stained purple (tripanopositive cells) were dead. Further, the obtained suspensions of tumor cells of each patient in study groups were mixed in a ratio of 1:10 with neutrophil fractions of twenty healthy donors and their own fraction of peripheral blood neutrophils.

The obtained suspensions were incubated at 37°C for 60 min. Thereafter smears on slides were made from the obtained suspensions and stained by Romanovsky-Giemsa method with microscopy under light microscope to differentiate leukocyte forms and count extracellular DNA. The quantification was performed on 300 structures (segmented neutrophils, juvenile neutrophils, free DNA networks, DNA networks in direct contact with tumor cells).

We made an assumption: forming extracellular DNA networks into cells of interwoven cell lines HEP-2, RD, neutrophils cannot form them on “their own” tumor cells. But according to the findings of the study proper neutrophils formed networks near the tumor cells more actively compared with neutrophils of healthy donors (Table 1). Also patient’s neutrophils formed networks around their own tumor cells in huge quantities.

Results: Thus we confirm the mechanism of neutrophil DNA networks formation have a certain specificity that is probably due to the effect of pre-activation of neutrophils «reward» with their own tumor cells.

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EVALUATION OF METABOLIC ISSUES THROUGH ORAL LIQUID IN CHILDREN AND ADOLESCENTS WITH DENTOALVEOLAR ANOMALIES

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Scientific literature holds sufficient proof to the fact that the morpho-functional shifts observed in case of dentoalveolar anomalies (DAA) come not just along with altered oral cavity microbiocenosis (which is a significant pathogenetic mechanism) yet also with

disturbed homeostatic balance and, in particular, with disturbed immune and trace element status in the oral cavity. Given that it appears reasonable to investigate the correlation links between the intensity of the morphological alterations and the electrolyte composition as well as the level of mixed saliva specific resistance in children and adolescents revealing anomalies in the dentoalveolar system. The results of the correlation analysis taken as an integral index of metabolic disturbances would allow not only disclosing macro- and microelement imbalance together with susceptibility to immune pathologies, yet they would also make it possible to detect the efficiency of adjustment mechanisms aiming at normalizing the immunological and trace element parameters in the oral liquid.

Purpose of the research – to assess metabolic disturbances in children with 1st Class DAA (Angle's Classification) based on the non-stimulated oral liquid (NOL) parameters.

The investigation into the trace element composition (Ca, Fe, K, Mg), pH, lysozyme activity, and sIgA in the NOL was done in 34 children and adolescents aged 7 through 14 with 1st Class DAA (Angle's Classification) demonstrating compensated and subcompensated type of caries, with no periodontium pathology (PMA Index \geq 20%). The study of the mixed saliva trace elements was done using the commercial chemical sets by BIOCON (Analyticon) on an automatic bio-chemical analyzer Vita lab Flexor E (Netherlands). sIgA in the mixed saliva was detected with chemical sets sIgA-IFA-BEST-Strip (JSC VECTOR-BEST, Novosibirsk, Russia) for quantitative detection of sIgA in human biological liquids involving enzyme-linked immunosorbent assay on a microtray multidetector Zenyt 1100 (manufacturer – Antos, Austria). The lysozyme activity (LA) in NOL was detected through the photonephelometric method (by V.G. Dorofeichuk) using the Spectrometer PV 1251 C (Belarus). The NOL pH was evaluated with test-papers, the pH interval lying in the range of 5.4–7.8; step = 0.2. The NOL trace element and immunological composition in patients with 1st Class DAA (by Angle): $\text{Ca}^{++} - 1.25 \pm 0.06 \text{ mmol/l}$; $\text{Fe}^{++} - 2.63 \pm 0.12 \text{ } \mu\text{mol/l}$; $\text{K}^{+} - 24.2 \pm 1.1 \text{ mmol/l}$; $\text{Mg}^{++} - 0.31 \pm 0.02 \text{ mmol/l}$; $\text{pH} - 6.8 \pm 0.3$; $\text{sIgA} - 0.38 \pm 0.03 \text{ g/l}$; $\text{LA} - 43.6 \pm 1.8\%$. The parameters for the activity demonstrated by the ions of calcium, potassium, LA, and pH in the NOL are within the referential norm in patients with no DAA. Regarding the averaged normal indices, the activity in the magnesium ions was reduced by $50.8 \pm 2.3\%$; iron ions – increased by $68.6 \pm 2.8\%$; the sIgA level was above (by $111.2 \pm 4.7\%$) the averaged concentrations found in clinically healthy children. We believe that this could be accounted for by the fact that in case of crowded and abnormally positioned teeth the oral cavity hygiene is getting worse due to undercuts and wider surface for microbial colonization. The increased number of microbial and other antigens in the oral cavity triggers adequate response from the immune-competent structures, while the first response to the sensitization of the oral cavity tissues is sIgA production by the tunica mucosa and glandular plasmocytes. The intensity of the immune response will depend largely on the status of the mucosa as well as on the resistance to the toxins expressed by various microorganisms, viruses, etc.

Therefore, establishing correlation links between the trace element composition and the level of mixed saliva specific resistance in children and adolescents with DAA is an informative and diagnostically meaningful test in terms of detecting the degree of

morphological changes in the maxillofacial area, which offers a proper reflection of the pathologies underway. Correlation analysis allows making the most complete view on the dynamics as well as on the specific features of the link between the trace element composition and the level of mixed saliva specific resistance, which are aimed at mobilizing the adjustment mechanisms.

A proper index of the intensity of morphological and functional disturbances in dentoalveolar anomalies in children and adolescents is an increased gradient of the iron/magnesium ratio with an increased sIgA concentration in the oral liquid as well as a reduced gradient of the potassium/calcium ratio under reduced lysozyme activity and pH shift towards alkali.

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IMPACT OF MIXED SALIVA MICRO- AND MACROELEMENT IMBALANCE ON LOCAL IMMUNITY IN CHILDREN WITH DENTOALVEOLAR ANOMALIES

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Given the current stage in the evolution of medical technologies there is specific significance in laboratory-diagnostic research into the role that macro- and microelement imbalance plays in the health of the child population. Macro- and microelement metabolism has been proven to depend significantly on the immune status as well as on climate-geographic, environmental, genetic, bio-social, and chronobiological factors that determine the body's overall resistance at large. The effect of chemical elements is determined by the concentration intervals allowing normal metabolism. The intensity of metabolic reactions depends on the adjustment ability and the macroorganism capacity, which are coded and "approved" in the genotype. Based on the threshold concentration theory by V.V. Kovalsky (1974, 1987) we are safe to say that an organism can regulate its functions only under specific limits of the geochemical environment variability. Below the level of the minimum threshold concentration (lack of assimilation or insufficient supply of chemical elements), and above the upper threshold concentration (excessive supply of chemical elements) the homeostatic regulation function will be disturbed.

Purpose of the research – to study the impact that mixed saliva macro- and microelement imbalance has on the immune status in children with 3rd Class dentoalveolar anomalies (DAA) (Angle-Katz Classification).

The investigation into the trace element composition (Ca, Fe, K, Mg), pH, lysozyme activity, and sIgA in the non-stimulated oral liquid (NOL) was done in 37 children and adolescents aged 7 through 14 with 3rd Class DAA (Angle-Katz Classification) demonstrating compensated and subcompensated type of caries, with no periodontium pathology (PMA Index \geq 20%).

The study of the mixed saliva trace elements was done with the commercial chemical sets by BIOCON (Analyticon) on an automatic bio-chemical analyzer Vita lab Flexor E (Netherlands). sIgA in the mixed saliva was detected with chemical sets sIgA-IFA-BEST-Strip (JSC VECTOR-BEST, Novosibirsk, Russia) for quantitative detection of sIgA in human biological liquids involving enzyme-linked immunosorbent assay on a microtray multidetector Zenyt 1100 (Antos, Austria). The lysozyme activity (LA) in NOL was detected through the photonephelometric method (by V.G. Dorofeichuk) using the Spectrometer PV 1251 C (Belarus). The NOL pH was evaluated with test-papers, with a pH interval of 5.4–7.8; step = 0.2. The NOL trace element and immunological composition in patients with 3rd Class DAA (by Angle-Katz): $\text{Ca}^{++} - 1.47 \pm 0.08 \text{ mmol/l}$; $\text{Fe}^{++} - 5.06 \pm 0.23 \text{ } \mu\text{mol/l}$; $\text{K}^{+} - 25.1 \pm 1.3 \text{ mmol/l}$; $\text{Mg}^{++} - 0.21 \pm 0.01 \text{ mmol/l}$; $\text{pH} - 6.4 \pm 0.3$; $\text{sIgA} - 0.51 \pm 0.04 \text{ g/l}$; $\text{LA} - 35.7 \pm 1.6\%$. The parameters for the activity demonstrated by the ions of calcium, potassium, as well as LA in the NOL are within the referential norm in patients with no DAA. In relation to the averaged normal indices, the activity in the magnesium ions was reduced by $65.6 \pm 2.9\%$; iron ions – increased by $224.4 \pm 9.1\%$; the sIgA level was above (by $183.3 \pm 7.4\%$) the averaged concentrations found in clinically healthy children.

An important role in the etiology of gingival inflammation pertains to microorganisms, in particular staphylococci found in the dental deposit, the subgingival space, and in the saliva, and which need iron to function. Excess of iron inhibits the bacteriostatic effect of lactoferrin, chemotaxis, and leukocyte phagocytosis, macrophage phagocytosis, transformation of lymphocytes, as well as the bactericide effect of antibodies and complement. The death of staphylococci under the influence of polymorphonuclear leukocytes is inhibited with free (protein-bound) iron but not hemoglobin or catalase. Besides, mixed saliva also accepts erythrocytes, which, while decomposing, release non-protein iron thus increasing its total level in that environment.

Such a significant increase in the iron concentration in the NOL obviously reflects the intensity of the oxidative stress on the one hand and a compensatory response under hypoxia on the other, which facilitates progressive growth of the microflora and maintains inflammation in the oral cavity. We believe that the progressive decrease in the level of magnesium is due to the fact that magnesium is a physiological antagonist to calcium acting competitive to it. Therefore, children and adolescents with significant DAA experience oxidative stress, which is a consequence of increased iron excretion, reduced magnesium content, and a pH shifted towards alkali. Long-term reduction in the lysozyme activity that determines higher susceptibility to infection, as well as an altered acid-base balance (shift towards alkali) and a long oxidative stress add to the mixed saliva macro- and microelement imbalance thus shaping susceptibility to immune pathologies. Through the process of diagnosing dentoalveolar anomalies in children and adolescents, when detecting the intensity of morpho-functional disturbances it appears reasonable to remove the trace element imbalance in the NOL as well as to administer immune-correcting therapy to recover the specific (sIgA) and non-specific (lysozyme) factors of the humoral immunity in order to bring the homeostasis back to the norm and improve the oral cavity protection against microbes.

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LOCAL IMMUNITY AND MIXED SALIVA TRACE ELEMENT STATUS IN PATIENTS WITH DENTOALVEOLAR ANOMALIES

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There is a reason to view dentoalveolar anomalies (DAA) as pathophysiological conditions accompanied not just with morphological, esthetic, and phonetic disturbances, yet with functional ones that result in changed mechanical and chemical food processing, which in turn has an impact on the overall health status. DAA significantly affects the capacity for autoupurification, makes hygiene more difficult, and sets conditions facilitating dental deposit. Due to this there is higher microbial contamination and dense deposit on the teeth; this, in turn, has a negative impact on the enamel remineralization and has a destructive effect on it. Besides, there is a significant change in the oral cavity microflora, which reveals itself through an increased number of pathogenic and opportunistic microorganisms as well as dysbacteriosis. The factors above-mentioned add to the caries and periodontium tissue inflammation. The concept of local (mucosal) immunity (introduced by A.M. Bezredkaya), which is the primary barrier keeping pathogenic agents away, reflects the general immunological responsiveness at the mucous tunic level and comes out as local production of antibodies. An easily accessible and instantly informative way of evaluating the functional capacity of this system is detecting the degree of specific and non-specific factors of the mixed saliva humoral immunity.

Purpose of the research – to evaluate the local immunity and mixed saliva trace element status in children and adolescents with 2nd Class DAA (Angle's Classification).

The investigation into the trace element composition (Ca, Fe, K, Mg), pH, lysozyme activity, and sIgA in the non-stimulated oral liquid (NOL) was done in 38 children and adolescents aged 7 through 14 with 2nd Class DAA (Angle's Classification) demonstrating compensated and subcompensated type of caries, with no periodontium pathology (PMA Index $\geq 20\%$).

The study of the mixed saliva trace elements was done with the commercial chemical sets by BIOCON (Analyticon) on an automatic bio-chemical analyzer Vita lab Flexor E (Netherlands). sIgA in the mixed saliva was detected with chemical sets sIgA-IFA-BEST-Strip (JSC VECTOR-BEST, Novosibirsk, Russia) for quantitative detection of sIgA in human biological liquids involving enzyme-linked immunosorbent assay on a microtray multidetector Zenyt 110 (Antos, Austria). The lysozyme activity (LA) in NOL was detected through the photonephelometric method (by V.G. Dorofeichuk) using the Spectrometer PV 1251 C (Belarus). The NOL pH was evaluated with test-papers, with a pH interval of 5.4–7.8; step = 0.2. The NOL trace element and immunological composition in patients with 2nd Class DAA (Angle's Classification): $Ca^{++} - 1.31 \pm 0.07$ mmol/l; $Fe^{++} - 3.81 \pm 0.18$ μ mol/l; $K^+ - 24.5 \pm 1.2$ mmol/l; $Mg^{++} - 0.24 \pm 0.01$ mmol/l; pH – 6.6 ± 0.3 ; sIgA – 0.44 ± 0.04 g/l; LA – $38.8 \pm 1.7\%$.

The parameters for the activity demonstrated by the ions of calcium, potassium, as well as LA in the mixed saliva are within the referential norm found in clinically healthy children. In relation to the averaged normal indices, the activity in the magnesium ions was reduced by $61.3 \pm 2.6\%$; iron ions – increased by $144.2 \pm 6.7\%$; the sIgA level was above (by $146.7 \pm 4.8\%$) the averaged concentrations found in patients with no DAA. The DAA in question belongs to sagittal occlusion abnormality and is connected with the distal position of the lower jaw against the upper one, which in the reason behind the occlusion contact disturbance and changed food processing in the oral cavity.

It is easy to suggest that significant occlusion disturbances trigger metabolic, morphological, as well as functional alterations in the dentoalveolar system thus aggravating the ongoing inflammations. Therefore, in case of a DAA we can talk about a stressed immune system due to increased antigen load on the immune-competent tissues in the oral cavity. This is linked to structure-functional reorganization in the maxillofacial area, occlusion disturbances, changed oral digestion, worsening oral cavity hygiene resulting from an increased area for microbial colonization, and an alternate shift in the referential indices for mixed saliva trace elements composition.

The reason for this condition is elimination of antigens that act as potentially pathogenic factors provoking inflammations or allergies in the maxillofacial area. A proper index reflecting the intensity of morphological and functional issues in children & adolescents with dentoalveolar anomalies, would be an increase in the gradient of the iron/magnesium ratio with an increased sIgA concentration in the oral liquid as well as a reduced gradient of the potassium/calcium ratio under reduced lysozyme activity and a pH shift towards alkali.

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LACTOFERRIN LEVEL ASSESSMENT IN CHILDREN AT THE STAGES OF ORTHODONTIC TREATMENT WITH DIFFERENT CLASSES OF BASE MATERIALS

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Recent scientific concepts of etiology, pathogenesis of the diseases of hard tissues of teeth, periodontium and mucosa confirm the problematic character of identification of their nature, indicating a direct connection of the biological status of the oral cavity and hygienic condition of the mouth and the level of immunological resistance. Modern methods of orthodontic treatment should be aimed not only at the effective elimination of dentofacial anomalies and deformities, but also at optimization of the timing of adaptive mechanisms restoration, normalization of the whole homeostatic, immunological status of the organism, hyposensitization, and decrease in the intensity of the manifestations of local inflammation. In this case the validity of the decision on differential application of

base materials should be substantiated by strictly evidential scientific statements.

Purpose of the research – to study the content of lactoferrin (LF) in mixed saliva in children at stages of orthodontic treatment with removable appliances of various groups of base materials.

The study of LF content was carried out in 62 children aged 4.5 to 9 years with satisfactory and good oral hygiene rates. The patients were divided into one control group and three main groups of clinical supervision. The control group consisted of 14 children undergoing routine inspection and requiring no orthodontic treatment. The 1st group of observations included 15 children with I class dentoalveolar anomalies (DAA) by Angle, for whom 18 appliances of base cold-cure acrylic based on polymethylmethacrylate (PMMA) «Meliodent RR» («Heraus Kulzer») were made. Group 2 included 17 patients with class I DAA by Angle, for whom 19 designs of base plastic of hot-based polymerization PMMA «Meliodent HC» («Heraus Kulzer») were made. The third group consisted of 16 patients with class I DAA by Angle, for whom 18 appliances of composite base material «Triad Denture Base» («Dentsply») were made. Evaluation of LF content in unstimulated oral fluid (USOF) was performed using reagent kits «Lactoferrin - strip» (CJSC «Vector-Best», Novosibirsk) for the quantitative determination of LF in human biological fluids by solid-phase enzyme immunoassay with a microplate multidetector «Zenyte 1100» of the firm «Antos» (Austria). Evaluation analysis of the patients in the control group revealed that LF fluctuations range from 1243 ± 53 to 1304 ± 61 ng/ml. The average value (1274 ± 56 ng/ml) was taken as a reference norm that shows objectively the level of LF in mixed saliva in children. Figures of LF in USOF of Group 1 observations: before treatment - 1392 ± 65 ng / ml; in 14 days - 1586 ± 76 ng / ml; in 30 days - 1832 ± 84 ng / ml; in 60 days - 2214 ± 97 ng / ml. LF values of USOF in Group 2 observations: before treatment - 1420 ± 68 ng / ml; in 14 days - 1568 ± 75 ng / ml; in 30 days - 1797 ± 81 ng / ml; in 60 days - 2138 ± 96 ng / ml. LF content of USOF in the third group of observations: before treatment - 1405 ± 67 ng / ml; in 14 days - 1541 ± 72 ng / ml; in 30 days - 1774 ± 79 ng / ml; in 60 days - 2063 ± 93 ng / ml. In our view, a significant increase in LF content compared with baseline (1,46-1,59 times) in the early stages of treatment is explained by the occurrence of inflammation in periodontal tissues and oral mucosa, as well as disorders of compensatory-adaptive mechanisms. The presence of inflammation in the dentition associated with force action of items included in the unit, is evidenced by a rise of vasomotor reactions at reduction of peripheral resistance to blood flow in the tissues of periodontium, increase of blood flow in the capillaries with an increase in their average length, restructuring of microvasculature bed with significant changes in vascular tone, directional movement of the teeth at increase of processes of resorption and osteosynthesis in the bone tissue of the alveolar process. Thus, when using removable orthodontic equipment for children at the early stages of treatment an increase of non-specific humoral immunity factors of USOF (lactoferrin) was marked. Increase of the concentration of lactoferrin in USOF and evolution of normalization values correlate with the activity of the inflammatory process. The most significant increase of LF is observed when using appliances of base cold-curing

plastics. At orthodontic treatment in children, there was established the expediency for the immunostimulatory and immunocorrective therapy for normalization of nonspecific factors of humoral immunity in order to improve oral antimicrobial protection.

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ASSESSMENT OF MIXED SALIVA BACTERICIDAL ACTIVITY IN CHILDREN AT EARLY STAGES OF INSTRUMENT TREATMENT USING BASE MATERIALS

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Published data of domestic and foreign authors' studies give conclusive evidence that there are essential features of the immune system in childhood, as well as tissue reactivity to different xenogeny materials. It is well established that orthodontic appliance has a long-term mechanical effect on periodontal tissues of the teeth, causing a restructuring of the entire dentoalveolar complex. This is accompanied by a change of microbiocenosis in the mouth, which is an important pathogenetic mechanism violating homeostatic parameters of the oral cavity. Currently, the problem of studying the influence of removable orthodontic appliances, made of different base materials, on the basic parameters of oral tissue homeostasis in children is of considerable interest.

Purpose of the research – to study the bactericidal activity (BA) of mixed saliva at early stages of orthodontic treatment in children with the use of various groups of base materials.

The study of mixed saliva BA was carried out in 68 children aged 4.5 to 9 years with satisfactory and good oral hygiene rates. The patients were divided into one control group and three main groups of clinical supervision. The control group consisted of 15 children undergoing routine inspection and requiring no orthodontic treatment. The 1st group of observations included 16 children with I class dentoalveolar anomalies (DAA) by Angle, for whom 18 sets of base cold-cure acrylic based on polymethylmethacrylate (PMMA) «Rebaron» («GS») were made. Group 2 included 18 patients with class I DAA by Angle, for whom 19 appliances of base plastics of hot-based polymerization PMMA «Prothyl Hot» («Zhermack») were made. The third group included 19 patients with class I DAA by Angle, for whom 18 appliances of composite base material «Versyo» («Heraus Kulzer») were made. Evaluation of mixed saliva BA was carried out by a flow laser cytometry method, based on the measurement of the optical properties of cells using cytoflow meter FACS Calibur («Becton Dickinson», USA) in the program Cell Quest. The percentage of double-positive bacteria (FITC⁺/PI⁺) of *St. aureus*-FITC⁺ was estimated. Percent of mixed saliva Staph killing was calculated by subtracting the values obtained in the control sample from the value of the test sample. BA in mixed saliva in the control group observations is: before treatment - $23,8 \pm 0,9\%$; in 14 days - $22,4 \pm 0,8\%$; in 30 days - $21,8 \pm 0,8\%$; in 60 days -

22,7 ± 0,9%. BA in mixed saliva in the 1st group of observations is: before treatment - 25,3 ± 1,1%; in 14 days - 26,8 ± 1,2%; in 30 days - 28,1 ± 1,3%; in 60 days - 25,8 ± 1,2%. BA in mixed saliva in the 2nd group of observations is: before treatment - 23,1 ± 0,9%; in 14 days - 24,7 ± 1,0%; in 30 days - 27,8 ± 1,2%; in 60 days - 26,7 ± 1,2%. BA in mixed saliva in the third group of observations is: before treatment - 24,9 ± 1,0%; in 14 days - 25,9 ± 1,1%; in 30 days - 24,2 ± 1,0%; in 60 days - 27,4 ± 1,3%. Current results of laboratory and clinical studies suggest that bactericidal properties of saliva are provided not only by the main salivary glycoproteins (mucins, proline-rich glycoproteins and immunoglobulins), but also by minor glycoproteins comprising agglutinin, lactoferrin, cystatin, lysozyme and lactoperoxidase. Correlation analysis at comparison of bactericidal activity of mixed saliva and quantitative indicators of the content of sIgA, IgA, IgG, lactoferrin and lysozyme activity of mixed saliva did not establish the existence of correlation dependence (direct, inverse). Undulating, multidirectional changes of mixed saliva BA gradient at the stages of orthodontic treatment is conditioned, in our opinion, by the aggregate impact of the identified factors and determines the high predictive value of a comprehensive assessment of specific and nonspecific resistance factors of local immunity with the advisability of further scientific research in this area. Thus, for a reliable assessment of the adequacy of the immune system tension in expressed effectiveness of adaptation responses and intensity of inflammatory processes in the initial stages of treatment we determined multidirectional dependence for mixed saliva BA. The results of laboratory and clinical studies indicate availability of mixed saliva studying not only in terms of identifying its biological functions in the body and providing homeostasis of the internal environment, but also for diagnostic purposes in the framework of the expansion of new non-invasive, available and safe express methods aimed at improving the effectiveness of dental care for children. At orthodontic treatment in children, there was established the expediency for the immunostimulatory and immunocorrective therapy for normalization of nonspecific factors of humoral immunity in order to improve oral antimicrobial protection.

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ANALYSIS OF ADAPTIVE CAPABILITIES OF A HUMAN BODY AS A WAY OF ASSESSMENT OF HUMAN ECOLOGICAL MEDICINE TECHNIQUES EFFICIENCY

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Sometimes there appear difficulties, when assessing the efficiency of different methods of treatment.

The assessment of dynamics of disease state and efficiency of treatment provided with the help of laboratory diagnosis methods is sometimes complicated by the difficulty of processes proceeding in the body on the one hand, and by the attempt to bind testing

parameters to a disease of a certain organ on the other.

Thanks to the existence of homeostasis or physiologic equilibration law, I have noted that some laboratory parameters may stay within the normal limits even if the disease is progressing (for example, Hb, RBC, bilirubin, creatinin, BUN parameter, etc.) This is connected with that fact that the physiologic equilibration law works allows the basic parameters to stay unchanged, while the body possesses several resources. This makes it difficult to detect the initial stages of disease.

In connection with this, sometimes the patients continue to complain about their health, while the laboratory data is within the normal limits. In such cases doctors sometimes make incorrect conclusions. The assessment of changes of adaptive capabilities of human body according to the program "Omega-M" may serve as an integral parameter, which reflects the possibility of disease development, and if the patient is already ill, it can show the level of treatment efficiency.

Human ecological medicine is a new approach, which is based on following aspects:

A human body is a single, integral system;

A disease is an adaptive reaction of a body;

The treatment should be focused on the possibility to help a human body to implement all the stages of adaptive reaction. In this case patient's health will be fully restored;

The body should be provided with all necessary nutrients in order to achieve balance;

A mental set of a patient plays a great role.

This approach exists about 18 years and more then 15 000 of patients have been treated using this approach. The efficiency of the approach in different cases has made 70-90%.

Besides clinical laboratory and instrumental methods of diagnosis we have used the method of adaptive resource assessment in accordance with the "Omega-M" program.

We have examined 20 patients, the average age of which has made $62 \pm 5,2$ years. All patients suffered from multiple organ pathology. We have examined them at the beginning of treatment process, during the treatment process, and at the end of the course. The duration of treatment process has made 1-6 months.

The group of patients has included the patients with combination of cholelithiasis, Hashimoto thyroiditis, atherosclerotic aneurysm, arthropathy.

It is necessary to note that all patients were characterized by low level of adaptation and low integral health parameter. During the first three weeks these parameters have reduced much more, reflecting the introduction of adaptive mechanisms and deterioration of resources. But further in the course of treatment the integral parameter of health and the level of adaptation of 90% of patients have been increased, which was confirmed by improved clinical laboratory and instrumental data.

Thus the assessment of adaptive resource during the treatment of patients with multiple organ pathology may become a good additional method of diagnosis and treatment efficiency assessment.

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CLINICAL, MORPHOLOGICAL AND VIROLOGICAL PARALLELS IN PATIENTS WITH CHRONIC HEPATITIS B

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Chronic hepatitis B (CHB) is characterized by different clinical course – from benign to progressive forms with fast development of cirrhosis. The CHB course depends on biological peculiarities of hepatitis B virus (HBV) – its phenotype, replicative activity, immunogenicity, interactivity with the host immune system. Researchers express contradictory opinions about influence of biological HBV peculiarities on clinical and morphological CHB symptoms.

The aim of the study was to compare clinical, morphological characteristics of liver necroinflammation with virological peculiarities of hepatitis B virus for the optimization of diagnostics, treatment and prognosis of chronic hepatitis B course.

Materials and methods. We have examined 142 patients with chronic hepatitis B (CHB): males 69 (55.6%), females - 55 (44.4%), age 37.9 ± 8.9 years. Viral antigens and antibodies were observed by ELISA using test-systems "VectorBest" (Novosibirsk, Russia). PCR were carried out in blood and in the liver tissue using test-systems "AmplifySens" (Research Institute of Epidemiology, Moscow). Liver biopsies were performed in 103 (72.5%) patients with estimation of histological activity index (HAI) by Knodell, fibrosis (F) by Metavir. Sequence analysis of DNA, taken from liver tissue of the III group patients, was performed using kit and equipment of Applied Biosystems (USA). Biochemical markers of hepatocellular inflammation were observed: ALAT, ASAT, alkaline phosphatase (APH), bilirubine, albumine, protrombine, γ -globulines, immunoglobulines (Ig).

Results. Patients were divided in 3 groups according to HBeAg and HBsAg status: I group - 14 patients with HBeAg(+) HBsAg(+) DNA(+), age – 18.4 ± 7.5 years and duration of HBV-infection - 7.2 ± 2.3 years; II group - 50 patients with HBeAg(-) HBsAg(+) AbHBe(+) AbHBcorIgG(+), age - 35.6 ± 8.1 ($p < 0.05$) and duration of HBV-infection – 14.3 ± 6.1 ($p < 0.05$); III group - 78 patients with HBeAg(-) HBsAg(-) AbHBe(+) AbHBcorIgG(+), age - 43.4 ± 9.8 ($p < 0.05$) and duration of HBV-infection – 14.2 ± 8.7 ($p > 0.05$) years. Patients in group I had minimal clinical and morphological activity of necroinflammation in spite of high viral load (10^6 - 10^9 U/ml): ALAT – 52.6 ± 7.1 U/l, ASAT – 38.5 ± 6.4 U/l, bilirubine – 20.8 ± 6.3 mkmol/l, APH – 145.6 ± 56.8 U/l, γ -globulines – $13.9 \pm 1.5\%$, IgG – 11.5 ± 2.1 g/l, HAI – 5.3 ± 0.6 , F- 1.3 ± 0.4 . Patients in group II with HBeAg-AbHBe-seroconversion and small viral load (10^4 - 10^5 U/l) had more significant necroinflammation and fibrosis than patients of the II group: ALAT – 87.5 ± 16.9 U/l ($p < 0.05$), ASAT – 60.7 ± 20.5 U/l ($p < 0.05$), bilirubine – 29.0 ± 14.2 mkmol/l ($p > 0.05$), γ -globulines – $18.4 \pm 1.1\%$ ($p < 0.05$), IgG – 16.5 ± 2.4 g/l ($p < 0.05$), HAI – 7.5 ± 0.8 ($p < 0.05$), F- 1.6 ± 0.5 ($p > 0.05$). Patients in group III who had no HBV-antigens and viremia, and had DNA only in the liver tissue were characterized by more significant necroinflammation and

fibrosis than patients of groups I and II: ALAT – 120.1 ± 41.6 U/l, ASAT – 90.3 ± 29.5 U/l, bilirubine – 46.3 ± 22.1 μ mol/l, γ -globulines – $22.6 \pm 1.6\%$ ($p < 0.05$), IgG – 18.3 ± 2.5 g/l ($p < 0.05$), HAI – 8.7 ± 0.6 ($p < 0.05$), F- 1.9 ± 0.3 ($p > 0.05$). We have detected precore/core- and pres/s-mutations in HBV genome by sequence analysis of DNA in patients of group III. Virus temporarily escaped immune clearance due to mutations, stopped HBeAg- and HBsAg-synthesis, but maintained necroinflammation and fibrosis in liver, caused progressive course of CHB.

Conclusions. Clinical, morphological and virological comparisons revealed the absence of straight correlation between the levels of HBV-viremia and necroinflammation and fibrosis and the progressive course of chronic hepatitis B without HBeAg, HBsAg with isolated liver localization hepatitis B virus.

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ELECTROCHEMICAL SYNTHESIS OF BIOLOGICAL ACTIVE COMPOUNDS FROM HERBAL RAW MATERIALS WITH ANTIOXIDANT PROPERTIES

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The Republic of Kazakhstan has little of its pharmaceutical industry. Almost 90% of medicines are imported from far and near abroad, on a national scale spent huge sums in foreign currency. Moreover, the quality of imported products do not always correspond to GOST or TU as there is no corresponding control on the part of customs services, and sanitary and epidemiological stations, because strict control of each batch of drugs is almost not possible because of the transparency of the border and smuggled goods flooding the market.

Drugs made from plant material, are especially effective in the treatment of diseases caused by unfavorable environmental conditions (Baikonur Cosmodrome, the Semipalatinsk nuclear test site) and the high background radiation do not cause side effects when they are used and are not toxic than drugs obtained by synthesis. Perhaps that is why in recent years in developed countries such as America, Japan and the European Community for the basic components of drugs are natural products of plant and animal origin.

In Shymkent chemical-pharmaceutical plant from plant material obtained by extraction of drugs: morphine, codeine, papaverine, etc., and related alkaloids are in the blade, as some of them exhibit the toxicity, while others are ineffective, and some do not possess physiological activity. To date, these side products are in warehouses unsold. But the structure of these alkaloids can get from them is already known or new biologically active compounds by modifying their structure, by introducing new functional groups-OH, -OCH₃, -OC₂H₅, -NO₂, etc.

These biologically active agents are effective in the treatment of cancer and have antioxidant properties.

To determine the molecular formula of compound chromatographically pure samples of the final products were subjected to qualitative and quantitative elemental analysis for carbon, hydrogen, nitrogen, bromine, according to the method. The molecular weight determined by cryoscopic method in glacial acetic acid. The melting point was determined by the device TAP (TU25-II-II44-76).

Belonging to a class of products com tions revealed the following way. The content of unsaturated C = C bonds was determined by micro-Gorbaha, carbonyl groups according to the method. Quantitative analysis on the methoxy group was carried out by the modified method Tseyzelya-Fibeka.

Thin-layer chromatography on non-aluminum dioxide layer of II degree of activity (by Brockmann) was used for separation and to identify and quantify substances. Plates with a sorbent (200h80mm) were prepared according to. For the elution experiments have been used experimentally - selected solvent system.

Establishing the structure of the obtained compounds was carried out by removing the IR, NMR - and mass spectra.

IR spectra were recorded on the instrument "Specord" (GDR) on the plate tinah of KBr, NaCl (thickness of the cell - $1 \cdot 10^{-5}$ M), solvent-free crystals deposited in the form of a liquid film iki.

To remove the NMR spectra of the devices used "Varian-S-100XL" (USA) with a frequency of 100 MHz. And "Hitahi" (Japan) -60 MHz. Spectra were taken at $t = 25^{\circ}\text{C}$ and a concentration of 20-30 mg/0.5 mL of CHCl_3 or D_2O .

Mass spectra were recorded on the mass spectrometer "Varian-MAT-313" in the field strength E 60 eV and $t = 25^{\circ}\text{C}$ without solvent.

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ROBOTER-ASSISTIERTE (DA VINCI) CHIRURGIE IN DER UROLOGIE

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Die minimalinvasive roboter-assistierte (da Vinci) Chirurgie hat sich besonders in der Urologie etabliert. In den USA werden > 95% aller radikalen Prostatektomien mit dem da Vinci-System durchgeführt. Weitere Indikationen in der Urologie sind Nierentumorentfernungen, Nierenbeckenplastiken, Harnleiteroperationen und seit 2013 auch die radikale Zystektomie beim fortgeschrittenen Harnblasenkarzinom.

Auch andere Fachgebiete wie Gynäkologie und Abdominalchirurgie setzen zunehmend das da Vinci-System für minimalinvasive Eingriffe ein.

Die Patienten profitieren von geringem Blutverlust, weniger Schmerzen, weniger Komplikationen, sehr kurzen Krankenhaus-Liegezeiten, besseren onkologischen und funktionellen Ergebnissen.

Am da Vinci-Zentrum Hannover werden seit 2011 alle radikalen Prostatektomien mit dem da Vinci-System operiert. 2013 wurde am da Vinci-Zentrum Hannover erstmals in Deutschland eine roboter-assistierte radikale Zystektomie (=RARC) komplett mit dem da Vinci-System durchgeführt. Wir berichten über unsere Erfahrungen, stellen die Vorteile der da Vinci-Operation dar und erklären anhand von Videos die Technik und Durchführung der Operationen.

O.I. Efimova

ACUTE ISCHEMIC STROKE ASSOCIATED WITH PERMANENT ATRIAL FIBRILLATION IN RELATION TO LEFT VENTRICULAR EJECTION FRACTION

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Introduction. Stroke is known to be the leading cause of sustained disability in Russia. Worldwide, the incidence of stroke ranges from 1-4 while in Russia, it has been recorded at 3-3.5/100,000 person-years. Recent Statistical data represent Stroke as the second common disease in developed countries with a high mortality rate (2-3), and accounts for 60-80/100,000 person-years. Cardioembolic Stroke with the frequency of 18-20% of the total number, unlike atherothrombotic and lacuna subtypes, typically manifests with critically severe clinical picture often with lethal results. Non-rheumatic Atrial fibrillation (AF) is considered as the prevailing cause of cardioembolism when compared with others. Characteristically, Permanent AF is associated with haemodynamic shifts predominantly referred to reduction of left ventricular (LV) ejection fraction and cerebral blood flow (by 43 and 23% respectively in studied cases). With these changes in haemodynamic parameters, the risks of transient reduction of cardiac volume, blood pressure, cerebral blood supply and acute stroke increase substantially.

Methodology. The study population consisted of cohort of 65 patients aged 49-75 (the mean age of population was 62.7±5.8 years) who sustained cardioembolic stroke in carotid region with underlying Permanent AF. Following the trial, all patients were divided into two groups based on left ventricular ejection index: a group one (n= 30) with LV ejection fraction of over 55%, and a group two (n=35) with LV ejection fraction of under 55%. Those studied were cohort upon the following variables: age, gender, body mass index (BMI), medical history of Atrial Fibrillation and Arterial Hypertension and time-scale of cardioembolic stroke.

Neurological assessment was carried out based on NIHHS - National Institutes of Health Stroke Scale, along with Echocardiography, Computed Tomography (CT) imaging, Dopplex Scan, Electrocardiography, full blood count and biochemistry workup. Comprehensive clinical assessment was carried out with the involvement of Physicians, Cardiologists and Neurologists. Follow-up evaluation was performed on days 1, 3 and 14 from the day of admission.

Results. The day 14 analysis noted that within a group with LV ejection fraction of over 55%, there was a significant drop in the score on the scale of NIHHS (from 14 ± 2.6 to 6 ± 1.25) whereas in the remaining group (LV ejection fraction of under 55%), there was only marginal positive shift in dynamics evaluated within the scale of NIHHS (from 14 ± 1.75 to 9 ± 1.36) with 2 deaths incidents recorded within the same group.

Conclusion. The study shows that patients with ischemic stroke associated with permanent atrial fibrillation (AF) with LV ejection fraction of below 55% were evident with a slower improvement rate. Thus, based on this case study, it enables clinicians to investigate and detect risk factors related to changes in haemodynamic parameters in inpatient settings from the early days of admission.

O.I. Efimova

PATENT FORAMEN OVALE AS AN IMPORTANT MECHANISM OF PARADOXICAL EMBOLISM

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Patent Foramen Ovale (PFO) has been reported to be present in a considerable number of individuals, with a prevalence of approximately 30% among patients with ischemic strokes. PFO, which is characterized by intermittent shunting of blood from the right to the left atrium especially in the context of increased right-sided filling pressures, have been suggested as a significant cause of paradoxical embolism.

A 73 year-old woman with history of arterial hypertension and stable angina pectoris presented with symptoms of vertigo, memory loss and confusion. The patient was known to have systolic blood pressure of 220/120mmHG over a long term with no antihypertensive treatment. At the time of examination she was found to have memory loss, gait ataxia, positive Romberg's sign. Laboratory studies: uraemia (11.4mmol/L), creatininemia (101 mmol/L) dyslipidemia. ECG: sinus rhythm, LVH. Head CT imaging detected subacute cerebrovascular ischemia withing the right MCA. Color Duppler Scan revealed 22-27% carotid arteries stenosed by atherosclerotic plague within the left carotid bifurcation. Management: administration of nootropics, anti-hypoxic and vascular treatment was initiated, and within 72 hours of the onset of stroke the patient underwent follow-up echocardiography that showed insignificant left ventricular enlargement, cardiosclerosis, atherosclerotic lesions, mild pulmonary hypertension, and PFO (0.6 cm). Color Dopplex

of venous system of low extremities was diagnostic of post-thrombotic phlebitis in small saphenous veins with incomplete recanalisation and varicous vein disease in superficial veins system. There were no signs of venous insufficiencies within deep vein network. Clinical reassessment was indicative of positive dynamics in neurological status with no signs of repetitive attacks of vertigo. Following the two week period the patient was discharged in a stable condition with recommendations on further medication and follow-up. As optimal therapy, the patient was treated with antiplatelet, statin, vascular drugs, neuroprotectives, antioxidants.

Recent studies have demonstrated that paradoxical embolism of the right heart chambers can hypothetically be the main mechanism in ischemic stroke in patients with PFO. Inarguably, a larger scale of randomized studies is required to draw ultimate workup and management strategies for this group of patients.

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ACUTE AORTIC DISSECTION IN MARFAN'S SYNDROME

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Acute aortic dissection in patients with Marfan's syndrome (MFS) is a medical emergency and can quickly lead to death, even with optimal treatment. We present the case of successful management of patient with MFS and type I aortic dissection.

A 25-year-old-woman with previously diagnosed MFS was admitted to intensive care unit with acute chest pain that radiated to both arms. She presented diminished pulses in limb vessels, hypotension and normal heart rate with a diastolic murmur that radiated to carotid arteries. The echo revealed severe aortic regurgitation, a dilated aortic root and an acute aortic dissection involving the ascending aorta, aortic arch and brachiocephalic vessels which was also verified by a computed tomography (CT) arteriogram. The patient underwent emergency replacement of ascending aorta, aortic arch and brachiocephalic vessels with plastic repair of aortic valve under deep hypothermic bypass. The patient had perioperative stroke and subsequent coma for 6 days. Then her neurological state had been improved but she continued to have complex motor aphasia, right-sided hemiplegia and post-stroke urinary disorders. She had NIHSS score – 16, Rankin score – 5 and Rivermead score was 1. Control CT revealed recent dissection (47 mm) in right carotid artery without signs of thrombosis. After 6 months follow up the patient had the positive changes in the neurological and somatic status with NIHSS score – 8 points, Rankin scale - 2 points, Rivermead mobility index -11 points. The echo showed state after total aortic arch replacement, aortic valve plasty, mild aortic and pulmonary valve insufficiency with normal contractility. Colour duplex ultrasound exam showed normal post-operative vascular prosthesis and anastomoses without abnormal findings.

Early diagnostics and adequate complex treatment have the potential to improve the prognosis in patients with MFS. Low risk elective surgery of the abnormal aortic root is preferable but acute aortic dissection especially in hemodynamically unstable patients requires emergency operation using valve-sparing techniques if possible. Those that undergo surgery, still require lifelong follow-up and preventive measures to prevent future progression of the disease.

M.K Elubaeva

IMPROVING GOVERNANCE AND MANAGEMENT SYSTEM IN A PUBLIC HEALTH ORGANIZATION AT THE PRESENT STAGE

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Public health is an important sphere of social life of the people. The nation's health is the priority of a country's national policy. At the present stage, improving the governance and management in the health care industry is one of the key elements for the reform and development in this field. For this reason, a strategy and a tactic are designed, and main priorities are determined. These aspects are reflected in the state development program of Public Health of the Republic of Kazakhstan "Salamatty Kazakhstan" for 2011-2015.

On the basis of the tactical goals in the country, the strategy of executive functions decentralization of public health authorities is maintaining with its phased transfer to governmental, non-governmental and community organizations. It is accompanied with the increasing autonomy of public providers. Contemporaneously, centralization of certain functions is provided as well: financing of medical care by the state, medicament supply and supervision in healthcare service. Moreover, the gradual introduction of an institution of professional managers and transparent forms of administration in health service organizations are promoted, including latest management techniques. Also a lot of attention is given to the modern and effective methods of health care resources. There are plans to attract private companies that will aim to manage state and departmental medical facilities, and with this purpose, to develop private sector in order to improve the efficiency of health service. Consequently, the public-private partnerships and transfer facilities, equipment rental, and asset management businesses will be widely used in the future.

For the purpose of personnel retention, especially in health care organizations located in rural areas, the practice of forming task orders of local executive bodies will be offered with the aim to train public health professionals. It will be done on a basis of agreements and likewise by attracting private investment and sponsorship funds.

The adopted strategy "Kazakhstan - 2050", by the Head of the state, carries forward the new tasks: providing affordable and good quality health care; diagnosis and treatment

of the widest range of diseases; development of preventive medicine; implementation of “smart medicine” service, remote prevention and treatment, “e-health”, providing the entire spectrum of health care for all children under the age of 16; legislative strengthening of the minimum standards of living.

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IMPLEMENTATION OF THE RECOMMENDATION ON THE PREVENTION OF VENOUS THROMBOEMBOLISM IN CASES OF TOTAL HIP REPLACEMENT AFTER DISCHARGE FROM HOSPITAL

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City hospital #1 has been confronted with the problem: “what compliance is important for prevention of venous thromboembolism (VTE)?” What doctor should consider for increasing the efficiency of prevention of VTE at the outpatient stage? Analysis of the implementation of recommendations on the prevention of VTE after total hip replacement was based on the data of excerpts from case history of 48 patients and questioning these patients after 3 months.

There were reviewed prescribed medicines, the duration of elastic compression (EC) of the lower extremities within 6 weeks and performing of ultrasound examinations of the lower extremities in 1 month after discharge. There were met seven phrases for prevention: 1 – “to continue low molecular weight heparin (LMWH) (drug, dose, frequency of administration per day and duration of the course)”; 2 – “Pradaxa 220 mg once a day”; 3 – “Xarelto 10 mg once a day”, 4 – “to continue LMWH or Pradaxa”; 5 - «to continue anticoagulant therapy (without name of medicine)”; 6 – “Warfarin (indicating the dose)”; 7 - “Heparin 5000 IU 3 times a day subcutaneously”.

LMWH were recommended for 15 patients; Pradaxa was prescribed for 7 patients, Xarelto – for 13 patients, 4 patients were recommended to continue anticoagulant without name, 6 patients were offered to choose medicine themselves (LMWH or Pradaxa), two patients were recommended to Warfarin and one - Heparin. 35 (72,9%) from 48 patients continued recommended prevention of VTE. According to the survey recommendations were completed only 9 patients from 15 in the group with LMWH, all 7 patients in the group with Pradaxa and all 13 patients in the group with Xarelto, 3 of 6 in the group of the alternative choice between LMWH and Pradaxa, 1 of 4 in a group of anticoagulant without name, both patients in the group with Warfarin and one patient who was appointed unfractionated Heparin had not complied with the recommendations.

We made conclusions: patients prefer oral drugs (all 20 people took Xarelto or Pradaxa) - 100% compliance. Only 60% continued LMWH. Prevention of VTE was

performed even rarer in the group with choice medicine by patients themselves (LMWH or Pradaxa) (3 of 6) and in the group where anticoagulant without the name was recommended (1 of 4).

40 patients were recommended to continue the EC lower extremities within 6 weeks, 38 (95%) patients fulfilled the recommendations.

Ultrasound examinations of the lower extremities was recommended in 1 month after discharge from hospital 14 patients. Ultrasound was performed only in 6(42,9%) people.

Data analysis allow making the following conclusions: most patients easily perform EC of the lower extremities. A low number of Ultrasound examinations may be associated with a lack of widespread implementation of this study, employment of patients, cost of the examination. To increase the likelihood of prevention of VTE after THR preference should be given to oral drug, indicating the name, dose, frequency and duration of the course. Parenteral drugs, and necessity of choice between several alternative drugs reduce the likelihood of implementation of the recommendations.

Yu.M. Esilevskiy

**PROSTATE GLAND CIRCULATION DISORDER
(HEMODYNAMIC PROSTATOPATHY) AS ONE OF THE CAUSES
OF CHRONIC PROSTATITIS (CP) III B CATEGORY**

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Certain dissatisfactions and doubts are raised due to including the category III B (CP III B) in the prostatitis classification (NIH, 1995) as this is actually non-inflammatory chronic pelvic pain syndrome (A.V. Sivkov, 2004; Yu.M. Esilevsky, 2008; M.I. Kogan, 2009; A.Z. Vinarov, 2010). The fact that CP III B category reflects inadequately the disease essence is indicated also by varied proposals to name this condition such as: prostatopathy (Vahlensieck, Bruhl, 1972; Harzmann, Chiari, 1975), prostate gland atony, congestive prostatitis, prostatic symptom group, vegetative urogenital syndrome, prostatodynia (D.V Can, 1980), neurovegetative prostatopathy (V. Hoffman, 1978; A.S. Segal, 1983), prostatosis (I.F Yunda, 1987), prostatism (A.P. Azizov, 2004) etc.

Our rheographic and ultrasound Dopplerography investigations of prostate gland blood circulation in patients with prostatitis have shown that blood flow in prostate gland is significantly reduced at CP III B. Thus, rheographic index at transrectal rheography of prostate gland is equal to 0.025-0.030 Ohm (at the norm of 0.050-0.060 Ohm), i.e. it is reduced by two times, and average peak blood flow velocity (V max) at ultrasound Dopplerography constitutes 5-7 cm/sec while in healthy persons it is 10-14 cm/se . In other forms of CP (CP I, CP II, CP III B) blood supply is either increased, or enhanced by vascular pattern at simultaneous decrease of blood flow velocities due to congestion and

edema. The pharmacological tests using such medicines as PDEI-5 inhibitors performed at CP III B have demonstrated quite limited reversibility of present vascular changes and abrupt decrease of the reserves for prostatic blood flow increase, in contrast to prostatitis of infection-inflammatory etiology.

This has impelled us for the first time in 2008 to express an opinion, that CP III B, which is frequently accompanied by chronic pelvic pain syndrome, presents a manifestation of pelvis ischemic disease (by analogy with coronary artery disease, ischemic disease of the brain, lower extremities etc.). The processes of circulation disorder had the stage nature, i.e. they have been advancing in parallel with increase of complaints, clinical picture and duration of medical history.

M.I. Kogan et al. have published at plenary meeting of Russian urologists society (2009) the results of the study in which it was proved on the basis of ultrasound Dopplerography, multi-layer spiral CT, biochemical blood tests and morphological investigation of biopsy material, that CP III B principally differs according to obtained data from CP III B. Namely, it features significantly greater reduction of prostate gland blood supply and vascular changes irreversibility, that allowed authors to propose atherosclerotic (systemic) lesion of prostate gland vascular bed (internal iliac artery branches) at CP III B. As a result, the authors insist, that CP III B is incorrect term, because there is no inflammatory process, appropriate to prostatitis, but there is an ischemic process (ischemic disease of the prostate gland), which should be separated from classification of CP by NIH, where it was included on the basis of similarity clinical picture of chronic pelvic pain syndrome with CP of other categories.

However not only ischemic, but also congestive process, as well as blood flow redistribution between prostate gland lobes may be observed at CP III B. Therefore, at present time this state, in our opinion, is advisable to name hemodynamic prostatopathy, since this is not the inflammation, but so far this is insufficiently studied disease, associated with organ blood circulation disorder of primary or response nature. The further studies will allow to specify the name of the clinical entity and to refuse from the grouped situational diagnosis of "chronic prostatopathy".

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CHOOSING THE 5TH TYPE PHOSPHODIESTERASE INHIBITORS FOR TREATMENT OF PATIENTS WITH ERECTILE DYSFUNCTION AND CHRONIC PROSTATITIS

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Introduction. Appearance of several 5th type phosphodiesterase inhibitors (PDEI-5) has raised a point about their preferable choice. Objectification of the response to

medicine intake with relation to evidential medicine is of current importance and thus was the objective of our study.

Material. 30 patients with chronic prostatitis IIIB and erectile dysfunction.

Methods. Ultrasound Dopplerography of male organs vessels, namely deep and dorsal arteries of penis, intra-prostatic and paraurethral arteries, as well as testicular arteries. The values of peak blood flow velocity (V_{max} in cm/sec) were measured with calculation of average accumulative values of these parameters in above-noted vessels of male genital system. Then the patient took one of tested medicines, namely: sildenafil 50 mg, vardenafil 10 mg, tadalafil 20 mg, udenafil 100 mg and was reinvestigated in 1 hour. The pharmacological test was performed using each of medicines at 4-7 days interval. Similar measurements, calculation and comparison of obtained values percentage wise were made.

Results.

Test with sildenafil. Mean V_{max} ($M \pm m$) in deep arteries of penis increased from 8.4 ± 0.8 to 12.3 ± 2.3 [+61%], $p \leq 0,02$. Mean V_{max} in three regions of prostate blood supply increased from 8.8 ± 1.2 to 11.8 ± 0.9 [+33%], $p \leq 0,05$. V_{max} in funiculus vessels did not change after testing. The weighted mean of V_{max} increase in male organs was +31%.

Test with vardenafil. Mean V_{max} in deep arteries of penis increased from 8.7 ± 0.7 to 14.2 ± 0.7 [+64%], $p \leq 0,001$. Mean V_{max} in the same regions of prostate increased from 10.5 ± 0.6 to 13.0 ± 0.7 [+24%], $p \leq 0,02$. V_{max} in funiculus vessels increased from 9.2 ± 0.3 to 10.9 ± 0.5 [+19%], $p \leq 0,002$. The weighted mean of V_{max} increase in male organs was +36%.

Test with tadalafil. Mean V_{max} in deep arteries of penis increased from 9.4 ± 0.8 to 14.2 ± 1.5 [+50%], $p \leq 0,02$. Mean V_{max} in three regions of prostate increased from 10.3 ± 0.5 to 13.5 ± 0.7 [+31%], $p \leq 0,001$. V_{max} in funiculus vessels increased from 8.6 ± 0.9 to 11.0 ± 0.7 [+28%], $p \leq 0,05$. The weighted mean of V_{max} increase in male organs was +36%.

Test with udenafil. Mean V_{max} in deep arteries of penis increased from 10.0 ± 0.7 to 13.7 ± 0.8 [+37%], $p \leq 0,002$. Mean V_{max} in the same regions of prostate increased from 11.7 ± 0.8 to 14.1 ± 0.7 [+21%], $p \leq 0,03$. V_{max} in funiculus vessels increased from 9.3 ± 0.5 to 11.5 ± 0.5 [+24%], $p \leq 0,005$. The weighted mean of V_{max} increase in male organs was +27%.

Conclusion. The obtained results show very positive hemodynamic effects of studied PDEI-5 which are very individual at the same time. So it is advisable to perform first the described pharmacological test with Dopplerography control and only after that to choose the medicine and to prescribe it to the patient on an individual basis.

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HIGH SENSITIVE TROPONIN I IN DIAGNOSTICS OF MYOCARDIAL DYSFUNCTION AMONG PATIENTS WITH INFECTIVE ENDOCARDITIS

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One of the leading causes of death among patients with infective endocarditis (IE) is heart failure (HF), the progression of which is often caused by myocardial dysfunction alongside with a damage of cardiac valves. However, today's laboratory and instrumental diagnostic criteria for myocardial pathologies are not very specific and require further research.

The objective of the research was to study dynamic changes of the high sensitive troponin I (hsTnI) in order to specify its diagnostic and prognostic importance for IE patients.

Materials and methods. We observed 62 IE patients who were treated in S.P. Botkin City clinical hospital between 2011 and 2014. The clinical diagnosis of IE was based on the criteria developed by D. Durack et al. (1994). The gender distribution was as follows: 39 (62.9%) men and 23 (37.1%) women. The patients were predominantly between 31 and 55 years old (45.2%); more than a third (43.5%) were patients over 55. 53.2% of patients were diagnosed with primary and 37.1% with secondary IE. Mitral valve damage was determined in 33.9 % of cases, aortic one – in 22.6 % and tricuspid one in 27.4% of cases. Multivalve damage was diagnosed in 16.1% of cases (10 patients). 11.3% of IE cases were associated with invasive medical interventions, 25.8% of patients were injection drug addicts, 14.5% indulged in alcohol. At hospitalisation, more than a half of the patients were diagnosed with heart failure of NYHA stages III-IV. The specific examination programme included echocardiography, determination of high sensitive troponin I (hsTnI) level by means of the immunochemiluminescent method using an analyser ARCHITECT-2000SR (ABBOTT, U.S.). The study was conducted over time, first at hospitalisation and after 3 weeks of treatment. The data processing took place using the statistical package SPSS 17.0. Taking into consideration the distribution of parameters, which was different from the norm, their values were shown as a median (25th; 75th percentile). The hypothesis whether medians from two unconnected sample groups were equal was verified using the Mann-Whitney U test. The differences were considered statistically significant with $p < 0.05$.

Results. At hospitalisation, the hsTnI concentration was increased in 98.2% of patients and, on average, was 7 times higher than the norm (up to 2 pg/ml among healthy people). The hsTnI concentration was particularly high among patients with secondary IE (20.5 pg/ml (9.1; 46.4)), multivalve damages (45.8 pg/ml (22.6; 149.35)) and patients with underlying ischemic heart disease (39.5 pg/ml (14.3; 176.3)). We determined a direct

correlation between the marker level and the dimensions of the left ventricle of heart ($r = 0.322$; $p < 0.05$), width and length of the left atrium ($r = 0.575$ and $r = 0.452$, correspondingly; $p < 0.001$), as well as an inverse correlation between the marker and the ejection fraction ($r = -0.333$; $p < 0.05$). Patients with intracardiac complications (abscesses, fistulas, chord abruptions) as well as thromboembolism in brain vessels had a higher hsTnI concentration than patients without complications (24.7 pg/ml (11.65; 126.3) and 7.95 (4.7; 40.9) pg/ml, correspondingly; $p < 0.05$). The hsTnI level at hospitalisation among patients who deceased in the course of three weeks in the hospital reached 83.7 pg/ml (8.6; 211.6), which was 40 times higher than the norm. Towards the end of the third week of an antibacterial therapy, 69% of patients with positive clinical dynamics showed a decrease in the hsTnI level down to 5.95 pg/ml (2.4; 16.2), $p < 0.05$. After three weeks of the therapy, the hsTnI level among 31% of patients with recurrent fever, remaining positive hemoculture, intracardiac complications, immune complex pathology or growing HF remained the same or even had a tendency to increase. Two patients from this group of patients deceased, the other two required a surgical intervention.

Conclusions. IE patients showed a consistent increase of the hsTnI level, which indicated a myocardial dysfunction in cases with this pathology. We determined a correlation between the marker dynamics and the HF stage, morphofunctional myocardial parameters according to the echocardiography results, severity of the disease and development of complications. High hsTnI levels reflect a strong myocardial dysfunction and can predetermine an unfavourable outcome.

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RESEARCH OF THE HIGH SENSITIVE TROPONIN I IN PATIENTS WITH CONGESTIVE HEART FAILURE

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Topicality. Congestive heart failure (CHF) is one of the largest medical and social problems all over the world. Over the last few years, great attention has been paid to the development of new laboratory markers for diagnostics, CHF course prediction and outcome.

The objective of the research was to study the dynamics of the high sensitive troponin I (hsTnI) in patients with CHF stage II/III.

Materials and methods. We observed 72 patients with CHF stage II and III in the age between 45 and 90. The high sensitive troponin (hsTnI) was assessed by means of the immunochemiluminescent method (CLEIA) using special test systems (PATHFAST). The natriuretic peptide (NTproBNP) was determined by means of the solid-phase immunoferment analysis. We also assessed echocardiography parameters. The study was

conducted over time, first during hospitalisation and after 6 months after of observation. The therapy included APF inhibitors, beta adrenoblockers, spironolacton, loop diuretics and, if necessary, digoxin. Depending on the condition dynamics in the course of 6 months, the patients were divided into 3 groups. Group 1 included patients with improvement (the CHF stage did not worsen or improved). Group 2 consisted of patients with deterioration (the CHF stage worsened). Group 3 included deceased patients.

Results. At hospitalisation, the hsTnI level in the CHF patients considerably exceeded the norm and varied between 0.002 and 0.313 ng/ml and was $0,0264 \pm 0.056297$ ng/ml on average. The initial level of the hsTnI in CHF stage II patients varied between 0.003 and 0.062 ng/ml and was 0.002-0.313 ng/ml in CHF stage III patients. We determined a significant difference between the average levels of the hsTnI in CHF patients with different stages ($p=0.001$; $r=0.694$). After 6 months, the tendency in all the patients was to decrease the initial hsTnI parameters. The difference between the initial hsTnI parameters and the hsTnI parameters after 6 months was significant (stage II: $r=0.792$; $p=0.06$; stage III: $r=0.460$; $p=0.01$). Towards the end of 6 months, in group 1 there was a significant decrease of the hsTnI level in comparison to the initial parameters. We also observed a tendency towards an hsTnI decrease in group 2. However, the difference in this group in comparison to the initial parameters was statistically insignificant. In the case of individual patients, whose condition was particularly severe, the hsTnI remained high or even had a tendency to increase. The hsTnI parameters in group 3 – deceased patients – were significantly higher than the average parameters of groups 1 and 2. We determined a direct correlation between the hsTnI level, NTproBNP and CHF stage. According to the echocardiography data, there was an inverse correlation between the hsTnI level, N proBNP and LVEF.

Conclusions. The research materials show the high information value of the hsTnI level determination in CHF patients. The increase of the hsTnI level, being a marker of the myocardial damage and cardiomyocyte death, correlates with the CHF class, NTproBNP level and the decrease in the LVEF. We established the importance of the dynamic study of the high sensitive troponin I for the assessment of the disease severity, therapy effectiveness and prediction of the unfavourable outcome in CHF patients.

Wolfgang Fischer

NEUERE ASPEKTE IN DIAGNOSTIK UND THERAPIE DES DEMENZSYNDROMS

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Die Krankheitsgruppe der Demenzen wird in den nächsten Jahren zentraler Versorgungspunkt, sowohl der akut-klinischen Medizin als auch der sozialmedizinischen Aufgaben des Gesundheits- und Sozialwesens.

Dies liegt einerseits an der steigenden Lebenserwartung der Bevölkerung, als auch an der Tatsache, dass aufgrund öffentlichkeitswirksamer Aufklärung, die Demenz mit einer höheren diagnostischen Wertigkeit und therapeutisch optional behandelt wird.

Die Prävalenz von Demenzen steigt mit dem 70igsten Lebensjahr exponentiell an.

Der wesentlichste Grund für die Einweisung von Dementen in Pflegeeinrichtungen sind mit an Sicherheit grenzenden Wahrscheinlichkeit die Verhaltensauffälligkeiten die im Rahmen und im Verlauf der Demenz auftreten.

Der größte Anteil aller Demenzpatienten sind Patienten mit Alzheimerdemenz. Bis zu 80% von alzheimerdementen Patienten sind von Verhaltensauffälligkeiten betroffen.

Die Verhaltensauffälligkeiten sind die häufigste Ursache für eine Heimeinweisung und sind in vielen Fällen auch mit akuter Krankenhauseinweisung in meist gerontopsychiatrischer stationärer Versorgung verbunden. Auch führen genau diese Verhaltensauffälligkeiten Demenzkranker bei den Bezugspersonen zu einem erhöhten Leidensdruck.

Wenn heute auch allgemein anerkannt ist, dass die wesentliche Ursache für die Demenz ein cholinerges Defizit ist, so ist der Startmechanismus und das Bedingungsgefüge für dieses cholinerge Defizit bis heute im Wesentlichen nicht bekannt.

Hier liegen Forschungsschwerpunkte sowohl der neurobiologischen als auch der neurologischen, also auch der internistischen Wissenschaften. In den letzten Jahren kristallisierte sich ein diagnostisches Grundkonzept heraus, welches den Hausarzt, den Facharzt und den Neuropsychologen braucht. Hier geht es vor allen Dingen um Basisuntersuchungen, um neurologisch-psychiatrische Untersuchungen und um differentialdiagnostische Wertungen verschiedenster selektiver psychometrischer Verfahren.

Die am 03. und 04.11.1906 vorgetragene Arbeit "über eine eigenartige Erkrankung der Hirnrinde" von Alois Alzheimer, bezugnehmend auf die Krankengeschichte von Frau Auguste Deter, hat bis heute an Bedeutung gewonnen, ist bis heute hoch aktuell und stellt nach wie vor Forschung und therapeutische Bemühungen vor große notwendige Anstrengungen. Sehr viel ist im Wissen um die Ätiologie der Alzheimererkrankung geschehen, letztendlich sind die ursächlichen Ursachen der Entstehung eines cholinergen Defizites auf mikrozellulärer Ebene auf der Ebene der Pathologie von Neurotransmittern und Stoffwechselvorgängen am Hirn im Detail unbekannt. Insofern ist die Alzheimerdemenz bis heute eine "eigenartige" Erkrankung der Hirnrinde.

Auch neuere diagnostische, bildgebende Verfahren, wie die zerebrale Computertomografie, die zerebrale Magnetresonanztomografie, die Magnetresonanzspektroskopie, die Spect- und die PET- Untersuchungen konnten das Geheimnis um den Startermechanismus nicht ausreichend klären.

So richten sich die primären aktuellen Therapieziele der Demenzerkrankungen auf die Verzögerung der Heimeinweisung, Verringerung der Pflegebedürftigkeit, Stabilisierung und Verbesserung der kognitiven Fähigkeiten, vor allem den Erhalt der Sprachfähigkeit, den Erhalt und der Verbesserung der alltagsrelevanten Fähigkeiten der Selbstversorgung und somit den Erhalt von Lebensqualität.

Die pharmakotherapeutischen Zielrichtungen auf der Basis der

neuromolekularpathologischen und pathobiochemischen Kaskade der Alzheimererkrankung sind die Minderung des cholinergen Defizites, die Optimierung mikrozirkulatorische Prozesse zur Verbesserung des mikozellulären Metabolismus und die Reduzierung der zytotoxischen glutamingeren Prozesse.

Nach neueren molekularchopathologischen Untersuchungen scheint der wesentliche Auslösemechanismus zur Bildung von Amyloidplaques und Neurofibrillen der pathologische Abbau des Amyloid- Precursor- Proteins (APP) zu sein. In aller Regel wird dieses Protein nonamyloidogen über den Alpha- Sekretasepfad gespalten. Dies geschieht in über 90% der Verstoffwechselung des APP. In 10% geschieht dieser Abbau über den Beta- Sekretasepfad, wobei in Endeffekt Tau- Protein, senile Plaques und neurofibrilläre Bündel mit dem Effekt des cholinergen Defizites und des subdtanziellen Verlustes in der Summe dieser pathologischen Prozesse entsteht. Dieser Beta- Sekretasepfad der amyloidogenen Spaltung ist bei Demenzpatienten nach neusten Erkenntnissen der wesentliche Auslösemechanismus für die Bildung der pathologischen Substrate intra- und extrazellulär im Gehirn.

Bisher gibt es aber kein pharmakologisch etabliertes Verfahren, diesen "Schlüsselprozess", die Beta- Sekretase getriggerte amyloidogene Spaltung des APP therapeutisch zu beeinflussen. Deshalb konzentrieren sich die pharmakologischen Möglichkeiten im Wesentlichen in der Minderung des cholinergen Defizites durch Einsatz von Cholinesterasehemmern und die Optimierung mikrozirkulatorischer Prozesse zur Verbesserung des mikozellulären Metabolismus, wie z.B. durch Gingibolobaextrakt in hoher Konzentration und Reduzierung der glutamingeren zytotoxischen Prozesse durch z.B. Einsatz von Memantine.

Die medikamentöse Therapie der Alzheimerdemenz zielt im Wesentlichen somit auf zwei Symptomkomplexe ab.

Erstens auf die Behandlung der Kernsymptomatik der Demenz (vor allem kognitive Störungen, Beeinträchtigung der persönlichen Aktivitäten des täglichen Lebens und der ADL-Funktionen) und

zweitens auf die evtl. erforderliche Behandlung von psychischen- und Verhaltenssymptomen (Depression, Angst, Agitation, psychotische Syndrome und Apathie).

An nicht medikamentösen Verfahren haben die Ergotherapie, die Musiktherapie, die Kunsttherapie, allgemeine Maßnahmen und physikalisch-therapeutische Interventionen Einzug in die klinische Praxis gehalten.

Bei den allgemeinen Maßnahmen ist insbesondere bei der Angehörigenarbeit mit dem Ziel der Patient- Proxy- Beziehung eine gute klinische Praxis datenmäßig erfasst.

Für alle anderen nicht medikamentösen Verfahren ist die Datenlage heterogen.

Zusammenfassend muss festgestellt werden, dass wir in der medikamentösen Therapie der Demenzen immer noch das Ende der pathoplastischen Kaskade therapieren, woraus sich die Forderung ergibt, dass wir therapeutische Interventionsmöglichkeiten mit früherem Wirkeinsatz brauchen.

Es gibt derzeit in klinischer Prüfung verschiedene innovative Therapieansätze für die Behandlung des Morbus Alzheimers, welche von der aktiven Immunisierung über die

passive Immunisierung bis hin zur Immunglobulintherapie, Gammasekretaseinhibition, Proteaseaktivierung und Modulation von Rezeptoren reichen.

Daraus ergibt sich für die klinische Forschung und für die Grundlagenforschung, dass insbesondere Zusammenhänge zwischen Umweltmedizin, toxischen Einflüssen, genetischen Bedingtheiten und konsitutionellen Faktoren dedektiert werden müssen, um letztendlich herauszufinden, warum bei Demenzpatienten der molekular-pathologische Starterweg der Erkrankung, nämlich die Beta- Sekretase getriggerte Verstoffwechselung des Amyloid- Precursor- Proteins gewählt wird.

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METABOLIC CHANGES IN DIPHTHERIA OROPHARYNX

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40 people (27 men and 13 women) aged 18 to 66 years with a diagnosis of “toxic diphtheria” have been screened. Most patients were under age of 45 (82.5%). 12 patients were admitted on the 2nd day of illness, 16 - on the third, 9 - on 4th and 3 people - 5-6th. 30 patients were diagnosed with oropharyngeal diphtheria, 10 were diagnosed with combined oropharynx and larynx diphtheria or oropharynx and nose diphtheria. The diphtheria diagnosis was confirmed by laboratory, according to which the patients were divided into two groups: “group gravis” included 30 people with type of gravis diphtheria, toxigenic *Corynebacterium diphtheria* (CBD), and “group mitis” included 10 people with mitis diphtheria caused by CBD toxigenic.

The functional status of blood platelets was assessed by aggregation induced with adenosine diphosphate $2 \times 10^{-5} \text{M}$ (ADP). Erythrocytes were assessed by aggregation induced with 1% solution of protamine sulfate using photometric method for aggregometer Solar AP 2110.

Contents of biochemical substrates such as protein, albumin, glucose, cholesterol, urea and creatinine, and activity of enzymes of blood serum such as lactate dehydrogenase (LDH), creatine phosphokinase (CPK), gamma glutamyl (GGT), alkaline phosphatase (ALP), aspartate aminotransferase (AST), alanine aminotransferase (ALT) were investigated on analyzer «HITACHI 902» (Japan). The study was made at admission (1-4), at the height of the disease (5-7) and in the recovery period (12 - 14, 21, 30 days of illness).

The differences in the clinical picture were established depending on the etiological factor - toxigenic strain CBD. More severe metabolic disturbances were recorded in patients “gravis group”, that was consistent with a more severe clinical variant of the disease. In “gravis group” frequently recorded multiple organ disorders (myocarditis with complete AV - blockage, paresis two and more pairs of cranial nerves, generalized

polyneuropathy) and deaths (30% of cases).

Hemostatic disorders in all patients were characterized by preferential inhibition of platelet (thrombocytopenia up to $150 \times 10^9/L$ in 78.6% cases and 50% reduction of aggregation activity compared with control) with the development of disseminated intravascular coagulation (DIC). Erythrocyte aggregation induced by 1% solution of protamine sulfate, suffered slightly (87% of the healthy individuals).

Biochemical changes are more correlated with the severity of oropharyngeal diphtheria than an established criterion of the severity - the subcutaneous tissue of the neck. In 9 patients, "the group gravis" platelet aggregation activity decreased to 20% of normal, and the development of rapidly DIC (hematoma at the injection site, blood spitting, uterine and nasal bleeding, hematuria) possible to diagnose the hemorrhagic form of diphtheria.

Changes in the functional properties of platelets were followed by simultaneous violation of metabolic processes. In "group gravis" compared with the "group mitis" baseline thermogenesis (AST 115 IU/L vs 77 IU/L for 1-4 days of illness) was higher, as well as the total activity of transaminases (ALT + AST). Margin metabolic strength (total protein level of 59 g/L vs 65,4 g/L, albumin 1-4, 5-7 days of illness) was lower. The total load on enzymes, provided of thermogenesis and of gluconeogenesis, in the "the group gravis" was higher (AST + ALT = 247 IU/L) than in the "group mitis" (170,4 IU/L). Metabolic disorders persisted up to 21 days in the "group gravis", whereas "group mitis" resolved by day 14 of illness.

Conclusion. Toxic diphtheria caused by toxigenic type CBD gravis, characterized as more severe than mitis. Conductor of hemorrhagic disorders in diphtheria is defeated blood platelet. The clinical picture of the disease correlates with the quantitative changes of biochemical parameters. The earlier, in the acute stage of the disease an inversion coefficient de Ritis (ACT / ALT) – is the more favorable treatment for infection.

Juliane Fütterer

VERHALTENSTHERAPEUTISCHE INTERVENTIONEN IM RAHMEN MULTIMODALER SCHMERZTHERAPIE

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Bei chronischen Schmerzpatienten besteht laut aktueller Studienlage nur ein geringer statistischer Zusammenhang zwischen organischer Schädigung und wahrgenommener Schmerzstärke bzw. diesbezüglich erlebter Beeinträchtigung. Ein multimodaler Interventionsansatz hat sich in Anbetracht der Komplexität des Krankheits- und Störungsbildes als gegenwärtiger Behandlungsstandard etabliert.

Chronische Schmerzerkrankungen gehen einher mit mangelnder Befriedigung

menschlicher Grundbedürfnisse. Durch fortschreitendes Schmerzleiden entsteht ein Erleben von zunehmendem Kontrollverlust über den eigenen Körper und die Weiterentwicklung individueller Lebensbedingungen. Häufige Folgen von andauernden Leistungseinschränkungen bestehen in Selbstwertzweifeln und psychosozialen Konflikten, insbesondere im Zusammenhang mit Schwierigkeiten bei der Erfüllung gewohnter sozialer Rollen.

Physiologisch fungiert Schmerz, mit einer Überaktivierung des sympathischen Nervensystems, als massiver Stressor für den Gesamtorganismus und hieraus resultierende muskuläre Verspannungszustände münden in eine teufelskreisartige sekundäre Schmerzzunahme. Auf zentralnervöser Ebenespielen im Verlauf der Schmerzchronifizierung neuroplastische Veränderungsprozesse eine bedeutsame Rolle. Durch den ständigen nozizeptiven Input entstehen neuronale Spuren mit vergrößerter Repräsentation des Schmerzgeschehens im somatosensorischen Kortex, eine Schmerzsensibilisierung und ein durch assoziative Lernprozesse zunehmend differenziertes Schmerzgedächtnis. Einerseits existiert eine Wechselwirkung zwischen aktuellem Schmerzerleben, der Schmerzbewertung sowie der Wahrnehmung von Kontrollmöglichkeiten und aufgrund der Entwicklung klassisch konditionierter Schmerzerwartungen beeinflusst der aktuelle Schmerz die zukünftige Schmerzverarbeitung. Andererseits können Verstärkungsprozesse die operante Konditionierung eines bestimmten möglicherweise maladaptiven Schmerzverhaltens bewirken.

Die moderne multimodale Schmerztherapie definiert dementsprechend Schmerz als bio-psycho-soziales Phänomen mit Interventionsansätzen auf den Ebenen des Körpers, der Gedanken und Gefühle sowie des beobachtbaren Verhaltens.

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**COMPUTER ESTHESIOMETRY AS NEW
NEUROPHYSIOLOGICAL METHODS OF CHRONIC
INFLAMMATORY DEMYELINATING POLYNEUROPATHY
IN ADULTS**

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Chronic inflammatory demyelinating polyneuropathy (CIDP) included in the group of dysimmunity neuropathies. The incidence of CIDP in Great Britain, Australia, Italy, Japan and the USA is 0,8-9,0 per 100 000. Pathogenesis of CIDP remains unclear until the end, but is connected with the involvement of T-cell and humoral immunity. The clinical variants of CIDP are distinguished by their presentation and include the Lewis-Sumner syndrome, sensory-predominant CIDP, distal acquired demyelinating sensory neuropathy and CIDP with central nervous system (CNS) involvement. Sensory form

of CIDP manifested by disturbances of vibration and temperature sensitivity, pain and rarely diagnosed at an early stage. One of the early signs in sensory form of CIDP at a time when drug correction is the most effective is a violation of the vibration sensitivity due to the destruction of thick sensory fibers of $A\beta$ type. This kind of sensitivity may decline long before appearance of other signs of neuropathy. Currently there are no common neurophysiological diagnostic criteria of CIDP. Shnayder N. et al. (2009-2011) proposed the use of a computer esthesiometry for evaluation of a vibration sensitivity using domestic diagnostic equipment «Vibrotester» (MBN, Moscow) in diabetic polyneuropathy and hereditary polyneuropathy of the Charcot-Marie-Tooth disease. The authors have shown that infringement of vibration sensitivity at computer esthesiometry at high and low frequencies in patients with various forms of neuropathy are observed at an early stage.

The purpose of the study: The study of information content of computer esthesiometry method in a wide frequency range of vibration from distal parts of the lower limbs in the diagnosis of sensory form of CIDP in adult patients.

Materials and Methods: We examined 49 patients with sensory form of CIDP. The average age of the patients was $36,1 \pm 14,37$ years old. Gender distribution: women - 37 (76%), men - 12 (24%). The sample was divided into 3 observation groups depending on the stage of disease: 1 monitoring group surveyed with the first stage in an amount of 19 people aged 18 to 49 years, mean age was $29 \pm 8,97$ years old; 2 monitoring group surveyed with the second stage in a quantity of 17 persons aged 19 to 64 years, mean age was $31 \pm 13,4$ years old; 3 monitoring group surveyed with the third stage in an amount of 13 people aged 18 to 69 years, mean age was $51 \pm 18,6$ years old. Survey was carried using an original modification of the domestic diagnostic equipment «Vibrotester - MBN» VT-02-1 (Moscow) with the outer ankles. Statistical analysis was performed using software packages STATISTICA v.7.0 (StatSoft, USA).

Results and discussion: When conducting computer esthesiometry in patients with sensory form of CIDP with mild lesions (11% of patients) reduction in vibration sensitivity was detected in the medium and high frequencies (64, 128, 250 and 500 Hz) - more pronounced at higher frequencies. At moderate severity of the pathological process (53% of patients) reduction in vibration sensitivity revealed in a wide frequency range with a tendency to loss of 250 and 500 Hz. In severe degree of CIDP (36%) recorded a decrease of vibration sensitivity with the fallout over a wide frequency range.

We have shown that on the early stages of sensory forms of CIDP there is a considerable disorder of vibration sensitivity, which is aggravated over time.

Conclusion: Computer esthesiometry may be a new method in the diagnosis of sensory forms of CIDP in adults.

SKIN REACTION ON PVH INFECTIONS

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Introduction. Despite the huge number of studies on PVH infection, the development of PVH prevention in women of different age groups, the issue of early detection of carcinogenesis in the structures of the female reproductive system have not been solved yet. Moreover, 98% spontaneously recover without treatment PVH - infection suggest some speculative to get vaccinated, and the lack of comprehensive evidence that certain strains are more common against cancer of the cervix is more pathogenic than others. Not resolved the issue, on which the depth of contamination in the epithelial layer of the virus. Given that about 30 percent of women are infected and have symptoms of the virus - genital warts, the relevance of the study of mucosal immune homeostasis of the cervix is extremely high.

The purpose of the study. Our research is devoted to the study of immune homeostasis mucous membrane of the cervix of women and the interaction of cells with different cluster immune phagocytic level of differentiation in the transition zone of stratified squamous epithelium of the cervix in a single-layer cylindrical.

Methods. The paper material used mucous membrane of the cervix in women aged 18 to 78 years. For clinical and patient consent is extracted material lining the cervix against papilloma warts. Additionally performed PCR-reaction to the identification and proof of strains of HPV. Immunohistochemistry to detect CD4, CD8, CD10, CD68, CD163, CD204 made phenotyping of immune cells and analyzed their quantitative relations, especially the topography of immune cells in PVH. Studied for comparison composition and topography immunocytes with PVH human skin. Analysis of the results was performed using a microscope Olympus BX51, illustrations derived from the digital camera CD x 25, the statistical treatment of the material is produced using proprietary software by Olympus.

Results and discussion. We found that in the lamina propria mucosa of the cervical canal and papillary dermis identified CD phenotypes: CD4, CD8, CD10, CD68, CD163, CD204. We observed that infection with papilloma CD68 antigen presenting cells are identified in large numbers only in the lamina propria of the mucous membrane, and completely absent in the epithelial plate. This indicates that the papilloma infection one of the key moments in the pathogenesis of dysgenesis and disruption recovery reservoir may be a perversion antigen presentation and subsequent immune cell interactions.

Conclusion. The mucous membrane of the cervix and the human skin with PVH violation stroke physiological regulation and the appearance of growths in the form of warts and genital warts due to a violation of antigen presentation CD68, their position in the underlying epithelium, connective tissue and the complete lack of epithelial layers.

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THE EFFICACY OF PELVIC MUSCLE TRAINING UNDER BIOFEEDBACK CONTROL IN CHRONIC PELVIC PAIN SYNDROME IN MALES

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Introduction. Pelvic muscle training figures importantly among the methods used to treat chronic pelvic pain syndrome. The pelvic organs and muscles lie in close proximity to one another, have common sources of nerve and blood supply, and this presupposes the presence of connections between them. Conscious control and pelvic floor muscle management allow reflex connections to be activated and some measure of control exercised over the source of pain. The more so, as not infrequently pelvic pain may be due to pathological condition of pelvic floor muscles

Real-time EMG biofeedback enables the patient to control pelvic floor muscles while increasing the effectiveness of training sessions. The authors have explored the effectiveness of pelvic muscle exercises via biofeedback in chronic pelvic pain syndrome in males.

Materials and methods. Between 2008 and 2012 pelvic floor muscle training under EMG biofeedback control was recommended for 46 patients who were diagnosed as having chronic pelvic pain. The median age of patients was 36 (range: 22-66) years.¹ Duration of complaints -3 (1-6) years. Causes of pain due to inflammation, tumors or neurologic disorders were ruled out in this group of patients. All patients answered the NIH- CPSI questionnaire prior to commencing treatment and after three months of treatment. The effectiveness of pelvic floor muscle exercises and the state of pelvic muscles were monitored using surface electrodes placed over the perineum.

Results. Initially the NIH-CPSI scale score in the group was 21(13-35). According to EMG data 20 patients (43.5%) exhibited instability of pelvic floor muscles. According to total EMG data, fluctuations in the level of the EMG signal (deviation) exceeded 15 percent. In 3 patients (6.5%) higher deviation was observed during both contraction and relaxation, in 3 patients (6.5%) during relaxation and in 16 patients (34.8%) during contraction. The duration of pelvic floor muscle training via biofeedback was two (1-12) months. A control study was done to assess the NIH-CPSI score which totaled 18 (12-30). A significant decrease was recorded in the severity of symptoms ($p=0.001$)². The median time to reduction of pathological symptomatology was 6 months.

Moreover, the median time to improved health status in the absence of signs of pelvic muscle instability was 5 months while with instability signs present it was 11 months ($p=0.09$)³.

Summary. Training the pelvic floor muscles with biofeedback makes it possible to reduce the intensity of symptoms in chronic pelvic pain. It was also found that the presence of signs of pelvic floor instability tends to prolong the period of recovery as shown by total EMG

data. EMG biofeedback enables not only to boost the effectiveness of treatment of chronic pelvic pain syndrome but also to identify one of its underlying causes – perineal muscle instability.

¹ Shown is the median, 5th and 95th percentile

² The Wilcoxon test is used

³ The log-rank test is used

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COMPARISON OF MICROORGANISMS TYPES DETECTED DURING PRIMARY MAJOR JOINT REPLACEMENT AND INFECTED JOINT REVISION ARTHROPLASTY

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Despite the fact that considerable developments both in technologies and production of novel implant designs have been achieved, prevention and management of infection that develops after major joint replacement remains a challenge in orthopaedic practice. Infection around the implants is of particular concern as the implant surface lacks the immunological protection and there is an unimpeded opportunity for microorganisms to colonize.

The aim of our study was to compare the varieties of microorganisms isolated from the joints of patients that had stages III to IV of osteoarthritis (OA) during the operations of primary major joint replacement (group 1) and revision surgery due to peri-prosthetic infection (group 2).

The pathological material was collected intra-operatively from 134 patients of group 1 and 37 patients of group 2. The material for study comprised synovial fluid, peri-articular tissue for biopsy, implant parts and smears from the implant surface. The identification of the bacteria was carried out using the WalkAway-40 bacteriological analyzer (Siemens, USA) and corresponding tests.

The material studied for bacterial inoculation resulted positive in 35.8% of cases in group 1, and in group 2 it was positive in 80.0% of cases. The number of bacterial strains detected was 69 and 90 respectively. Microorganisms were frequently isolated as a monoculture in group 1 while in group 2 there were frequent microbial associations. Microbial classes were mainly gram-positive (81.1 % in group 1, 78.7 % in group 2). The prevailing organisms in group 1 were coagulase-negative staphylococci (*Staphylococcus epidermidis*, *S. hominis*, *S. saprophyticus*, *S. haemolyticus*, *S. sciuri*, *S. cohnii*), which were revealed in 24.6 % of the patients, and *S. epidermidis* dominated in 40.5% of the strains that were isolated. Coagulase-positive *S. aureus* was present in 4.5 % of patients

in group 1 while *S. aureus* was the main agent that caused infection in 48.6% of group 2 cases. Coagulase-negative staphylococci (*S. epidermidis*, *S. warneri*, *S. hominis*, *S. haemolyticus*, *S. capitis*, *S. lugdunensis*) were found in 32.4 % of group 2 cases. Gram-positive chain cocci made 4.5% in group 1, among them were *Enterococcus faecalis*, *Aerococcus viridians*, *Gemella morbillorum*, *Kocuria* spp., *Cellulomonas* sp.. However, only *E. faecalis* was discovered in group 2 and made 5.6 %. Group 1 patients also had anaerobic bacteria such as *Peptostreptococcus* spp., *Peptococcus* sp. and fungus *Candida*. In group 2, we encountered gram-negative bacteria such as *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, *Enterobacter cloacae*, *S. marcescens* in 16.2 % that were mostly seen in associations.

We conclude that various types of coagulase-negative staphylococci were detected in the material studied of the patients with major joint OA during primary replacement (mainly, *S. epidermidis*), that can be a cause infection under particular circumstances. In patients with peri-implant infection, the microflora is replaced by more virulent types, among which *S. aureus* prevails and is frequently associated with gram-negative bacteria. The types of the specific microflora in the patients studied should be considered for administration of empirical antibacterial therapy.

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IMMUNOHISTOCHEMICAL PROFILE OF ANGIOGENESIS IN THE THYROID GLAND AT DIFFERENT THYROID DISEASES

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The purpose of the study - to determine the feature of the vascular endothelial growth factor (VEGF) and thyroid-stimulating hormone (TSH) expression in the thyroid gland (TG) at various thyroid diseases. Material - thyroid tissue (operative material) with histological confirmed diagnosis: 10 - follicular adenoma, 17 - multinodular goiter, 8 - thyroiditis Hashimoto, 8 - papillary carcinoma, 10 - intact (normal) thyroid samples (forensic autopsy). At the immunohistochemical study of the material received the following results: the increase of the Hürtle cells population 40 % or more indicates a hyperthyroidism tendency despite TSH⁺ receptor status. Under the thyroid pathology TSH and VEGF expression appears in thyrocytes and also in microvascular endothelial cells. VEGF expression is below the norm in the Hashimoto thyroiditis. VEGF is involved not only in angiogenesis, but in pathophysiological shifts in thyroid tissue. Micro vessel density (MVD) and TSH positive receptor status under the thyroid pathology testify the absence of the endothelial cell's transformation, however, this index can not serve as a biopotential prognostic marker of thyroid disease.

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DAMAGE TO NEURONS OF THE BRAIN AFTER AZALEPTIN POISONING IN COMBINATION WITH ALCOHOL

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Poisoning with atypical neuroleptics account up to 40-60%. Azaleptin causes the most severe acute poisoning among this group of drugs. Azaleptin poisonings usually combined with alcohol intoxication.

Material and methods. Histological examination of the cerebral cortex (parietal region) was performed in 26 people dead as a result of the combined poisoning of azaleptin with alcohol. Brain slices were fixed in 10 % formalin and embedded in paraffin. Histological sections were stained with hematoxylin/eosin and Nissl followed by histological analysis of the morphological changes.

Results. Nucleoli in the nuclei of neurons were located mainly eccentrically shifted to the nuclear periphery. In some nuclei nucleoli were not detected. Around the majority of neurons and glial cells area of pericellular edema was detected. Capillaries were moderately plethoric. Part of the neurons were in the state of neuronophagia. Edges of the neurons become uneven, "pitted". Marked swelling of neurons was present and shadow-cells were detected. In the meninges, various parts of the brain marked circulatory disorders were seen: congestion in the capillaries and venules, erythrocyte aggregation, stasis, sludge, marginal position of leukocytes.

Thus, in cases of death due to acute poisoning with aleptin in combination with alcohol signs of acute injury of brain neurons were detected. They are characterized by non-specific reversible and irreversible neuronal damage and circulatory problems.

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SPINAL SUPPORT AND ORTHOSES IN PAEDIATRIC ORTHOPAEDICS

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Topicality. The interest of paediatric traumatologists and orthopaedists for the treatment of spinal diseases and injuries by means of orthopaedic products has

undergone significant changes in the evolution process of this branch of paediatric surgery. Nowadays, nobody can deny the significance of modern high-quality products for the support of different spinal sections. However, according to the data provided in literature and our own observations, only insufficient amount of attention is paid to the individual approach when prescribing this type of medical products, because, as a rule, there is no cooperation between the orthopaedic surgeon who observes the child and the orthopaedic prosthetist.

The objective of our research was to develop an optimal cooperation algorithm between specialists and institutions in order to prevent the progression of scolioses and relapses of cervical dislocations.

Materials and methods. In the clinic of paediatric traumatology and orthopaedics of the Astrakhan Medical Academy, the number of patients with spinal pathologies has significantly increased in the course of the last 5 years. Thus, the number of patients with idiopathic scoliosis has increased by 2.2 times and the number of patients with rotatory subluxations of the cervical spine - by 5.5 times. The combination therapy of these patients includes the use of various types of spinal support and orthoses for the cervical spine. However, not infrequently we observe progression and relapse of the process.

Results and discussion. We developed an algorithm for the treatment of children with idiopathic scoliosis with the help of the Sheno spinal support. The procedure includes the following steps: hospitalisation of the child and a detailed examination in the hospital environment including roentgenography and, in some cases, computer optical topography and biomechanical analyses. The algorithm of the patient's observation is presented below. At the first stage, the patient is diagnosed and is then directed to the prosthetic and orthopaedic enterprise. At the second stage, the spinal support is manufactured according to the individual peculiarities of the patient, then the patient learns the application techniques of the spinal support, receives exercise therapy in the hospital and is issued the spinal support. At the third stage, the doctor in charge and the orthopaedic prosthetist monitor the conservative treatment and adjust the spinal support according to the clinical and roentgenological data. At the fourth stage, the attending doctor and the prosthetist determine the effectiveness of the spinal support and the further treatment strategy. In total, we observed 82 children; stabilisation and correction was obtained in the case of 68 patients. Children with C1/C2 subluxations had to wear orthoses which were also individually selected during hospitalisation. The children were taught how to wear them correctly and did this under the guidance of the specialist from the prosthetic and orthopaedic enterprise.

Conclusions. The results of the three-year long cooperation between the specialists show the effectiveness of the chosen treatment strategy in the case of children with spinal diseases and injuries.

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NEW APPROACH TO PHYSICAL ABILITY OF PATIENTS WITH CHARCOT-MARIE-TOOTH DISEASE

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Hereditary neuropathy Charcot-Marie-Tooth (CMT) is a degenerative disease accompanied by the development of progressive muscle weakness, specific pain syndrome, motor and sensory disorders. CMT is most common form of hereditary neuropathies. Prevalence CMT varies from 13.3 to 7.14 per 100 000 and around 80% of total number of all hereditary neuropathies population in different regions in the Russian Federation. Despite advances in understanding the causes of this disease, associated pathogenetic changes, currently a leading role in maintaining the quality of life of patients with CMT are non-drugs methods.

Purpose. The introduction of new conceptual directions (methodical and methodological innovations) in multiform, differentiated use of non-drug methods of treatment CMT as affiliate component of complex physical ability of the patients.

Methods. We observed 50 patients with CMT (age from 5 to 65 years), Me [Q₂₅;Q₇₅] - 29 [19;41] years. The patients were having courses of physical ability in the Neurological Center of University Clinic in 2012 -2013.

Results. For the first time, we have developed a differentiated approach to the choice of medication-free treatment CMT with respect to the types of diseases: (axonal, demyelinating, mixed), of data of EMG, intensity of movement disorders and autonomic nervous system's status of the patient, defined with the help of functional tests. We tested and modified methods of physical ability of the patients SAD: physiotherapy, balneotherapy, medical massage (manual and automatic), therapeutic physical culture, orthopedic treatment, postisometric relaxation of muscles (PIR), manual therapy. Objectives of physical ability of the patients with CMT were ensuring the possibility of independent movement, improving support functions, prevention of deformations stop and trauma of the ankle joints, mild pain syndrome, improvement of neuromuscular conduction, stimulation of axonal growth, improving the trophic functions of the nervous system, the correction of the status of the autonomic nervous system. We have treated 12 patients with CMT (Me [Q₂₅;Q₇₅] – 28.5 [19;41] ye.o.) and receive the following preliminary results: reduction of pain syndrome (30%), cramps (60%), normalization of vegetative status (50%). We showed positive change of EMG data (38.4% our patients). Psychoemotional status increased in 98% of the patients. Also, we showed positive change of computer esthesiometry data (thresholds of sensitivity vibration

in a wide band of vibration frequencies - 8, 16, 32, 64, 128, 250 and 500 Hz) - 38% of the patients; 8.3% of patients showed improvement of tactile and pain sensitivity. Orthopedic treatment of patients with CMT includes 2 species of conservative and surgical. Only 10% of all patients with CMT needed surgical correction. Possibility of the independent movement when using orthotic devices on the knee and ankle restored in 100% of cases.

Conclusions

Differentiated programme of physical ability help patients with CMT maintaining the quality of life at the optimal level in a particular stage of the disease, as well as preserve the physical and psychosocial function of the patient, and, thereby, improve the quality of life of patients. Differentiated program of physical habilitation is pathogenetically grounded and helps to minimize the manifestations of concomitant diseases, pain syndrome, prevent or reduce the physical disability of the patient, which contributes to the creation of favorable conditions for full-fledged integration of the patient in society.

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LYMPHOADENOGENESIS AS LIFE-SUPPORT PROCESS THROUGH THE PRISM OF NATURAL EVOLUTION AND EXPEDIENCY AT SENILE AGE

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The evolution of the lymphatic system connected with the maintenance of homeostasis. The lymph system is one of integrating systems of a living organism. Age transformation of the lymphatic system occurring in ontogenesis (Hanturin M.R, 1996; Minnebaev M.M. et al., 2006; Petrenko V.M., 2009). The greatest interest deserve mesenteric lymph nodes. They are regional lymph nodes for a gastrointestinal tract.

The reorganization of the mesenteric lymph nodes increases with age. First of all, in a lymph node reduction of the area of structurally and functional zones especially lymphoid follicles which germinal centers. This fact is an indication of decrease proliferative processes in a lymph node with the age. There is increased in 2,1 times the area of medullary cords against of the involution of lymphoid tissue with revealing the stroma of a lymph node. The lymphoid tissue is replaced to a greater or lesser extent by connective tissue and fat. In comparison with young animals in old animals is sclerosing the stroma of a lymph node, that is shown in a thickening in 1,6 times of a capsule and trabeculas, against decrease of the areas of subcapsular lymphatic sinus (in 1,3 times), cortex plateau (in 2,1 times), lymphoid follicles with the germinal center (in 1,4 times), a medullary sinus (in 1,8 times) and paracortex on 12 %. Structural changes in lymph node indicate a decline in the immune capacity and drainage and detoxication functions when endotoxycosis that

accompanies aging. We noted the presence of a direct relationship between saturation of immune competence cells of structural and functional zones of the lymph node and type of immune answer. The immune answer is lowered as on humoral type and to cellular type at old animals. The morphotype of lymph node concerns intermediate type and is characterized by cortical-medullary index equal 1,2. This morphotype is considered optimum for a lymph node, but at a late stage of ontogenesis. It is impossible to recognise it as that because of age changes as the lymph node structure is changed by the disturbance of dynamic balance between a lymphodrainage region (a large intestine) and a lymph node. Current changes in a lymph node are the show of biological recourse explaining decrease of level of the adaptation at a late ontogenesis stage. The original phytocomposition is a subject “know-how”. Reception of the original phytocomposition has caused positive changes of structurally and functional zones of a lymph node in old animals. It is expressed in increase of lymphatic sinus system (in 1,3-1,4 times), the areas of lymphoid follicles with the germinal center (in 1,6 times) and reduction of medullary cords area (in 1,3 times). Change of intranodal zones result in compaction of a lymph node. Increase of a cortical-medullary index testifies to it. The obtained data specifies that phytotherapy influences on humoral immunity, judging by change of B-dependent zones. Intensification of cell proliferation at phytotherapy is accompanied by new lymphadenogenesis – initiation of new lymphoid follicles outside of a lymph node. It is fixed as ectopia of lymphoid follicles in medullary substance of a lymph node after phytotherapy at old animals. Initiation of new lymphoid follicles as out of, and inside a lymph node in postnatal ontogenesis is compensatory reaction and operation of evolutionary mechanisms of morphological progress lymphoid tissue after phytotherapy. Phytotherapy provides active lymphopoiesis and lymph flow through a lymph node. This effect results in structural integrity compartment and optimization drainage and detoxication functions, despite sclerotic and atrophic processes.

The conclusion. Structures of a lymph node are lost with age. Functions of a lymph node decrease at senile age. The main functions are immune, drainage and detoxication for a lymph node. It is necessary to increase functional activity of a lymph node, using as a method of phytotherapy (lymphostimulation). Thus, there is a reorganization of lymph node to initiation of new lymphoid follicles outside of a lymph node. They are preventive in the appearance, but allow to raise the immune status in lymphatic region. It should be considered in endoecological rehabilitation and antiageing programs.

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THE INCIDENCE OF COMPONENTS OF THE METABOLIC SYNDROME IN PATIENTS WITH DIABETES TYPE 2

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Objectives: to determine the frequency of different components of the metabolic syndrome in patients with diabetes type 2 with regard to gender- and age-aspects.

Material and methods. 63 patients (33 males and 30 females) aged from 38 till 67 (mean age 58.6 ± 6.3) with diabetes type 2 were included in research. The diagnosis of MS was based on the criteria of International Diabetes Federation (2005). The duration of diabetes varied from 1 to 13 years. The duration of diabetes was less than 5 years in 25 patients with MS (39.7%); from 5 to 10 years – in 27 patients (42.9%); and more than 10 years – in 11 patients (17.5%). In all patients the values of BP (more than 140/90 mmHg), waist circumference (more than 80 cm in females and more than 94 cm in males), lipid profile of blood, insulin resistance, the level of uremic acid in serum, proteinuria, fasting glycaemia and glycosylated hemoglobin and Doppler-echocardiography were determined.

Results. MS was diagnosed in 33 patients (52.4%) with diabetes type 2 and in 25 cases (75.8%) arterial hypertension was accompanied with dyslipidemia in different combinations. Abdominal obesity was revealed in 41 cases (65.1%) of patients with diabetes type 2 irrespective of MS. During the analysis of components of MS following combinations were revealed: arterial hypertension with increased levels of cholesterol of low density lipoproteins (>3.0 mmol/L) in 18 patients (54.5%), increased levels of triglycerides (>1.7 mmol/L) in 15 patients (46.5%, males – 66.7%), decreased cholesterol of high density lipoproteins (<1.0 mmol/L in males and <1.2 mmol/L in females) in 14 patients (42.4%). With respect to gender MS was diagnosed in 18 males (54.5%) and in 15 females (50.0%). However, among the patients older than 50 years the MS was revealed more frequently in females during menopause (11 patients, 57.9%). Taking into consideration the stages of abdominal obesity (AO) the patients with the MS were divided as follows: stage I – 17 patients (51.5%), stage II – 11 patients (33.3%), stage III – 5 patients (15.2%). The differences of frequency of AO among males and females were revealed in patients older than 50 years and predominantly women had AO (63.2%). AO was revealed in 9 patients (36.0%) with a less than 5-year history of diabetes, in 18 patients (66.7%) with the duration of diabetes between 5 and 10 years and in 10 patients (54.5%) with more than 10-year history of diabetes. Moreover, in patients with diabetes type 2 the following accompanying disorders were revealed: gout and hyperuricaemia in 18 patients (54.5%, males – 55.6%); coronary heart disease in 28 patients (84.8%); diseases of peripheral arteries in 10 patients (30.3%, males – 80%); nephropathy with microalbuminuria in 9 patients (27.3%); polycystic ovarian syndrome in 6 females (20%); liver steatosis in 17 patients (51.5%, females – 64.7%). On echocardiography the hypertrophy of left ventricle was diagnosed in 60.6% of cases, predominantly in males (55% of cases).

Conclusions. MS was revealed in 52.4% of patients with diabetes type 2 including females older than 50 years in 57.9% of cases. The incidence of MS directly correlates with the duration of diabetes. Arterial hypertension was the most frequent component of MS (75.8%).

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FEATURES OF HEPATIC CIRCULATION IN ADOLESCENTS WITH OBESITY

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The purpose of research is to study hepatic portal circulation in adolescents, who suffer from obesity.

Matters and methods of research: 59 adolescents aged from 12 to 17 years were examined by polyhepatography's method at the Children's regional hospital according to asthenovegetative complaints. The mean age of the patients was $13,25 \pm 1,2$ years, the ratio of boys to girls was 1,5:1. On the basis of anthropomorphic investigation and definition of body mass index (BMI), all patients were divided into 2 groups: The Group 1 included 33 adolescents with obesity of the I-III degrees by Knyazev's G.A. classification. (1971). the group No. 2 consisted of 26 adolescents with normal anthropometric indicators (BMI is from 18,5 to 24,99). The evaluation of BMI was carried out by means of centile tables by sex and age (Yuriev V.V., 2003).

The study was conducted on the hardware-based system «Valenta» (a developer is the Research-and-production enterprise – «NEO», Saint- Petersburg)

The results of research: Both quantitative and qualitative Rheohepatographic indices were changed among obese adolescents. Differences of Rb-indices were the most significant (basic resistance).

Were found decreasing of hepatic blood filling in all obese adolescents ($p < 0,001$). Elasticity of hepatic vessels was insignificantly decreased or normal. Disturbances of hepatic circulation were connected with decreasing of venous flow and outflow ($p < 0,001$), sinusoidal block ($p < 0,05$), development of presinusoidal, sinusoidal and postsinusoidal hypertension ($p < 0,05$) and decreasing of venous outflow from spleen ($p < 0,05$). Almost a quarter of children with obesity (24,2 %) had haemodynamics disorders, which had a functional character ($p < 0,01$).

Conclusion:

1. Correlation between the adolescents' obesity and state of hepatic portal circulation was discovered.

2. High information content coupled with easy execution permit to recommend the method of polyhepatography for early recognition of liver damage (if a patient has an obesity) and also monitoring of threatening and prevention of adolescents' Non-alcoholic fatty liver disease (NAFLD) progression.

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CURRENT DIAGNOSTIC MARKERS AND PROGNOSTIC FACTORS IN BREAST CANCER

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The current diagnostic markers as well as established and new prognostic factors in breast cancer are presented. Tumor staging according to the UICC (2010), tumor typing according to the WHO classification of tumors of the breast (2012) and tumor grading after Elston and Ellis (1991) is demonstrated in connection with pre- and postoperative pathology. Furthermore, surgical procedures depending on the results of preoperative diagnostic pathology by using score needle biopsy (B3-lesion vs. DCIS vs. invasive carcinoma) and intraoperative diagnostic histology (sentinel node biopsy) as well as diagnostic problems in breast conserving surgery are discussed. Studies of the validity of established prognostic factors such as tumor size, lymph node status, tumor differentiation, hormone receptor status, tumor growth fraction (Mib-1/Ki-67), c-erbB2 expression of tumor cells and some new but non-established factors like AgNORs and CD24 confirmed the correlation to prognosis in breast cancer.

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THE STATE OF CYTOKINE STATUS IN PATIENTS WITH ACUTE GASTRODUODENAL BLEEDING WITH ULCER ORIGIN

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On the background of significant progress in the treatment of gastric and duodenal ulcer, in recent years complicated forms of the disease is increased, which often lead to death. The serious complication of gastric and duodenal ulcers as acute gastroduodenal ulcer bleeding, occurs in 15-25 % of patients, i.e. increased almost 7 times. It is known that *Helicobacter pylori*, local and systemic immunity plays an important role in the pathogenesis of ulcer disease. However, cytokine status in patients with acute ulcer bleeding little studied.

Objective: to study the relationship of content of proinflammatory (TNF α , IFN γ , IL-1, IL-2, IL-6, IL-8) and anti-inflammatory (IL-4 and IL-10) cytokines in serum depending on the severity of hemorrhage. Of the 37 patients with acute gastroduodenal ulcer bleeding (gastric ulcers - 7, duodenal ulcers - 27 and 3 - concomitant ulcers) blood loss in 11 patients were mild, in 12 - medium and in 14 - severe. *Helicobacter* contamination was detected in 5 patients with gastric ulcer and 21 patients with duodenal ulcer

In the whole group there was a significant, compared with the norm, increased level

of serum $\text{TNF}\alpha$ - 5,8 times, $\text{IFN}\gamma$ - 5.6-fold, IL-1 - 10.2 times, IL-8 - 8.8 times, IL-4 - 6.5 fold, IL-6 - 12.6 fold, IL-8 - 2.6 fold and contrary, the level of IL-10 - 43.9% was decreased. In the whole group ratio $\text{TNF}\alpha/\text{IL-10}$ and IL-2/IL-4 respectively was 11.0 times ($p < 0.001$) more than the normal value.

It is interested the study of indicators of the cytokine profile depending on the amount of blood loss. In the blood serum concentration of $\text{TNF}\alpha$, $\text{IFN}\gamma$, IL-1, IL-2, IL-4 and IL-8 with increasing degree of blood loss also statically significantly is increased as compared with the norm, and in severe blood loss reached a maximum. Contents of the proinflammatory cytokine IL-6 was highest in mild blood loss - an average of $54,7 \pm 5,5$ ng/ml, i.e 19.4 times more than the norm. Moreover, its level decreased with increasing blood loss, but in all degrees of blood loss was significantly higher than normal values.

In acute gastroduodenal ulcer bleeding with the severe blood loss only anti-inflammatory cytokine IL-10 was significantly decreased compared with the content of the norm: the lowest concentration of this cytokine was in patients with severe blood loss - an average of $6,6 \pm 0,7$ ng/ml.

It should be noted that the ratio of $\text{TNF}\alpha/\text{IL-10}$ also significantly increased compared with the norm and degree of severity of bleeding. Conversely IL-2/IL-4 index has trends to decrease depending on the amount of blood loss, but also remained significantly higher than normal.

Thus, our study has showed that acute gastroduodenal ulcer bleeding is accompanied by an imbalance in cytokine status, the depth which depends on the degree of blood loss.

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COMPARATIVE EVALUATION OF LOCAL AND SYSTEMIC CYTOKINE PROFILE. PARAMETERS IN PATIENTS WITH BENIGN OBSTRUCTIVE CHOLESTASIS

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Every year the number of patients with cholelithiasis and its complications is growing. At the same time, choledocholithiasis in 21.4% - 46.3% of cases is associated with obstructive cholestasis (OC) and in 22.9% of cases is complicated with purulent cholangitis.

In obstructive cholestasis the progression of bile hypertension is associated with progressive liver tissue ischemia, cholestatic hepatitis, cholangitis, immunosuppression, endotoxemia and is occurred liver disfunction (LD) with a possible transition to liver failure (LF).

It is known that it largely depends on the balance of cytokine network. However, the state of the cytokine profile in obstructive cholestasis has been insufficiently studied.

Objective: A comparative study of some cytokines in serum and bile in obstructive cholestasis.

The cause of obstructive cholestasis in all patients was choledocholithiasis. The studies were conducted in serum and bile taken during surgery in 52 patients with obstructive cholestasis depending on liver disfunction:

LD 1st degree (mild) - bilirubin levels up to 50 $\mu\text{mol/l}$ was in 21 patients, LD 2nd degree (moderate) - bilirubin levels from 50 to 100 $\mu\text{mol/l}$, in 14 patients, LD 3rd degree - bilirubin levels from 100 to 200 $\mu\text{mol/l}$, in 10 patients, and in 7 patients obstructive cholestasis was complicated with purulent cholangitis.

The level of pro-inflammatory ($\text{TNF}\alpha$, $\text{IFN}\gamma$, IL-2, IL-6) and anti-inflammatory (IL-4, IL-10) cytokines in serum and bile were determined by methods of ELISA. In general, all patients on admission in the serum level of $\text{TNF}\alpha$ was in average 2.3-fold ($p < 0.001$), $\text{IFN}\gamma$ by 40% ($p < 0.01$), IL-4 by 67.9% ($p < 0.001$), IL-6 2.1 fold ($p < 0.001$), IL-10 by 78.4% ($p < 0.001$) more, and on the contrary IL-2 by 14.4% ($p < 0.01$) less than parameters in healthy people.

In these patients in bile taken during surgery, $\text{TNF}\alpha$ concentration was average 105.9 ± 4.3 pg/ml , IL-4 – 52.6 ± 4.1 pg/ml , and IL-6 – 61.1 ± 6.0 pg/ml i.e. greater than in the serum. It should be noted that the level of cytokines in both biomedias was depended on LD, and purulent cholangitis.

On admission of patients the high levels of serum $\text{TNF}\alpha$ were in patients with LD 3rd degree and in patients with purulent cholangitis - accordingly 2.6 ($p < 0.001$) and 3.2-fold ($p < 0.001$) greater than normal. In these patients in the bile collected during decompression of biliary tract, the concentration of $\text{TNF}\alpha$ was 115.8 ± 9.3 pg/ml in LD 3rd degree and in patients with purulent cholangitis - 123.8 ± 5.1 pg/ml .

It should be noted that increasing the level of LD is associated with increasing of IL-4 and IL-6 concentrations in serum and bile duct. Thus, the highest content of IL-4 and IL-6 in serum and in the bile duct was noted in patients with purulent cholangitis.

Increasing the severity of LD and developing of purulent cholangitis is characterized by increasing level of $\text{IFN}\gamma$ in the serum. In all patients on admission was found decreased concentration of IL-2 in serum that has progressed with increasing severity of LD.

The studies of parallel samples of serum and bile duct showed that in all degrees of LD the content of $\text{TNF}\alpha$ and IL-6 in bile was greater than serum. This pattern was also observed for IL-4 at the 1st and 3rd degree LD, as well as IL-4 and IL-6 in purulent cholangitis. In patients with LD 2nd degree and in patients with purulent cholangitis the concentration of IL-4 and $\text{TNF}\alpha$ in bile duct was lower than in blood serum.

Thus, in patients with obstructive cholestasis on admission the imbalance is occurred in local and systemic level, the depth of which depends on the degree of LD and purulent cholangitis.

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INFLUENCE OF DRINKING WATER TREATMENT IN SOUTHEASTERN REGION OF KAZAKHSTAN ON POPULATION'S HEALTH

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Underground deposits are considered as strategically important water sources on the planet. Nowadays there are different methods of correction and purification of drinking water from sea, salty and brackish surface and groundwater sources. This problem is most related to Kazakhstan as the country that has almost inexhaustible reserves of underground brackish water with a salinity of 1 to 12 mg / l. On the example of a city with a population of 118 thousand people it was considered and selected circuit training drinking water from artesian wells, water which contains large amounts of iron, has a high stiffness, contains bacteria and organic matter and with a need for disinfection.

In this paper we consider the removal of iron from the water, since the presence of water in a large amount of iron gives it a bad taste, brownish color, and leads to liver disease. Hydroxide flakes formed in the water when it reacts with the air clog the valve of water intake and cause overgrowth of the tubes. Ferrous forms of iron which are soluble in the transported water in aerobic conditions tend to contribute to the growth of iron bacteria which in turn may serve as a breeding ground for the appearance of other microorganisms including pathogens. Permissible content of iron in drinking water in accordance with the current standard is 0.3 mg / l. To define technological parameters and the method of deferrization are the complex technical and economic challenge and depends on the chemical properties and processed volumes of water .

The presence of iron in groundwater is explained by leaching process made by water-bearing rocks in water flows, especially at elevated levels of carbon dioxide. Under the effect of carbon dioxide the hardly soluble compounds pass into soluble, thus forming bicarbonates. Low values of redox reactions and active groundwater explained mainly by the presence of sufficiently large amounts of free carbon dioxide and lack of oxidants. In these conditions the iron in the water will be presented in the form of dissolved iron ions. Homogeneous oxidation of ferrous forms of iron presented in the water originates with the injection of oxidants, in particular, atmospheric oxygen. At the same time bonding and are free of carbon dioxide puffing, the increase the redox potential of the water and the active reaction eventually shift dissolved iron in ferrous form insoluble oxide. The method selected for deferrization is aeration method, because it provides the required oxygen saturation of the water. Application of this method is justified by the absence of the need to inject treated water chemicals in it (oxidants) and by low operating costs.

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THE EVALUATION OF IMPAIRMENT OF RENAL FUNCTION IN CHRONIC CALCULOUS PYELONEPHRITIS IN CHILDREN

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The introduction. Urolithiasis (ICD) in the Republic of Tajikistan has the character of regional pathology. Urological pathology of urolithiasis in children is 55.7%.

Some authors suggest, that the most number of patients with pyelonephritis, is a major factor in the forecast of the disease is the main cause of chronic renal failure (CRF).

It should be noted that despite the removal of stones, restoration of patency of the urinary tract function, and correction of pathological changes occur slowly restoring function of the urinary tract and the number of stone recurrence ranged from 6 to 20% [3,4,6,10]. In this regard, the actual severity of issues remain studied changes in kidney function and the differential correction preoperative children with urolithiasis.

The purpose of the study. The study was undertaken, evaluation of renal function in children with urolithiasis, chronic pyelonephritis and complicated by the development of a rational method of preoperative preparation.

Material and methods . We analyzed the results of examination and treatment of 187 children with urolithiasis , from 6 months to 15 years. Hemileision kidney was detected in 116 (62.2 %) , two-way - in 47 (24.8 %) , many- stones were found in 24 (13%) children. Solitary stones were in 126 (67.4 %) and multiple - in 51 (32.6%) children. All patients had chronic CP , of which 18.8 % in the acute stage : KP 1 tbsp. - In 44 (23,5%), II Art. - In 80 (42.8 %) and Article III . - 63 (33.7 %). In 64 (34.2 %) children observed hydronephrosis transformation . In 78 (41.7%) of 187 patients with chronic renal failure noted : Ist - in 26 (33,3%), II Art. - In 35 (44,91%), III Art. - 17 (21.79 %) children.

To assess the severity of the condition of children with chronic calculous pyelonephritis (CCP) on the background of urolithiasis conducted a comprehensive clinical and laboratory, radiological investigation and renal ultrasonography with color Doppler mapping.

Results and their discussion. Renal function with the I st. CP (44 children) differed depending on the age, infants from 6.95% (13) were minimal changes in children. In this group of children pyelocaliceal system (CHLS) began contrasted $6 \pm 0,8$ min, complete filling occurred at 11 ± 1 minutes and evacuated on the contrast agent 23 ± 2 min. At the same time, the children of the older age group found a more prominent violation of functional parameters.

Starting contrast CHLS 12 ± 2 min, tight staining - 25 ± 2 minutes, its complete emptying of 45 ± 3 minutes (Table 1). These figures relate to urodynamics conditioned, apparently rapid progression of the inflammatory process, not only in the kidney parenchyma and the ureter, but also in the surrounding tissue.

An ultrasound of the kidneys uneven contours, fornikalnye departments somewhat

thickened in the region of the deformed calculus, edematous parenchyma. Noted a slight decrease in the glomerular filtration rate (GFR) - $65 \pm 3,6$ ml/min/1.73m². Dopplerographic was an increase in systolic blood flow (UK) 8.5%, resistance index (RI) and pulse index (PI) of 7%, systolic and diastolic ratio (SDS) 8% decrease in the rate of end diastolic flow (KFOR) in the kidney to 5% compared with the contralateral kidney (LPC).

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CARDIORENAL INTERACTIONS IN PATIENTS AFTER CARDIO-SURGICAL INTERVENTIONS

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Background. During recent years the studying of cardiorenal interactions – a cardiorenal syndrome, has become more relevant. It is known that the presence of the chronic kidney disease (CKD) and the acute kidney injury (AKI) considerably worsens the cardiovascular prognosis. Therefore it is important to determine the influence of renal dysfunction on incidence of adverse cardiovascular events in patients who underwent cardiac interventions.

Research objective: to determine risk factors for development of AKI, to estimate influences of AKI and CKD on the cardiovascular prognosis, and also to study the features of course of CKD in patients who underwent cardiac interventions.

Material and methods. Clinical trial included 875 patients (489 males and 386 females) aged from 43 till 68 years (57.4 ± 4.2 years) whom cardiac interventions were carried out in a planned order and under the conditions of cardiopulmonary bypass: coronary artery bypass grafting (CABG) was performed in 491 patients and the correction of heart valvular disease was performed in 384 patients. 592 patients out of them had an intact renal function (the 1st group), and 263 patients were diagnosed with CKD Stage II and Stage III (the 2nd group): 197 and 66 patients respectively. Besides, chronic heart failure (CHF) functional class II (FC) was revealed in 283 cases (32.3%) and the FC III in 112 cases (12.8%). During the preoperative period decompensated CHF was compensated. Before the operation the echocardiography, chest X-ray, 24-hour electrocardiogram monitoring were performed. Diagnosis and classification of AKI was based on the level of serum creatinine using criteria of RIFLE. The glomerular filtration rate (GFR) was calculated using MDRD equation. The follow-up period was 12 months after hospital discharge.

Results. During the early postoperative period AKI was diagnosed in 143 patients (24.2%) in the 1st group and in 139 patients (52.9%) in the 2nd group. The incidence of perioperative myocardial infarction and stroke in the 1st group was higher in patients

with AKI than in patients without AKI ($p < 0.05$). However in the 2nd group the difference of these complications due to AKI development was not significant. The frequency of acute heart failure Killip Class III-IV and paroxysmal tachycardias was significantly higher in patients with AKI in both groups. The in-hospital mortality in the 1st group made 4.9%, and in the 2nd group – 12.2% including patients with AKI have 14.0% and 18.0% respectively. By results of supervision regress of renal dysfunction in the 2nd group was noted in 48.2% of the patients with AKI and in 57.3% of patients without AKI. In 2nd group progressing of CKD was revealed in 10.5% of the patients with AKI and in 4.3% of patients without it ($p = 0.012$). In the 1st group CKD development was observed in 5.7% of the patients with AKI. In the 2nd group the patients with AKI needed a program hemodialysis significantly more often than patients in the 1st group: 1.6% vs 7.9% ($p < 0.05$).

Conclusions. It was shown that the risk for AKI development in the presence of CKD is two-fold higher than in its absence. The in-hospital mortality of patients with CKD in combination with AKI is 2.5-fold higher than in the patients without CKD. Operations CABG and correction of heart valvular disease improve prognosis of CKD in half the patients regardless of AKI development.

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PSYCHOLOGICAL TACTICS OF THE DOCTOR AS A TOOL FOR IMPROVING COMPENSATION DISEASE

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In the practice of medical rehabilitation there are two levels of compensation disease: high and low. High level implies active overcoming of the disease, low - adaptation to the disease.

The level of compensation depends on the individual patient, on the characteristics of his relationship to himself, from the imaginations of his health, on the capabilities of the organism and the level of trust in the modern methods of treatment. Level of confidence in the treatment is mediated by talking with specialists of different fields of medicine. From this point of view, increasing level of the disease compensation in the patient is the most important goal of a physician.

Find contact with the patient and create a new dominant of life - the necessary skills of the modern physician. The most complicated psychological problem for the patient is a defect that had arisen in connection with the disease (restricted movement, visual impairment, motor aphasia). Sometimes the reaction of the patient raises serious concerns, rather than disease itself. In such cases, psychological competence of the doctor, the purposeful use of mental influence, skillful conduct interviews, behavior of the physician, we can say “psychological tactic” of the doctor becomes a tool that teaches patient to

behave in the difficult situation of the disease and the ability to manage their emotional reactions.

In the matter of psychological competence there should be no doubt that a doctor acts as the psychotherapist, psychologist and healer.

In ancient times the medicine was rested on three pillars: the knife, the grass and the word. Word of the doctor in strength equated to the surgeon's scalpel.

At this stage, the training of future professionals of medicine requires training cycles necessary area of psychological knowledge, namely a deep theoretical knowledge of the relationship of mind and functions of the human body, the formation of training and skills psychological attitude to patients in general practice.

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COMBINED RADIODIAGNOSTICS OF ONCOLOGIC AND NON-ONCOLOGIC DISEASES OF THE ANTERIOR MEDIASTINUM

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At the current development stage of the medical science, oncologic diseases are subjected to revolutionary changes in both possibilities of early diagnostics and achievements in the practical medicine, e.g. surgery and chemotherapy.

In the context of the present article, the choice and sequence of research depends on the specific clinical objective and the nidus of the disease. The proximity of trachea, oesophagus, nasopharyngeal area, lymph nodes and carotid arteries, thyroid and parathyroid glands make this area an extremely difficult anatomical region.

Tumorous (primary or secondary) inflammatory or vascular lesions and substernal pathologies are characterised by a very mixed manifestation and represent a difficult clinical and diagnostic task.

The objective of the research was to differentiate pathological processes in the area of the anterior mediastinum. We observed 56 patients with a pathology of unclear origin (oncology, inflammation, vascular and/or mixed pathology).

All these patients were fully examined in various clinics. All radionuclide examinations took place in the Scientific Centre of Radioactive Medicine and Burns of the Ministry of Health of the Republic of Armenia, in the laboratory of radionuclide examination methods.

We used a SPECT camera from the company "Mediso", Hungary. The following examination procedures were used: examination of thyroid gland (radioactive technetium Tc-99m), of parathyroid gland (^{99m}Tc +MIBI), of lymph nodes in the area of the anterior mediastinum (Tc+nanocoll) and a three-phase bone scintigraphy (^{99m}Tc +MDP).

Out of 56 patients, 72% had an oncological pathology of the thyroid and parathyroid

glands, 10% - LGM (lymphogranulomatosis); 2 patients had lymphoma and others has a mixed lesion which involved 2 or 3 anatomic structures.

In each individual case, we singled out various radiodiagnostic characteristics typical for the pathologies mentioned above:

1. In MTS cases, there was a full, partial or one-sided “blocking” of a lymph node chain on the right or on the left.

2. In LGM cases, the visualisation of lymph nodes was varying in the course of the whole examination (4 hours), there was a full or partial blocking of one of the links in the lymph node chain, with variable contrast inclusions in the visualised nodes.

3. In lymphoma cases, there was an early visualisation of the pathologic nidus with a high contrast range which stayed almost the same over time.

4. In case of thyroid and parathyroid gland adenomas, there was an early highly contrast activity along the orientation of the neoplasm in relation to the relatively intact neighbouring areas.

5. In vascular pathology cases, there was a distinct visualisation of the pathological section of the vessel in the first 5-10 seconds of the examination, characterised by the absence of the indicator accumulation in the soft tissues of the neck.

Thus, combined radiodiagnostics of pathological processes in the anterior mediastinum in difficult cases is only possible when applying 2 and more radionuclide examination methods which make it possible to single out typical radiodiagnostic characteristics in each contrast case.

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SAFETY PRINCIPLES IN NUCLEAR MEDICINE

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The constant expansion of the field of operation of nuclear medicine all over the world and in Armenia dictates the need to always feel the pulse of safety principles when working with ionizing radiation sources. In doing so, it is necessary to consider the safety of medical staff and that of patients. The safety issues regard the absorbed ionizing radiation dose and the effective dose in both cases.

The fundamental difference between radionuclide diagnostics methods and X-Ray examinations is the ionizing radiation source. If we take away technical and individual protection equipment known both to the medical staff and hospital administration, it is always necessary to understand the physical essence of radiation and the source type. It is known that X-Ray equipment is of the closed type, whereas radioisotopic sources are of the open type, i.e. liquid, capsules, pills or gaseous radiopharmaceuticals. The second important distinctive difference between the X-Ray and γ -radiation is their radiated power and intensity which differ greatly.

Within the context of this article, the medical and technical differences are also very distinct. Thus, during an X-Ray examination a patient is only exposed to the external radiation; in case of a radioisotopic diagnostic procedure – only to the internal radiation.

In radioisotopic laboratories, only medical and technical staff who prepare the drug, administer it intravenously, subcutaneously or by means of inhalation and medical and technical staff who take care of the patient during the complete course of observation are exposed to the external radiation.

In regard to nuclear medicine, the validity and/or justification principle for the use of open radionuclide sources means the following:

- to make a justified decision about the clinical use of specific diagnostic procedures;
- to make justified decisions about the approval of construction projects for the new and renovations of the already existing units of nuclear medicine;
- to make justified decisions about issues of licenses and sanitary and epidemiological conclusions.

The attending physician makes a decision whether the radionuclide examination is necessary. However, it is important to underline that the responsibility for the implementation of the nuclear-medical procedure lies with the radiologist alone.

It is known that the regulation of the radioactive influence is based on the concept of minimizing radiation doses. There are three main principles:

- the regulation principle – the maximum permissible limit of an individual radiation dose from all radiation sources cannot be exceeded;
- the examination principle – the use for the patient is larger than the risk from the additional radiation;
- the optimisation principle – individual radiation doses and the number of people exposed to radiation – patients and medical and technical staff – are kept at the lowest level possible. This principle is known as ALARA (an acronym for “as low as reasonably achievable”) and is very important in nuclear medicine, particularly if several examination procedures are necessary.

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INFLUENCE OF SMOKING ON STIFFNESS OF ARTERIAL WALL AND ENDOTHELIAL FUNCTION IN PATIENTS WITH ARTERIAL HYPERTENSION

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Aim: Smoking is one of the most spread eradicate factors of risk of cardiovascular diseases. Thus smoking influence on elastotonic characteristics of vascular walls is not enough investigated. The aim of our study is to estimate the indices of analysis of pulse wave shape and the function of endothelium of smoking and nonsmoking patients with arterial hypertension (AH).

Materials and methods: We examined 110 patients (males-51; females-59) suffering from AH stage II. We put the common clinical examination, the contour analysis of pulse wave and the test with reactive hyperemia (the device AngioScan-01 professional). All patients were divided into 2 groups: the first group consisted of 58 patients – smokers (age $55,0 \pm 2$; 12 years length) and the second group – 52 patients (age $56,0 \pm 1,0$) nonsmokers.

Results: While carrying out of the contour analysis of pulse wave in patients of group 1, compared with 2nd group, it was indicated the average index of rigidity of the large arteries (SI) comes to $8,1 \pm 0,3$ m/s ($p < 0,001$), the index of reflection of the resistant arteries (RI) – $38,54 \pm 6,7\%$ ($p < 0,05$), the augmentation index (Alp) – $41,65 \pm 6,8\%$ ($p < 0,05$); herewith in 100% of patients the type of wave «A» was recorded reflecting the highest rigidity of the vessels. On estimation of endothelial function in 100% examined patients the dysfunction of endothelium was recorded which leads to the increase of the amplitude of the pulse waves in $1,24 \pm 0,2$ ($p < 0,05$) times and to the shift of the phases between channels (C1-C2) before and after occlusion – $4,1 \pm 0,2$ ms ($p < 0,001$).

While carrying out of the contour analysis of pulse wave, in patients of group 2, as compared with group 1, the average index of rigidity of the large arteries (SI) comes to $6,18 \pm 0,06$ m/s, the index of reflection of the resistant arteries (RI) – $30,81 \pm 6,9\%$, the augmentation index (Alp) – $32,98 \pm 7,0\%$; herewith the type of wave «A» was recorded in 75% of patients, but in 25% - the type «B», characterizing the lower degree of reduction of vascular elasticity. The dysfunction of endothelium was recorded on estimation of endothelial function in 96% examined patients which leads to the increase of the amplitude of the pulse wave in $1,81 \pm 0,02$ times and to the shift of the phases between channels (C1-C2) before and after occlusion – $5,4 \pm 0,3$ ms.

Conclusions: Thus, it is prognostically very important to determine that smokers have increase in stiffness of arterial wall and dysfunction of endothelium in comparing with nonsmokers. This must be taken into consideration while developing the individual rehabilitative programs and should be necessary accounted at the decision of expert questions.

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REGARDING STEM/PROGENITOR CELLS LOCATION IN BILIARY TRACT OF RATS

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It is established that stem/progenitor cells (S/PCs) niches in liver are located in the different compartments of biliary tree system: peribiliary mucosal glands of extra- and intrahepatic bile ducts, gallbladder and ductules of Hering (HDs).

S/PCs of peribiliary glands, depended from various stimuli, can self-replicate and differentiate into columnar cholangiocytes lining the bile ducts of all calibers – from interlobular to common bile duct. S/PCs located in the HDs give rise to hepatocytes as well as small cholangiocytes, having a cuboid morphology, a high nucleus to cytoplasm ratio and an inconspicuous endoplasmic reticulum.

Taking into the account the results of different investigations conducted on humans and/or different animals it was hypothesized that there is the specific “ongoing organogenesis” in the liver during of which the S/PCs provide permanent renovation of hepatocytes and both type cholangiocytes covering large bile ducts and fine biliary ductules. Also it was shown that S/PCs can give rise to a range of hepatocellular carcinoma (HCC), mucin-producing cholangiocarcinoma (CHC) and combined HCC and CHC.

All above mentioned concerns humans and those mammals biliary ducts of which are supplied by peribiliary mucosal glands (interestingly, the glands are present in animals with gallbladder).

However, the rats which represent the conventionally accepted laboratory animal for modeling of various hepatic and biliary pathologies including cancer, do not have neither gallbladder nor the peribiliary glands on the intrahepatic ducts. (The small sack-like glands are present only on the gross/extrahepatic ducts). In such case the source for above-mentioned “ongoing organogenesis” in intrahepatic ducts has to be identified. S/PCs located in the rat HDs can give rise to epithelium of small adjacent cholangoles, but supposedly fail to do the same for distal branches of the ducts, as they represent a remote target.

According to our results based on the histological and immunohistochemical investigations of biliary system of 32 rats in norm (8 subjects) and at 6, 12 and 24 hours after common bile duct ligation (8 subjects at each term), we consider that the niche of S/PCs giving rise to lining of intrahepatic bile ducts could be the periportal biliary network. This network represents the mesh of thin bile ductules circumscribing the branch of portal vein and drained by the biliary duct accompanying this vein.

This consideration is supported by the features of the epitheliocytes lining periportal biliary network, by which they resemble the S/PCs located in HDs:

Normally, they are very small in size that makes them hardly detectable in the light microscope;

Ligation of common bile duct results in increasing of their size and revealing at the early stages of cholestasis, when the proliferative processes have not initiated yet;

They have cuboid shape, the scant cytoplasm and high nucleus to cytoplasm ratio and an inconspicuous endoplasmic reticulum;

They are OV, CK19, CK7 and NCAM positive.

This suggestion requires verification by further investigations. In case if the proposed idea is confirmed, the “ongoing organogenesis” of the rat biliary tree will be classified as follows:

Hepatocytes as well as the cholangiocytes of small ducts could be regenerated from S/PCs located in HDs;

Cholangiocytes of intrahepatic ducts could be regenerated from S/PCs located in periportal biliary network;

Cholangiocytes of extrahepatic ducts could be regenerated from S/PCs located in peribiliary glands.

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**MODERN «EXPERT MEDICAL SYSTEM ON HOMEOPATHY»
WITH INTERACTIVE INTERROGATION ON-LINE**

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Experience of creation of expert systems in homeopathy begins the report with works S.N. Korsakov (1787 - 1853), which has anticipated (1832) the beginning of active development of this direction in medicine more than 150 years. His «intellectual machines» are primogenitors of modern expert systems in general and in homeopathy in particular. S.N.Korsakov's works first of all had applied value in homeopathy.

Giving due to the genius of pathbreakers, developers of the modern computer software have considerably increased opportunities of the expert in a choice of a homeopathic medical product, having created interactive systems of interrogation.

One of such expert systems (ES) - «Expert Medical System on Homeopathy - EMSH» (www.homeopath-expert.com) in our opinion has a number of advantages in comparison with already existing: RADAR VES, Vithoulkascompass, ABC Homeopathy.

In the first as well as ABC Homeopathy (www.abchomeopathy.com) has the free Internet access, but obviously greater volume databases (VD) of symptoms and homeopathic medical products.

In the second it is completely focused on the user - there are no advertising blocks, as well as Vithoulkascompass (www.vithoulkascompass.com) but as well as in the first case, there is more than VD «Expert Medical System on Homeopathy - EMSH» and there is no registration of users and a payment for use of the resource given the Internet.

As we can judge from considered variants of Expert Systems - Vithoulkascompass, ABC Homeopathy - as a VD used Repertory by Kent which totals 650 homeopathic preparations and 65000 symptoms. «The expert Medical System on Homeopathy - EMSH» - is created on the basis of a VD «Diagnostic analytical repertory» (L.Kosmodemjansky) of numbering 1800 homeopathic preparations and 110000 symptoms that is comparable to a VD used in ES «RADAR VES».

But as against EMSH (www.homeopath-expert.com) expert system «RADAR VES» are the software product realizable on a local computer without the Internet of access and has no system of interactive interrogation.

Important advantage «Expert Medical System on Homeopathy - EMSH» in comparison with ABC Homeopathy, for many users, is the bilingual user interface (Rus/Eng).

«The expert Medical System on Homeopathy - EMSH» allows to use it not only to the

expert owning technics of Repertorisation, but also patients who can being in comfortable conditions for itself, to lead interactive interrogation which results can be unpacked or sent by e-mail to the expert for the further analysis and purposes of corresponding homeopathic treatment.

Conclusion:

«Expert Medical System on Homeopathy - EMSH»:

- Accessible and Idle time in use modern software product with free Internet access, an updated database.

- Giving an opportunity, both to the patient, and the expert quickly and precisely to define a choice of the required homeopathic preparation.

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COMORBID STATUS FEATURES AMONG PATIENTS WITH CEREBROVASCULAR DISEASES

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Rationale. Cerebrovascular diseases (CVD) represent as the most important medico-social problem in modern society due to its widespread distribution, heavy mortality and population disability in consequence of this pathology. CVD mortality rate has increased on 18,5% during the period from 1990 to 2010. CVD rank the 1st place as the reason of persistent disability. Considering human organism from the perspective of holistic medicine (i.e. organic whole) CVD management is impossible without character and severity of heart-vascular disorders studying as well as studying of associated lesions of other organs and systems. Over the last years the problem of comorbidity is payed closer attention. Comorbidity is defined as coexistence of two and/or more pathogenetically allied syndromes or diseases or coinciding in time regardless of their activity within one patient. Comorbidities exert a significant impact on prior disease state along with rehabilitation actions possibilities and consequently on rehabilitation treatment efficacy. Personalized approach for rehabilitation treatment must be based on complex assessment of patient's medical condition with account of not only persisting neurological disorders severity but also comorbid diseases peculiarities.

Aim. The aim of the study was researching of comorbidities' prevalence, character, frequency and severity among patients with CVD.

Materials and Methods. The present study is based on analysis of clinical data of 178 patients with CVD treated in Moscow Centre for Research and Practice in Medical

Rehabilitation, Restorative and Sports Medicine in 2013: 27 (15,1%) males and 151 (85,9%) females with mean age $62,5 \pm 11,4$. In order to solve formulated objectives data capture map was developed considering following facts: age, sex, primary diagnosis, comorbid diseases. Following disorders were studied: circulatory and connective tissue diseases, respiratory disorders, blood and hematopoietic problems, endocrine diseases, kidney and urinary disturbances, hepatic, gall bladder, stomach, duodenum, colon and pancreas diseases, cognitive and noncognitive (affective and behavioral) disorders. Assessment of concomitant disease was held by index comorbidity of Charlson.

Results. Conducted analysis detected circulatory diseases as the most commonly widespread comorbidity among examined patients – 76,5%. In the course of circulatory disorders internal structure studying the most commonly occurring diseases appeared the following: arterial hypertension - 61%, coronary heart disease - 34,8%, persistent atrial fibrillation - 14,4%, paroxysmal atrial fibrillation - 12,23%. The following diseases occurred rarely: multifocal atherosclerosis – 11,20%, sick sinus syndrome - 0,06%, Wolff-Parkinson-White syndrome - 0,06%. Except cardiovascular diseases patients with CVD appeared with somatic diseases involving other organs and systems: 55% of patients suffered from metabolic syndrome, 38% of patients had diabetes of 1 or 2 types, 11% of patients had gastrointestinal diseases. More than half of the patients (56%) had 2 or more comorbid circulatory diseases. Generally mean Charlson comorbidity index was $3 \pm 0,6$.

Conclusion. Cerebrovascular disease develops on the back of general, system and organic comorbid disorders among which are circulatory diseases taking the leading position. Comorbidity among patients with CVD refers to commonly occurring conditions, this fact is necessary to be considered during complex assessment of patient's medical status for organization of individual treatment, rehabilitation and preventive programs in view of potential risks, this will allow to improve activities' efficiency and degrade risk of possible complications from other organs and systems.

Vitaly Kovalchuk

WHAT WE CAN DO TO INCREASE THE LEVEL OF HOUSEHOLD AND SOCIAL ADAPTATION OF STROKE PATIENTS

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To increase the level of household and social adaptation of stroke patients it is important to maintain a number of conditions.

1. Competent definition of the aims of rehabilitation. These aims are distinguished by the following characteristics: coordination (first of all, the priorities and wishes of the patient and his relatives are considered); practicability (the functional condition and resources of the patient are considered in order to avoid over-ambition of the aims); setting a timeframe for the aims.

According to the last characteristic it is possible to separate all the aims into:

- long-term goals (these goals are reached within weeks and months)
- short-term goals which represent the divided long-term goal on smaller, easier achievable (these goals are reached in days and weeks).

Examples of long and short-term goals.

Long-term goal: "The patient N. will return home after a discharge and will live at home independently".

Short-term objectives:

"The patient N. will independently get up in the morning by the 15th of April".

"The patient N. will spend the first day completely independently on the 27th of April".

It should be noted that the given dates are not abstract, but quite concrete dates of achievement of these or those aims. If the patient with the help of the specialists doesn't reach a specific goal to the planned date, most likely, he will not reach it ever, unfortunately.

2. Competent definition of a patient's problems. Formulation of the problem must be short, but well-defined. For example, the formulation – "bad mobility" is wrong, it is important to reveal, what specific actions a patient can't execute: to turn in a bed, to sit down, to move to a chair or to a bedside toilet, etc. Only in that case will the physiotherapist, occupational therapist and other specialists be able to solve a patient's specific problem within the first minutes of occupation with him.

3. Rational distribution of duties among various specialists during simultaneous work with the patient.

4. The standardized assessment of the dynamics of a condition and of the functional recovery of the patient with the use of various valid scales, tests and questionnaires.

5. Involvement the patient and his relatives in the process of rehabilitation.

6. Ability to understand what is interfering with the recovery.

7. The attitude toward the patient in terms of personality.

8. A certain portion of reasonable risk.

9. The maintenance of the basic rules of physical rehabilitation of stroke patients:

- the patient has to spend as little time as possible in a "lying" position on his/her back, because the latter can lead to a number of undesirable consequences, such as insufficient respiratory function, high risk of aspiration of saliva, negative reflex influence on muscular tone, back pain, negative influence on psycho-emotional condition – the patient feels like a seriously disabled person.

- we must observe the predefined rules in the case of a short-term stay in the "lying" position on his/her back:

- the head of the patient has to be in a straight line with the spine
- the torso closest to the paralyzed part of the body must be extended
- the paralyzed shoulder must be supported by a pillow
- a flat pillow 2 cm high must be disposed under the gluteals of the paralyzed side of the body

- nothing should lie in the hand (on the palm) of the paralyzed side of the body
- the foot must not lean on anything, as stimulation by pressure on the foot's surface leads to an increase in muscular tone and to a significant plantar flexion of the foot accordingly.
- the earliest possible activation of the patient – transfer to the “sitting” position.
- designation of an optimal “sitting” position – an arrangement of the patient in a bedside chair, disposing a pillow under an elbow.
- a patient should not eat lying in a bed.
- early verticalization.

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Madina Bogatyryova

POSSIBILITIES FOR IMPROVING THE QUALITY OF LIFE FOR STROKE PATIENTS

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Increasing the level of the quality of life for stroke patients is the ultimate goal of medico-social rehabilitation and the aim of the presented research. The task of this research is to reveal the most effective parameters of physical rehabilitation during hospitalization at the department of neurological rehabilitation.

Material and methods

Research on physiotherapy (PT). 459 women and 441 men (average age: 71,5 years) were divided into groups. Groups of research: the comparison of the efficiency of different techniques of PT (inhibitory vs functional) with 2 groups of 450 people [the inhibitory technique involves exercises with the paralyzed part of the body, whereas the functional (compensatory) technique involves exercises with the intact part of a body]; the comparison of the efficiency of different numbers of exercises (10 and less, 11-20, 21-30, 31 and more) with 4 groups of 225 people; the comparison of the efficiency of different frequency of exercises (every other day, 1, 2, 3 times a day) with 4 groups of 225 people.

Research on occupational therapy (OT). 466 women and 410 men (average age: 73,8 years) were divided into groups as well. Development and compensatory strategies of OT were used. Groups of research: the comparison of the efficiency of different numbers of exercises (10 and less, 11-20, 21-30, 31 and more exercises) with 4 groups of 219 people; the comparison of the efficiency of different frequency of exercises (every 3 days, every other day, daily) with 3 groups of 292 people.

Rehabilitation of functions was defined by means of Bartel's and Lindmark's scales.

Representatives of all groups of research were comparable in age, sex, degree of functional disorder, level of household adaptation, psycho-emotional condition (the principle of matched-controlled). The analysis of the results was carried out with use of packages of the SPSS 13.0 program.

Results

According to the results of the research, the inhibitory technique of PT causes reliable improvement of the condition of the stroke patients in comparison with the functional technique ($p < 0,001$). The sufficient and complete recovery in the inhibitory technique group was observed in 73,3% of the cases; in the functional technique group, in 50,7%. The optimum number of PT exercises influences rehabilitation of functions reliably ($p < 0,0001$). Among patients with whom 31 or more exercises were carried out during hospitalization at the department of neurological rehabilitation, 69,3% had a sufficient and complete rehabilitation of functions. Also positive outcomes of rehabilitation were observed in patients with whom 21-30 exercises were carried out (59,1% patient of this group demonstrated sufficient and complete rehabilitation). Among patients with whom 10 or less exercises were carried out the analogous index was 26,7%. Frequency of PT exercises in reliable degree influences rehabilitation of patients' functions as well ($p < 0,0001$). The results of the study revealed that the exercises carried out two or three times a day were the most effective. Sufficient and complete rehabilitation was marked at 73,8% and 74,2% of patients in these groups accordingly. Rehabilitation of patients with whom PT exercises were carried out every other day appeared less effective. The sufficient and complete rehabilitation in this group was marked at 36,0% of patients.

An essential role in the rehabilitation of functions is played by the number and frequency of OT exercises ($p < 0,0001$). Among patients with whom more than 30 exercises were carried out, 75,8% had a sufficient and complete rehabilitation of functions. Among patients with whom 10 or fewer exercises were carried out, the analogous index was 34,2%. Daily OT exercises have the optimum influence on rehabilitation of functions. The sufficient and complete rehabilitation among patients of this group was marked at 72,6% of patients. Analogous indexes in the groups of patients who had OT exercises every 3 days or every other day are 28,8% and 39,8% accordingly.

Conclusions

The results of the research testify to the essential role of carrying out adequate physical exercises (PT and OT) in the rehabilitation of stroke patients and in the improvement of the quality of their lives accordingly.

Yu.N. Kovalenko

INCREASING OF PRODUCTIVITY OF RADIOLOGICAL DIAGNOSTICS BASED ON INFORMATION SYSTEMS

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Objective. Over the past fifteen years, the number of radiological examinations in Ukraine has increased more than in 1.5 times, and the amount of diagnostic information - in several times through the introduction into clinical practice of new highly informative

radiological equipment. Despite the development of highly informative diagnostic methods, more than 60 % of all radiological examinations are still X-ray diagnostics. The aim of the work is to assess the possibility to improve X-ray diagnostics efficiency by the introduction of information systems to radiology practice.

Materials and Methods. In this paper the need to improve the X-ray diagnostics and the possibility of solving this problem through the use of information systems is shown based on the analytical and statistical analysis of X-ray services in Ukraine in 2000-2012, as well as analysis of all components of X-ray examinations. This confirms the experience of operating of a large number of digital X-ray detectors, which are information systems that automate almost the entire X-ray process.

Results. Important components of the diagnostic process are functions of diagnostic information, its identification, analysis, characterization, storage and, if necessary, transfer to other medical facilities. Doing them without using of automation increases the probability of waster by the subjective factor, as well as significant financial and time-consuming. Information System enables to automate all of the above functions. The system automatically determine the exposure to reduce the number of waster when doing examinations and patient exposure, electronic patient registration reduces the time required to fill patient data into the database and, respectively, the time of the examination. Automatic data processing system enables to obtain optimum quality of diagnostic information and the Computer Aided Detection System (CAD-systems) promotes to make correct diagnosis and can also replace the second reading of diagnostic imaging in screening studies. Storage of digital images requires about 1000 times less volume compared with film archive. Electronic archive, unlike film one, allows for tens of seconds to find the required diagnostic information, copy or send it via telecommunications networks to other medical institutions. Automating the process of performing linear tomography using algorithms of slice and three-dimensional reconstruction of diagnostic information (tomosynthesis) approximates X-ray machines in its information to computed tomography with lower radiation exposure. Digital technology now makes it possible to control the quality of each image automatically and promptly identify the defective pictures and cases of increased radiation exposure to the patient.

Conclusions. Automation of all components of X-ray diagnostic examinations through the using of information systems can improve the accuracy of the X-ray diagnostics, while reducing the time of the X-ray examinations and reducing radiation exposure to patients. Effective transition of X-ray images to digital will be only in case when the X-ray film cassette is replaced not by digital detectors but high-grade information systems, providing maximum automation of radiological examinations.

MÖGLICHKEITEN DER NICHTMEDIKAMENTÖSEN REHABILITATION IN DER SPORTMEDIZIN

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Übermäßige körperliche und geistig-nervliche Beanspruchung, die den Athleten vom heutigen Niveau des Trainings angeboten wird, wird als Risikofaktor für Erkrankungen bei den hochqualifizierten Athleten berücksichtigt. Wie es aus den jüngsten Studien hervorgeht, wegen der ausgeprägten Wirkung des unkontrollierten Stresses im modernen Sport befinden sich sogar die aussichtsreichsten Athleten in der Risikogruppe von verschiedenen Krankheiten.

Medizinische Rehabilitation von Sportlern als Teil der Sportmedizin hat ihre spezifischen Unterschiede im Vergleich zur herkömmlichen medizinischen Rehabilitation. Die Rehabilitation steckt vor dem Trainer und Athleten folgende Ziele auf: Erhaltung von einem ausreichend hohen Niveau des neuromuskulären Systems des beschädigten Bereiches bei der Behandlung; eine frühere Wiederherstellung der Beweglichkeit und der Stärke der verletzten Bereiche; Erstellung eines bestimmten psychologischen Hintergrundes des Athleten, der ihm hilft, möglichst schneller auf volle Leistung das Training zu organisieren; Erhaltung von allgemeinem und speziellem Trainingszustand.

Das Endziel der Rehabilitation ist es, Veränderungen im betroffenen Segment zu beseitigen, sowie die Wiederherstellung vom ursprünglichen Niveau der allgemeinen und speziellen sportlichen Leistung und Readaptation zu den körperlichen Aktivitäten von hoher Intensität und Dauer zu sichern.

Um diese Probleme zu lösen, können und auch sollten einschließlich nicht-medikamentöse Methoden verwendet werden. Das Problem der Wiederherstellung von Sportlern nach Verletzungen können nicht allein durch die Verwendung von pharmakologischen Mitteln gelöst werden: dieses Problem erfordert eine komplexe Behandlung sowohl von Pharmakologie als auch nicht-medikamentösen Methoden: Reflex- und Hirudotherapie, komplexe homöopathische Mittel, Manualtherapie und psychologische Methoden. Alle pharmakologischen Mittel, die auf den Prozess der Beschleunigung von Wiederherstellung und Verbesserung der körperlichen Leistungsfähigkeit gerichtet sind, erweisen sich unwirksam oder minimal wirksam, wenn sich die Athleten im pathologischen Zustand befinden oder eine nicht adäquate Dosierung von Trainingsbelastungen vorhanden ist. Die Begründung von bestimmter Einwirkung sollte auf einer ausreichenden, zuverlässigen medizinisch- pädagogischen Kontrolle basieren.

Nicht-pharmakologische Wiederherstellung im modernen Sport gilt als zweckmäßig in folgenden Richtungen:

1. Während des Wettbewerbs für gezielte Einwirkung auf die Wiederherstellungsprozesse nicht nur nach der Teilnahme eines Athleten, sondern auch während des Wettbewerbs und vor dem Start.
2. Unmittelbar in verschiedenen Formen des Trainingsprozesses um die Funktionalität,

motorische, technische und taktische Fähigkeiten der Athleten zu verbessern.

Die Aufgabe der Verwendung von klassischen Methoden der Akupunktur in der Behandlung und Rehabilitation von Sportverletzungen ist es, Schmerzen zu reduzieren, ausreichende Muskelentspannung, Verbesserung der Mikrozirkulation in den betroffenen Geweben zu sichern. Darüber hinaus ermöglicht das Verfahren die Verhinderung von professioneller Sportpathologie sowie die Behandlung der bestehenden Krankheiten und Stimulation der körpereigenen physiologischen Eigenschaften, um maximale Leistung zu erreichen und einen Beitrag zur Fortführung der sportlichen Langlebigkeit zu leisten.

Hirudotherapy kann auch als eine der Behandlungsmethoden von Sportverletzungen betrachtet werden. Oft werden Blutegel bei der Behandlung von Sehnenzerrung (Anrissen) und wesentlichen Verletzungen der Gelenke, Weichgewebe mit der Bildung von Hämatomen verwendet. Bei der Anwendung von Blutegeln wird die Behandlungszeit und Rehabilitation auf die Hälfte reduziert. Die Anwendung von komplexen biologischen Präparaten trägt zur Normalisierung von Körpersystemen, die als Reaktion auf pathologische, zerstörende Wirkung exogener Stimuli auftreten. Dieser Effekt wird durch Entgiftung und Entwässerung der Zellen und extrazellulärer Matrix, Modulation der Immunprozesse sowie durch die Behebung vom Energiedefizit in den Geweben durch die Entriegelung der intrazellulären Enzymsysteme erreicht.

Fazit:

1. Die Verwendung von nicht-medikamentösen Methoden für die Behandlung von Verletzungen der Athleten reduziert die Behandlungsdauer von traumatischen Verletzungen und trägt zur Verbesserung der körperlichen Leistungsfähigkeit bei.
2. Anwendung dieser Techniken verursacht keine Nebenwirkungen und Komplikationen.
3. Anwendung von nicht-medikamentösen Methoden in Kombination mit einer Reihe von Standard-Wiederherstellungsverfahren beeinflusst nicht nur den Bewegungsapparat, sondern auch das Herz-Kreislaufsystem und die Blutbildung sowie eliminiert den Einfluss von Zwischenprodukten des Stoffwechsels.
4. Mit einer Vielzahl von nicht-medikamentösen herkömmlichen Methoden kann man nicht nur eine Reduzierung der Dosis von pharmakologischen Mitteln für die Wiederherstellung der Athleten erreichen, sondern auch auf die Verwendung von verbotenen Dopingmitteln verzichten.

Almagul Kuzgibekova

EPIDEMIOLOGY OF DIGESTIVE SYSTEM DISEASES INCIDENCE IN CHILDREN

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Diseases of the digestive system occupy a leading position in the structure of somatic pathology of childhood.

We analyzed a prevalence rate of digestive tract diseases. 343 children, who are predominantly secondary and pre-school students, were involved in the research. Among the participated in the research there were 145 (42.28%) boys and 198 (57.72%) girls. All children were divided into 2 groups. The first group included 112 (29.2%) nursery school children, the second group consisted of 271 (70.3%) primary and secondary school children.

In the research eligible children were chosen by following criteria such as consent of children and their parents to take part in the experiments, absence of exacerbate chronic diseases and compensated, subcompensated and decompensated conditions of children. Every child, who is considered conditionally healthy and attends nursery school at the moment of research completed a questionnaire with the help of their parents.

Children who had symptoms of digestive system diseases were identified during the survey and later had a thorough examination.

According to the analysis results $57 \pm 5\%$ of the examined children, in particular $23.4 \pm 5.8\%$ of the first group and $69.4 \pm 7\%$ patients of the second group noted abdominal pain, dyspepsia (eructation, nausea, heartburn, vomiting), unstable stool (tendency to constipation or diarrhea), appetite disorders.

In general these symptoms prevailed among girls ($53 \pm 1.4\%$) more in comparison with boys ($49.5 \pm 5.0\%$) with little a difference. $36.3 \pm 3.2\%$ of children suffered from appetite disorders. Among the first group children this symptom was revealed significantly more often than in the second group children ($39.3 \pm 3.9\%$ and $15.2 \pm 4.5\%$ consequently, $p < 0.05$). Unstable stool was noted in $12.8 \pm 2.6\%$ of cases. The first group children had stool abnormality significantly more often than in the second group children (consequently $14.8 \pm 3.2\%$ and $7.3 \pm 4.4\%$, $p < 0.05$).

Dyspepsia (eructation, nausea, heartburn, vomiting) were noted more seldom other symptoms of digestive system diseases. And according to questionnaire its frequency was $16.6 \pm 1.7\%$.

According to our data conjunction of various symptoms of digestive system diseases were revealed. Also there were identified a conjunction of pain syndrome with appetite disorders ($19.3 \pm 2.8\%$), and a conjunction of pain syndrome with unstable stool ($8.5 \pm 1.9\%$). Conjunction of pain syndrome with unstable stool was noted significantly more often in the second group children ($9.3 \pm 2.8\%$) as compared to first group children ($3.9 \pm 3.1\%$, $p < 0.05$). Conjunction of pain syndrome with other dyspeptic disorders was noted seldom ($2.7 \pm 1.1\%$). Biliary dyskinesia often was registered in thorough examination of children ($33 \pm 3.3\%$). Frequency of chronic gastritis and gastroduodenitis were $22.2 \pm 1.8\%$, chronic cholecystitis was $10.2 \pm 1.4\%$, functional disorders of the stomach were $2.8 \pm 1.2\%$, and duodenal ulcer was $7.3 \pm 0.4\%$.

In structure of diseases of the digestive system there were revealed substantial difference with dependence on age. Chronic diseases of the digestive system were not revealed in the first group children. In the second group children not only functional digestive disorders were revealed but also chronic diseases of gastro-intestinal tract and biliary system.

Thus, the conducted survey showed that children in 57.1+3.5% of cases had symptoms of digestive system disease. Primary and secondary school children had these symptoms in 2.2 times more than nursery school children. Pain syndrome was the most often noted (32.4%), and it also was revealed in 2.8 times more in children from the second group than in children from the first group. Localization of pain was noted prevalent in epigastric region, and in right hypochondrium. Abdominal pains and appetite disorders were more often revealed among conjunction of various syndromes (19.3%).

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THE ROLE OF OBESITY AND ARTERIAL HYPERTENSION. ON METABOLIC DISORDERS IN WOMEN

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The purpose of this research was to study the formation of the metabolic syndrome in women with obesity and arterial hypertension.

Materials and methods. In the study were involved 200 women aged 25 to 35 years. As these women are at risk, in the survey's plan were also included: determining the level of glucose (fasting and postprandial), c-peptide, Glycated Hemoglobin, for tolerance glucose test, thyroid hormones, lipid profile, BMI and waist circumference thighs, prolactin levels.

The women were divided into 3 groups according to the presence of comorbidity: patients with arterial hypertension (AH) and obese, patients with obese, patients with arterial hypertension. In control group 30 patients without hypertension and obesity before pregnancy.

Results of the study. Retrospective analysis was performed during pregnancy and the postpartum period in women. After 6 months giving birth, women were again divided into groups. It was found that after giving birth in a group of obese before pregnancy in all patients remained obese, and 20% of patients developed arterial hypertension; in group with hypertension in all patients remained arterial hypertensive, and 50% of patients adhered obesity; in all patients with arterial hypertension and obesity before pregnancy both diseases remained 6 months after childbirth.

In groups of patients with arterial hypertension or arterial hypertensive with obese before pregnancy, the incidence of preeclampsia (arterial hypertension combination with proteinuria) was significantly higher than in controls. The most expressed increasing blood pressure and lipid metabolism during pregnancy and at 6 months after birth was observed in patients with arterial hypertension and obesity before pregnancy.

Thereby, the results of our studies have shown that arterial hypertension and obesity before pregnancy contribute to the development of preeclampsia during pregnancy and metabolic disorders postpartum. After birth in women with arterial hypertension during pregnancy continue metabolic disorders. In future, in these women formed significantly

earlier metabolic syndrome. The presence of arterial hypertension before pregnancy 2.5 times increased risk of obesity, continuing after birth and the presence of obesity before pregnancy significantly increases the risk of development of arterial hypertension during pregnancy and after childbirth. Prevention of arterial hypertension and metabolic disorders may be significantly improve results for both mother and child.

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DISPENSARY OBSERVATION OF CHILDREN WITH CONGENITAL HEART DEFECTS

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The purpose. Timely diagnosis and clinical supervision of children with CHD for prevention or progression of their complications.

Materials and methods. We observed 120 children from birth to 15 years with various heart diseases. The clinical analysis of observations of children with heart defects (inspection, anthropometric data, ECG, chest X-ray and ultrasound of the heart).

Results of the study. All children suspected of having CHD were examined by a cardiologist, sent to specialized hospitals to establish topical blemish thus conducted clinical examination, ECG, chest X-ray in three projections, echocardiography with Doppler measurement of blood pressure on the upper and lower extremities, exercise test. If there are signs of circulatory disorders conducted cardiotonicdrug, cardiotific and restorative therapy. In all cases, these consultations held to address the issue of surgical treatment blemish. Children were discharged under the supervision of a cardiologist to prescribe and pediatrician with the recommendation to continue treatment with cardiac glycosides, diuretics, potassium supplements, cardiotrophics in -blockers, etc. Patients with cyanotic heart disease, blood clots from occurring, the violation of its rheology, polycythemia, to prevent possible thrombosis in the hot season recommended to consume plenty of fluids, taking anticoagulants in small doses. Recommendations on the treatment of a child with CHD: must be careful not to bang the maximum holding in air. Tempering activities to enhance immunity and prevention of intercurrent diseases. All children with CHD should do gymnastics. Children under 1 year recommended breast milk relevant correcting additives. Children older than 1 year was offered a diet with restriction of number 10 of soluble carbohydrates, salts with normal amounts of protein and fat. When expressed NC or progression of infants, often feeding shows a smaller volume, expressed breast milk .In severe defects with NC 2 B-3 power feeding newborns conducted by gavage. Scheme dispensary observation of children with CHD: the first month of life - 1 time per week, at the age of 2-6 months - 2 times a month, at the age of 7-12 months -1 once a month, at the age of 1-3 years - 1 times 2 months older than 3 years 1 time in 3 months. Systematically these consultations: otolaryngologist, dentist - 2 times a year

.Methods: complete blood count - at least 2 times a year, monitoring heart rate and blood pressure, thermometry during each examination, echocardiography, ECG - 2 times a year; chest radiography for 1-2 years life - time in one year, then 1 time in 2 years. Physical culture school in a special group. Vaccinations are contraindicated in heart failure. Motels local destination guide children with NC.

Thus, clinical examination of children with CHD to reduce the incidence of complications and deaths.

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**NEW CANDIDATE MOLECULAR BIOMARKERS
OF VENTILATOR-ASSOCIATED PNEUMONIA**

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Ventilator-associated pneumonia (VAP) is one of the most prevalent and devastating complications in intensive care unit. Novel potential biomarkers of pulmonary infections provide with a possibility of early diagnosis and treatment of VAP. Club Cell protein (CCP, previously – Clara cell protein) is one of the specific pulmonary-released substances and a potential candidate diagnostic biomarker of the lung infection.

The aim of this study was to investigate the role of CCP as a candidate diagnostic biomarker of *Pseudomonas aeruginosa* VAP.

The observational study in intensive care unit ventilated septic patients with peritonitis (65%), pancreonecrosis (20%) and mediastinitis (15%) was performed in 2010-2013. Diagnosis of VAP was made according to the standard clinical and CPIS criteria. Associations of multiresistant gram-negative bacteria were detected in bronchoalveolar lavage of all patients. *Pseudomonas aeruginosa* was detected in 75% of patients. Plasma CCP was measured on the day of NP diagnosis (day 0) and days 3, 5 and 7 by the immunoenzyme essay (BioVendor, USA). Patients were treated according to the international guidelines. Data were statistically analyzed by STATISTICA 7.0, ANOVA method, and presented as median and 25-75 percentiles, ng/ml; $p < 0.05$ was considered statistically significant. Areas under the receiver operating curves (ROC) were calculated.

Ninety patients (out of 350 screened) were enrolled in the study according to the inclusion/exclusion criteria. Patients were assigned into groups: “VAP” ($n=50$, 45 ± 4.3 y.o., m/f 36/14, mortality 15%) and “no VAP” ($n=40$, 48 ± 7.2 y.o., m/f 30/10, mortality 13%). Groups were comparable in APACHE II and CPIS scores. In the VAP group plasma CCP was significantly lower at all points than in no VAP group. In the patients with VAP caused by *Pseudomonas aeruginosa* ($n=30$; in association with the other gram-negatives) CCP was significantly lower at all points than in the patients with no *Pseudomonas aeruginosa* detected ($n=20$).

Plasma CCP on day 0 had a good capacity for the diagnosis of *Pseudomonas aeruginosa*

VAP: CCP on day 0 $\leq 17,5$ ng/ml yielded a sensitivity of 86.5% and specificity of 66.7% (AUC 0,74; 95% CI 0,630-0,829; $p=0,0001$).

Conclusions. Plasma CCP level $\leq 17,5$ ng/ml is a sensitive and specific candidate diagnostic biomarker of VAP caused by *Pseudomonas aeruginosa* in septic patients.

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INVESTIGATION ON SALVIA SPECIES (SALVIA L., LAMIACEAE) CULTIVATED IN THE SOUTH-KAZAKHSTAN REGION

South-Kazakhstan State University after M.Auezov
Intellectual School of Chemical-Biological Focus after N.
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People knew nothing about essential oils in remote ages - chemical components of spices and could not guess about their action mechanisms, the use of spices became a cultural habit in different parts of the world and gradually came into necessity. Our ancestors got food and drugs out of plants..

The goal of the research work is to investigate the species of the Lamiaceae family, the *Salvia* plant genus, which is a herbaceous plant, a half-shrub up to 75 cm high in the natural flora of the region. The part of the research work is also extraction of the secondary *salvia* metabolites of different chemical nature, evaluation of their fungicidal and bacteriocidal activity, development of techniques for the practical use of the secondary *salvia* metabolites in pharmacology, household chemistry and cosmetics.

The special attention was paid to the biology peculiarities and the ways to cultivate these plants, the description of their beneficial properties and the ways to be used nutritionally and therapeutically. *Salvia* genus comprises a great deal of species. *Salvias* have been used from the ancient times in medicine, cookery, housekeeping and gardening. Its latin name «*Salvia*» comes from the word «*salvus*», which means to be “sound” and “fit”. *Salvia* does not only protect life but also aids in its reproduction.

The *salvia* leaves have antiseptic and anti-inflammatory properties. Antimicrobial properties are connected with the essential oil, anti-inflammatory ones are bound up with tanning materials, flavonoid compounds and vitamin P, which thicken the epithelial tissue, reduce permeability of the cell membranes, blood and lymph vessels' walls. Antiseptic properties are defined by salvin, the plant antibiotic. Salvin does not only restrain the aurococcus growth but also inactivates its a-toxin, blocks its hemolytic and dermanecrotic properties. The salvin essential oil has antifungal activity.

The garden sage was seeded in early March, 2013, on the territory of the greenhouse of the South-Kazakhstan State University, where the soil was sierozem with the organic matter and the temperature was above 5C. One hundred seeds of the fresh garden sage were sown

into the first plant bed, which had been gathered in the suburbs of the South-Kazakhstan region, where the garden sage is cultivated as a domestic plant. One-year old seeds were sown into the second plant bed, as it is known, the salvia seeds remain fresh for three years.

The garden sage seeds in both plant beds were rather large, egg-shaped, round-shaped, flattened, dark brown, dull, with the seed diameter (2,5 mm), mass of 1000 seeds (7-10 gr). Each plant bed was sown with 100 seeds with 1 cm-distance between seeds and 2-3 cm-seeding depth.

Several seedlings of the garden sage from the second plant bed were transplanted into the open and well-lit area on the campus territory of the South-Kazakhstan State University, into the sierozem soil. According to the observation data at the end of July there were some differences among *Salvia officinalis* growing on the territory of the greenhouse and the open area.

Salvia's height growing in the greenhouse was 60-65 cm unlike that one growing in the open area (30-35 cm). Stems of both were upright, quadrangular at the base, lignescent. The root was branching and lignified. The leaves were subopposite, green grey, crinkled with netted venation, long-petiolate, with crenate leaf margins. Salvia's length in the greenhouse was 8-9 cm, where it reached 4-5 cm in the open area.

The upper leaves in all were sessile, oblong with blunted leaf tip, omitted, green grey. According to the external description it is clear that more favourable conditions for the salvia's growth and development were in the greenhouse.

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EARLY DIAGNOSIS OF ATROPHIC GASTRITIS IN CHILDREN WITH JUVENILE ARTHRITIS

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Objectives: To estimate means of the early diagnostics of atrophic gastritis in children with juvenile arthritis (JA).

Methods: We examined 46 children aged 9 to 16 years (mean age $13,9 \pm 2,3$ years) suffering from JA and CG (group 1). The comparison group (group 2) consisted of 15 patients of the similar age, suffering only of CG. All participants undergone standard gastroenterological examination, including FGS with taking biopsies of mucosa of the body and antrum of the stomach and using «Biohit Gastropanel». Histological examination of biopsies was performed using Sydney scale. Immunohistochemical study of gastric mucosa of Epstein-Barr virus was conducted.

Results. The frequency of *H.pylori* (HP) in children with JA was higher than in group 2 (93,1 % and 66,6 % relatively, $p < 0,05$). A significant positive correlation was seen between the presence of antibodies to HP in serum and the degree of lymphocytic ($r = 0,54$, $p < 0,01$) and neutrophil infiltration ($r = 0,61$, $p < 0,01$) and erosions ($r = 0,61$, $p < 0,01$) of gastric

mucosa in children with JA. The level of G-17 in children with JA was higher than in the comparison group ($8,64 \pm 2,07$ pmol / l and $4,49 \pm 2,07$ pmol / l, $p < 0,01$). The increase in G-17 was seen in children with JA more frequently (30,4 % and 13,3%, $p < 0,05$). In the group 1 the increase of Pg I (21,7% and 0% relatively, $p < 0,05$) and PgII (17,3% and 6,7% relatively, $p < 0,05$) was seen more frequently, although their mean values and the ratio PgI/PgII were similar.

According to the morphological examination the pronounced fibrosis was found in the deep divisions of gastric mucosa of antrum (6,9 % and 0% relatively, $p > 0,05$) in children with JA, the moderate fibrosis was seen more frequently in the deep divisions of mucosa of the gastric body (17,2% and 3,7% relatively, $p < 0,05$). The moderate atrophy was seen more frequently in the gastric mucosa of the antrum in the group 1 (6,7 % and 0 % relatively, $p > 0,05$). Only minimal atrophy was prevailed in the gastric mucosa of the body in the group 2 (24,1 % and 33,32%, $p < 0,05$). Immunohistochemical study of gastric mucosa revealed Epstein-Barr virus more frequently in the gastric mucosa of children with JA (41,3% and 6,7%, $p < 0,05$). There was a significant positive correlation between the presence of Epstein-Barr virus and the degree of lymphocytic infiltration ($r = 0,49$, $p < 0,05$), fibrosis ($r = 0,55$, $p < 0,05$) and atrophy ($r = 0,46$, $p < 0,05$) of the gastric mucosa in children with JA.

Conclusion: morphological data and the results of «Biohit Gastropanel» in children with JA detected a significant HP-associated inflammation and predominance of early atrophic changes in the gastric mucosa of the antrum. «Biohit Gastropanel» is an informative tool for non-invasive diagnostics of atrophic gastritis in children with JA.

Olaf Lück

BEATMUNGSWEANING BEI NEUROLOGISCHEN PATIENTEN

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Die Inzidenz neurologischer Erkrankungen steigt in den entwickelten Industriestaaten aufgrund der demografischen Faktoren deutlich an. Trotz großer Behandlungserfolge nimmt auch die Zahl der Patienten, die ein schweres neurologisches Defizit behalten, zu.

Hierunter finden sich auch Patienten bei denen ein Zusammenhang mit der neurologischen Grunderkrankung eine beatmungspflichtige respiratorische Insuffizienz eintritt.

Die Verbindung von neurologischer Rehabilitation und dem Weaning von der oft prolongierten Beatmung ist dadurch inzwischen eine wichtige Aufgabe neurologischer Rehabilitationseinrichtungen geworden. Die Weaningstrategie beinhaltet dabei verschiedene Beatmungsmodie und eine umfassende, begleitende multiprofessionelle Therapie.

Hierbei sind u.a. das Dysphagiemanagement, das Husten- und Sekretmanagement sowie das Trachealkanülenmanagement zu gestalten.

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O.S. Latanova
V.E. Shegapova
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ANTIBACTERIAL EFFICIENCY EVALUATION OF DIODE LASER RADIATION. AMD LASER PICASSO LITE (USA) IN THE TREATMENT OF PATIENTS WITH DENTINE CARIES

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«Sterility» of cavity before filling the tooth is one of the successful work elements in today's dental practice. Investigation methods and tools for solving this problem is relevant nowadays. By solving this serious issue, dentists can significantly reduce the spread of secondary and recurrent caries.

The goal of our work was studying the bactericidal diode laser radiation features with a wavelength of 810 nm in comparison to the traditional drug treatment of cavity before filling teeth.

Materials and methods

In this research participated 65 persons (25 men and 40 women) aged from 20 to 60 years with dentine caries, who were undergoing treatment at 132 chewing teeth of the upper and lower jaws. Cavities were located on the occlusal tooth surface. At the time of treatment, patients were without heavy somatic pathology. Volume of interventions was determined by a plan of complex clinical research. Dynamic observation was carried out every 1, 3, 6, 12 months.

All patients were divided into 2 groups according to the type of drug treatment of cavity before the final step of filling.

Patients of the first group (32 people, 66 teeth) performed antiseptic treatment by 2% chlorhexidine. Before and after use of 2% chlorhexidine was made bacterial seeding from the bottom and walls of the cavity on a nutrient medium (blood agar plate) followed by microbiological and microscopic analysis. This was followed by filling cavity with light composite material.

The second group consisted of 32 people (66 teeth), whose cavities were treated with a diode laser with a wavelength of 810 nm (emission mode - constant, power - 0.6 W, contact-and distance-labile technique, replaceable fiber diameter of 400 microns, exposure time - 60 seconds).

Statistical processing was carried out using Stat Soft Statistika ver.6.0.

Results and Discussion

Analysis of the results demonstrates that the procedure of laser "sterilizing" cavity does not cause discomfort feelings of patients. At all dynamic levels during 12 months the recurrent caries formation of all participants was absent in 100% of cases ($p < 0.001$). Absence of secondary caries in Group 1 was 97%, in the second group amounted to 98% ($p > 0.05$). According to the result of the laboratory stage after treatment carious cavity with 2% chlorhexidine number of both small and large colonies decreased by 2.2 times, accounting for 55% . In the second group, where the diode laser was used, the number of

colonies was reduced by 5.5 times, which corresponds to 82.2% of the colonies prior to the treatment.

Consequently, observing all the principles, stages and techniques of carious cavity preparation, using full means of retraction and isolation of working field, as well as refusing the weak antiseptic solutions, we can achieve a high clinical result in the treatment of dental hard tissues and significantly reduce the percent of projected complications. Modern approach to finding methods which ensure sterility of carious cavity does not exclude questions of synergy while using liquid antiseptics in combination with laser radiation, which in this context of the clinical situation is justified.

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EPILEPSY AS CAUSE OF DISABILITY OF PEDIATRIC POPULATION IN ZABAICALSKIY KRAI

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Purpose

The study of the structure of epilepsies and epileptic syndromes resulting in children's and adolescent's disability in Zabaikalsky krai during 2004 – 2011.

Methods

The Chita Regional Antiepileptic Centre (CREC) has worked since 2001 on the basis of the Chita Regional Pediatric Clinical Hospital. We were study role of epilepsy and epileptic syndrome in disability of children and adolescent in Zabaikalsky Krai during 2004 – 2011 using the regional register of pediatric disability. The validity of statistic variations was evaluated with χ^2 criterion.

Results and Discussion.

In 2004, depending on localization the structure of epileptic forms and epileptic syndromes resulting in disability was as follows: 2004 (n=203) - 144 (70.9%) cases of generalized forms and 59 (29.1%) cases of focal forms, 2005 (n=254) – 185 (72.8%) and 69 (27.2%), 2006 (n=277) – 197 (71.1%) and 80 (28.9%), 2007 (n=294) – 207 (70.4%) and 87 (29.6%), 2008 (n=361) – 246 (70.4%) and 115 (31.9%), 2009 (n=404) – 246 (60.9%) and 157 (38.9%), 2010 (n=429) – 232 (54.1%) and 196 (45.7%), 2011 (n=435) – 233 (53.6%) and 201 (46.2%), respectively. During 2004 – 2011 two poorly localized forms (one generalized and one focal) were registered – 0.25% and 0.23%, respectively. Statistically valuable differences were observed in the period between 2004 and 2011 -

the cases of generalized form of epilepsy and epileptic syndromes in pediatric disability decreased by 1.3 times ($p < 0.001$), while focal forms - increased by 1.6 times ($p < 0.001$).

In 2004, depending on etiology of 203 cases of epilepsy and epileptic syndrome: 54 (26.6%) cases of idiopathic forms, 133 (65.5%) cases of symptomatic forms, 11 (5.4%) cases of cryptogenic forms, 5 (2.5%) unspecified cases. In 2005 ($n=254$): 62 (24.4%) cases of idiopathic forms, 176 (69.3%) cases of symptomatic forms, 9 (3.5%) cases of cryptogenic forms, 5 (2%) unspecified cases. In 2006 ($n=277$): 60 (21.7%), 199 (71.9%), 11 (4%), 7 (2.5%). In 2007 ($n=294$): 62 (21.1%), 218 (74.2%), 8 (2.8%), 6 (2%). In 2008 ($n=361$): 88 (24.3%), 257 (71.2%), 11 (3.1%), 5 (1.4%). In 2009 ($n=404$): 70 (17.3%), 308 (76.2%), 18 (4.5%), 8 (2%). In 2010 ($n=429$): 67 (15.6%), 334 (77.9%), 22 (5.1%), 6 (1.4%). In 2011 ($n=435$): 58 (13.3%), 352 (80.9%), 19 (4.8%) and 6 (1.4%), respectively. Statistically valuable differences were observed during 2004 – 2011: the cases of idiopathic epilepsy in pediatric disability decreased by 2 times ($p < 0.001$), while symptomatic epilepsy increased by 1.2 times ($p < 0.001$).

Summary

Thus, the distribution analysis of role of epilepsies and epileptic syndromes depending (on etiology and localization) in pediatric disability in population of Zabaikalsky Krai (RF) during 2004 – 2011 revealed statistically valuable shifts: increase in the incidence of symptomatic and focal forms and decrease in idiopathic and generalized ones.

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THE STATE OF ARTERIAL STIFFNESS AND ENDOTHELIAL FUNCTION IN PATIENTS WITH ARTERIAL HYPERTENSION IN COMBINATION WITH DISEASES OF THE MUSCULOSKELETAL SYSTEM

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The current importance of the problem. A combination of arterial hypertension with diseases of the musculoskeletal system in 40% is taking place among people of middle and elderly age. The presence of risk factors such as hypodynamia, obesity, dyslipidemia, irrational nutrition, contributes to the advance of not only cardiovascular diseases but also to the pathology of the musculoskeletal system.

The objective of the study is the assessment of indications of contour analysis of pulse wave and endothelial function in patients with hypertension in combination with diseases of the musculoskeletal system.

Facts and methods: 66 people were examined (men: 30, women: 36). Age: 56.7 ± 4.4 years. Selection criteria: the presence of hypertension of 2nd stage; the absence of diabetes, systemic diseases of connective tissue, renal pathology; in cases of joint syndrome

presence the history of arterial hypertension is longer than the history of joint pathology. General clinical examinations were conducted; contour analysis of pulse wave and the test reactive hyperemia with the AngioScan-01 device.

Depending on the presence of joint pathology (deforming osteoarthritis or rheumatoid arthritis) the examined people were divided into 2 groups. Group 1 - control group – patients with arterial hypertension without joint pathology -52 people: men- 28, women- 24; the age of $56 \pm 1,0$ years. Anamnesis of arterial hypertension $12,0 \pm 3,0$ years. Group 2 - basic group - patients with arterial hypertension in combination with deforming osteoarthritis or rheumatoid arthritis. Basic group is composed of 14 patient (men: 2, women: 12), age $61,0 \pm 8,02$ years. Anamnesis of arterial hypertension is $19,0 \pm 8,0$ years. Anamnesis of joint pathology is $8,5 \pm 6,0$ years.

Results: Group 1 - the control group showed the following indications of contour analysis of pulse wave: Si – $6,18 \pm 0,06$ m/s, Ri – $30,81 \pm 6,9\%$, augmentation index Alp – $32,98 \pm 7,0\%$; type of wave for 75% of patients is “A”, for 25 % - type “B”, which shows the typical reduction of elasticity of blood vessels for arterial hypertension. Endothelial dysfunction was registries in 85%.

Group 2 - the contour analysis of pulse wave showed the Si index increased up to $7,95 \pm 0,82$ m/s ($p < 0,001$), Ri up to $37,03 \pm 24,4\%$ ($p < 0,2$), the decrease of Alp index down to $21,01 \pm 11,6\%$ ($p < 0,005$); wave type “A” reflecting the greatest rigidity of vessels was registered in 86% of cases; type “B” for the remaining 14%. Endothelial dysfunction was present in all the examined. The degree of pulse waves amplitude by the occlusive test was $1,4 \pm 0,6$, which is less than the normal value. The phase shift between channels (C1-C2) before and after occlusion: $9,03 \pm 6,16$.

Conclusions: Thus the arterial hypertension patients with diseases of the musculoskeletal system demonstrate a greater disorder of the state of the vascular wall and endothelial dysfunction. Significant deviation of the indicators from the norm manifests the tension of the cardiovascular system for comorbid patients. Such patients require special attention in examination, the selection of drug therapy and conducting rehabilitation measures.

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NEW OPPORTUNITIES IN PEDIATRIC DIAGNOSTIC RADIOLOGY

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Introduction. Improvement of X-ray diagnostics is due to the integration of advantages of microfocus X-ray imaging technology and digital X-ray images.

Microfocus X-ray technology has a number of significant advantages over conventional radiography due to fundamental features of X-ray imaging using radiation

sources with focal spot of micron-sized (less than 0.1 mm). These advantages include: increasing the depth of field, contrast enhancement, reduction of radiation exposure to patients, phase-contrast effect and reducing power consumption, what allows visualizing tissue damage of children, invisible to conventional radiography.

The aim of the work is to determine the most efficient use of microfocus digital radiography in pediatrics.

Materials and Methods. The paper presents the results of clinical studies of digital microfocus radiographic system in the Republican Children's Clinical Hospital of Simferopol. Digital Radiographic microfocus system consists of a micro transmitter (output not exceeding 50 W), universal tripod with a movable table to perform examinations in zoom mode & a digital receiver with a working range of 18×24 cm and a resolution of 4.0 p.l. per mm. Radiography was performed for acute limb injury in 150 children aged 1 to 17 years.

Results. Among the examined patients in 109 (72.6%) various fractures of the upper extremities were identified. Fractures of the growth (physeal) zones were detected in 38 (34.8%) patients due to the peculiarities of microfocus X-ray system. Visualization of the growth zone fracture as a line of enlightenment between ossificated and non-ossificated tissues, what is not identified with conventional radiography, is explained by physical and technical characteristics of microfocus X-ray technology, primarily due to resolution increasing of the of the receiver in zoom mode (the effect of increasing the depth of field) . It should be noted that this attribute determined for different types of physeal damage without displacement of osseous center, which represents certain difficulties in diagnostics using conventional and digital radiography, i.e. the use of digital X-ray microfocus technology allows objectify physeal damage growth areas without displacements. In addition, using a digital microfocus X-ray technology adds more information at the hidden, the so-called "small" fractures with damage to single trabeculae, the diagnostics of which also caused difficulties for convention or digital radiography.

Conclusions. Using of digital microfocus X-ray technology gives the opportunity:

to use the same digital X-ray system in the clinic and beyond;

to reduce the energy consumed by x-ray system;

to reduce radiation load on patients and staff;

to objectify the presence of physeal fractures;

to improve the detectability of hidden fractures;

to avoid hyper- or underdiagnosis of such injuries to make the timely diagnosis and appropriate treatment.

ROLE OF CT IN PRIMARY DIAGNOSIS OF TUBERCULOSIS IN ASOCIAL PATIENTS

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The problem of detection of tuberculosis in asocial patients is particularly acute. First, there is a loss of this contingent from regular medical observation (clinical examination and treatment), even with national programs. Secondly, the constant presence of a specific bacterial excretion (public transport, streets, shops, hospitals, etc.) carries the risk of further spread of tuberculosis in the socio- affluent sections of society . Third, distorted (downward) real statistics of tuberculosis.

As a rule, the asocial patients get into a treatment facility in the case of acute conditions (alcoholic or other poisoning, hypothermia, trauma, etc.). TB diagnosis in such cases is based on data of chest radiography, in case of detection of specific lesions in the lungs, or suspicion on them the study is complemented by computed tomography (CT) and microbiological examination of sputum.

Aim of this study was to determine the place and importance of radiography and CT of the chest in diagnostics of TB in asocial patients.

Chest radiography and CT were performed to patients coming to the emergency department.

During the period 2011-2013 375 asocial patients were examined. The age of patients ranged from 21 to 68 years, men - 292 (77.9 %), women - 83 (22.1%).

According to the results of X-ray radiography all patients were divided into four groups.

Group 1 – in 175 (46.7 %) patients tuberculosis was diagnosed (focal - 61.7% , disseminated - 33.7% , fibrocavernous - 4.6%).

Group 2 – in 121 (32.3%) patients X-ray picture was indoubt. At the subsequent CT examinations in 46 (38%) patients TB was detected (focal - 60.9% , disseminated - 10.9% , cavernous - 8.7% , infiltrative - 19.6%), in 15 (12.4%) patients - pneumonia, in 11 (9%) - lung cancer, in 3 (2.5%) - sarcoidosis, in 12 (9.9%) - secondary lung lesions, in 12 (9.9%) - a single lesion in the lung, requiring dynamic monitoring, in 18 (14.9%) - no pathological changes, in 4 (3.3 %) patients - lung contusions.

Group 3 - in 56 (14.9%) patients no shadows were detected. To 34 patients during the hospitalization period (21 days) chest CT was performed due to other diagnostic search and in 21 (37.5%) patients focal form of TB was detected

Group 4 – in 23 (6.1%) patients no changes were identified, then CT wasn't performed.

Thus, in 21 of 325 (5.6 %) patents according to data of chest radiography pulmonary TB wasn't suspected.

Radiographic changes were not found due to the following reasons:

1. localization (overlay of pathological shadows on hilum, heart, diaphragm, apical localization);

2 . low sensitivity of radiography in the presence of “fresh” shadows, their small size (3-4 mm), the inability to visualize the lumen and wall of segmental and subsegmental bronchi in determining their relationship with cavities , as well as the lack of objective criteria for the so-called “ dense “ foci;

3 . radiography`s protocol violation due to technical reasons (inability to perform two projections, achieve breath, immobility of the patient on the basis of personality traits, cognitive impairments, the impossibility of making a vertical position).

Thus, in terms of hospitalization of asocial patients for emergency indications, especially in cases of cognitive and mental disorders, it is impossible to achieve high-quality chest X-ray image CT should be used as the primary method of examination to exclude pulmonary TB, which reduces the examination time, financial burden and radiation load, improve the quality of diagnosis.

Nurzhamal Moldabekova

**SUCCESS IN THE RELATIONSHIP WITH THE TYPOLOGICAL
FEATURES OF THE PROPERTIES OF THE NERVOUS SYSTEM**

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A number of studies (M. Dvoriashina, N. Kopeina, G. Zarhin, S. Moldavian) identified the relationship of students progress with the typological features of the properties of the nervous system: best success have students and students with high lability of nervous system. The at risk Bowl is weak nervous system, combined with the amount of attention they had coarctation, with less fatigue and short term memory.1500 students surveyed have shown that their performance is significantly strong and mobile nervous system.

Unfortunately in many cases, especially of the nervous system were determined typology by means of questionnaires, which, according to some psychologists, can not serve as a reliable tool for diagnostic features of neural processes. Therefore, the data may be of particular interest to those studies in which the typological features of the nervous system were determined by physiological methods (EEG methods, motor express methods).

In the laboratory of E. A. Golubeva, it was revealed that the performance of both humanitarian and natural cycles associated with properties, and activation lability (accepted for balance of neural processes). The best scores were persons with weak nervous system, high lability and activated (predominance of excitement).

Thus, data for entire academic record is unambiguous communication with high lability of nervous system. Other properties do not have a clear picture. Obviously, it is no coincidence, since too many factors could influence the receipt of students. Even if the typological characteristics and affect the level of development of intelligence, then

hope PA direct dependence of performance from him not history of education be brilliant people giving enough an example of this, on the other hand, it is in vocational training are the most sustainable success learning the typological features of the properties of the nervous system that can be associated with a positive motivation for the profession.

A significant place in psychology activities studying cognitive, cognitive, or styles of intensive initiated by Western psychologists G. Witkin, etc.

Cognitive style is relatively stable procedural peculiarities cognitive activities that are characteristic of uniqueness methods of obtaining and processing information used by cognitive strategies, and how to read with I information to monitoring so of time, cognitive styles are typical features of the intellectual activity of a higher order than traditionally described features of cognitive processes.

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EVALUATION OF DNA DAMAGE AND CELL DEATH IN PATIENTS WITH SEVERE TRAUMA

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Blood loss in patients with severe trauma is accompanied DNA damage and destruction of blood cells. The types of cell death are apoptosis as well as necrosis. The goal is study the mechanisms of posttraumatic changes development in the blood cells by examining the DNA damage associated with hypoxia, which was caused massive blood loss in patients with severe trauma. Methods. The study cohort (95 patients included 68 men and 27 women (40.6±16.5 years) with severe combined mechanical trauma associated with a blood loss from 1.4 to 61.5 ml/kg (21.5±16.5 ml/kg). Outcome: 59 survivors, 36 deceased. The cohort was subdivided into three groups depending on a type of trauma: (1) severe combined trauma (SCT): n=17, with a volume of blood loss (VBL) 33.3±14.6 ml/kg and severity at 21.9±3.3 (APACHE II); (2) traumatic brain injury (TBI): n=43, VBL 9.0±6.6 ml/kg, APACHE II 20.0±2.5; (3) SCT+TBI: n=35, VBL 31.1±15.1 ml/kg, APACHE II 20.9±2.6. Control group included eight donors of 28.5±3.4 years. DNA damage in blood cells was evaluated by comet assay. Analysis was performed at x400 using the epifluorescence microscope Micmed-2 12T (LOMO, Russia) equipped with a high resolution digital camera (VEC-335, "EVC", Russia). DNA-comets images were analyzed using the CASP 1.2.2 software (University of Wroclaw, Poland). As an indicator of DNA damage were used the percent of DNA in the tail of the comet (%TDNA). The concentration of extracellular DNA in blood plasma was determined fluorometrically, using Quant-iT™ HS DNA Assay Kit (Invitrogen, USA). Results. During first 24 hrs after trauma concentration of extracellular DNA in blood plasma increased nearly twice

(1.51 µg/ml vs. 0.85 µg/ml in control, $p < 0.05$) due to DNA leak from damaged tissues. During the first week after the injury the content of extracellular DNA in plasma tended to a slightly increase up to 1.71 (1.23; 1.92) µg/ml presumably due to intensification of the processes of trauma consequences liquidation with removing products of cell disintegration in the damaged tissues. During the second week were showed a significant decrease in the content of extracellular DNA up to 1.56 (1.20; 1.73) µg/ml vs. 1.71 (1.23; 1.92) µg/ml in 7th day, ($p < 0.05$), most likely caused by elimination of circulating DNA from the blood and damaged cells repair in tissues. Necrotic DNA comets of white blood cells (never revealed in control) became prominent in trauma patients as early as the first day after the trauma [3.7 (1.5; 8.8)%]. Necrotic DNA comets accumulation in trauma most likely was due to accelerated death of blood phagocytic cells by necrosis in damaged tissues. The amount of necrotic DNA comets of white blood cells decreased from 5th day [7.70 (3.53; 12.18)%] to the 15th [5.80 (2.10; 8.60)%] day that may reflect the reduced phagocytic activity in injured tissues due to cell reparation. The number of necrotic DNA comets by 15th day of observation was 3-fold higher in patients with purulent-septic complications [6.50 (2.70; 9.10)%] vs. patients without infectious complications [2.30 (1.60; 5.80)%]. Apoptotic DNA comets was increased 3-fold in patients with trauma at admission to the intensive care unit [3.40 (0.88; 7.78)% vs 1.0 (1.1; 0.5)% in control, $p < 0.05$]. Interestingly, the degree of blood loss was negatively correlated with the content of apoptotic DNA comets. Blood from severe hypoxia patients contained significantly less apoptotic DNA comets than in patients without hypoxia (2.30 (0.80; 3.80)% vs. 10.80 (2.75; 12.03)%, respectively, $p < 0.05$). In patients without infectious complications and without hypoxia level of apoptotic DNA comets was significantly higher than that in patients with infectious complications and with hypoxia on day 3 and day 5. This data, indirect, is evidence of more active phagocytosis in this observation period, than in the group with hypoxia and infectious complications. Perhaps, this leads to the prevention of infectious complications in group of patients without infectious complications and without hypoxia. Conclusion. Hypoxia and infection developed post-injury and blood loss significantly affects the DNA damage and death type of peripheral white blood cells.

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THE NEW MEDICAL CARE TECHNOLOGIES INTRODUCTION TO THE PRIMARY HEALTH CARE ORGANIZATIONS

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Modern demands to national health care programs implementation need application of the source-saving technologies which are new for the domestic health care. They will allow reducing number of unreasonable hospitalization, what is more rational for expensive hospitals bed fund using, and for improvement of patients' life quality.

One of the main ways of effective financial and administrative management in the health

care system is widespread introduction of the hospital-replacing technologies (HRT). This technologies unit the positive moments, on the one hand out-patient and polyclinic link from the positions of treatment terms and medical services cost, and on the other hand - a hospital link from the point of view of treatment quality.

Taking into account of the problem importance, it was studied the Karaganda out-patient department hospital-replacing technologies productivity during the 2010 – 2013.

Materials and methods. In the Karaganda #1 Out-patient Department the hospital-replacing care is provided in a day hospital, in a domestic hospital and, since September 2012, in the Center of Out-patient Surgery Center (OPSC). For the studied period the served population grew twice in an out-patient department, so in 2010 was 47 072, in 2011 - 49 997, in 2012 - 49 997, 2013 - 90 689 people.

Results and discussion. From the 2010 to 2013 the served population in an out-patient department is enlarged approximately twice that was promoted to development of hospital-replacing technologies. A day hospital beds quantity was increased in 8.8 times, and the bed turnover rate was increased in 2.5 times. Since 2011 there was possible the gynecologic profile patients treatment and since 2012 the OPSC started functioning. The treated patients number in the in HRT increased in 2.5 times, thus treated patients in a day hospital was enlarged twice, in a domestic hospital in 1.4 times. In the OPSC in 2013 it was treated in 1.5 times more patients in comparison by the previous year. A bed work indicators was improved in dynamics: the average patient stay decreased from 8.2 to 5.5 days, and the bed turnover rate was enlarged from 66.4 in 2010 to 122 in 2013. Hospitalization in the round-the-clock hospitals in several times decreased: thus, in 2010 till 1.5 times, in 2012 till 3.7 times and therefore considerably reduced treatment costs. The treatment outcomes analysis by these technologies showed that the treatment quality was improved. So convalescence in 2013 in comparison by 2010 increased in 5 times, and cases “without changes” which took place in 2010-2011 it was not noted. The financing of an out-patient department with HRT from 2010 till 2013 was enlarged almost in 4.5 times.

Conclusion. As the our research showed, this type of technology allowed carrying out a wide range of medical actions for the therapeutic, gynecologic and surgical profile patients in a pre-hospital stage. So, in 2013 around the 2 times was enlarged number of the treated patients in a day hospital: in 1.4 times in a domestic hospital, in 1.5 times in an OPSC in comparison with previous year. That was promoted the referred patients’ number decrease in the round-the-clock hospital in several times. Also health care quality improved what about saying treatment analysis results.

Thus, from the HRT functioning in an out-patient department there were conditions for the health care quality in an out-patient departments was improved. The range of rendered services by the represented specialized medical aid was extended, and also was raised treatment-and-prophylactic establishment activity on the new medical technologies basis.

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PROTISTOFAUNA CHARACTERISTICS OF PATIENTS WITH ULCERATIVE COLITIS

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The objective of our research was to characterise protistofauna of patients with non-specific ulcerative colitis.

Materials and methods. In the Scientific Centre of Coloproctology, we observed 43 patients with ulcerative colitis. The patients were between 18 and 59 years old, 28 (63.1%) men and 15 (34.9) women. The duration of the disease varied between 6 months and 2 years. All the patients received standard therapy: 5-aminosalicylic acid, mesalazine and probiotics. The control group consisted of 200 healthy patients. The second control group was made up of 300 patients with pulmonary tuberculosis (patients with a significant immunological imbalance). All the patients were examined using the method of the triple coproscopy. Stool samples were collected in the Turdyev preservative.

Results and discussion. *B. hominis* was determined in the overwhelming majority of patients with non-specific ulcerative colitis; 41 out of 43 patients had a blastocyst infection of various intensity degrees. It is noteworthy that this parameter was significantly higher than the frequency of intestinal colonisation in healthy patients and those with pulmonary TB, $95.5 \pm 3.1\%$ compared to $18.0 \pm 2.5\%$ and $53.6 \pm 2.9\%$, correspondingly.

When analysing the intensity degree of the blastocyst infection in the patients with ulcerative colitis and in the control groups, we determined that the high intensity of *B. hominis* (5-6 in the visual field) in patients with ulcerative colitis was detected significantly more often than in those with pulmonary TB. There were no cases of high intensity of blastocyst infections in healthy patients. On the contrary, healthy patients were characterised by a predominantly low intensity of the intestinal colonisation by *B. hominis*. This parameter was $77.7 \pm 2.9\%$ in healthy patients and was significantly higher than the correspondent values in the patients with ulcerative colitis and pulmonary TB.

Patients with ulcerative colitis and those with TB had a significantly higher content of *Ch. mesnili* than the first control group. However, there was a low level of infection both in the TB group and in the control group, whereas the intensity of the intestinal colonisation by *Ch. mesnili* was 3-4 in the visual field in the case of 42% of the patients with non-specific ulcerative colitis.

We diagnosed varying intensity of the intestinal colonisation by the protozoan *Jodamoeba butschlii* in patients with ulcerative colitis. In total, *J. butschlii* was determined in 8 (18.6%) out of 43 patients with ulcerative colitis. It is interesting to note that the results in the group of patients with TB were similar; in the control group, *J. butschlii* was found only in 6% of the examined patients ($P < 0.05$). This fact points out the role of the immunity in the control of the protistofauna components as well as the possibility of influence of the protozoan on the pathological immune response.

In the case of 8 patients with ulcerative colitis, 1 (12.5%) had a high and 1 (12.5%) had a medium intensity of the intestinal colonisation by *J. butschlii*. It is important to note that there were no cases of high intensity of the intestinal colonisation in the first control group or in the group of patients with immunological imbalance (TB patients). 1-2 *J. butschlii* in the visual field were found in 75% of patients with non-specific ulcerative colitis, compared to 100% in the control groups.

There were no significant differences in the infection of *Endolimax nana* in the group of patients with ulcerative colitis in comparison to healthy patients and TB patients ($P > 0.05$).

This way, we characterised the structure of the intestinal protistofauna of patients with non-specific ulcerative colitis. We determined a significantly higher infection of *B. hominis* in patients with ulcerative colitis compared to the control groups. Taking in consideration the fact that *B. hominis* is an etiological factor for diarrhoeal diseases, causes functional pathology in the hepatobiliary system, worsens immunodeficiency manifestations and, in addition, can induce an inflammatory process by producing proinflammatory TNF-alpha, it is evident that the presence of a blastocyst infection in a patient with ulcerative colitis can play a significant role in the maintenance of a local inflammatory intestinal process.

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THE CHOICE OF OPERATIVE ACCESS TO THE INTRAHEPATIC BILE DUCTS IN PATIENTS WITH OBSTRUCTIVE JAUNDICE

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Objective: To improve the results of treatment of patients with obstructive jaundice.

Material and methods: 127 patients with obstructive jaundice were treated in the surgical wards of the Penza Regional Hospital named after N.N. Burdenko from 2009 to 2013. 43 men, women – 84 were included in the study. The age of patients ranged from 31 to 87 years. Due to the pre-decompression of the biliary tract the percutaneous transhepatic minimally invasive ultrasound-guided intervention was performed to all patients.

Patients were divided into 2 groups. The first group consisted of 89 patients who had biliary decompression that was performed by developing a system of right lobar duct. Puncture point was in VII - IX intercostal space at the front or middle axillary line. In the second group were included 38 people who underwent percutaneous transhepatic drainage of the left lobar duct system. In this case, for the bile duct puncture the anterior approach (closer to the midline of the xiphoid process, or under) was used.

Results: In the first group the complications, associated with minimally invasive interventions were noted in 13 cases (14,6 %) and pleural sinus trauma (5), hematobilia (4), drainage migration (3), bile leakage into the peritoneal cavity (1). the most of the

complications (76.9%) were able to stop without additional surgery. 2 people died, mortality in this group was 2,2%.

In the second group, complications occurred in 2 patients (5.3%): hemobilia (1), and blockage of the drainage catheter (1). The elimination of hemobilia consisted of replacing the established drainage to the drainage of larger diameter in combination with hemostatic therapy. Restoration of patency of the occluded drainage were achieved by washing it. Mortality in this group was not registered.

Thus, the number of complications in the first group were significantly higher than in the second ($p < 0,05$).

The advantage of the anterior approach is considered as a more convenient location of the bile ducts (the path of the needle puncture), whereby it is possible to start closer to the drainage unit, as well as minimal injury of the liver parenchyma, lack of passing a needle through the pleural sinus.

Conclusion: Percutaneous transhepatic drainage of the left lobar duct is accompanied by fewer complications and lack of lethality.

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DEVELOPMENT OF THE CHOROID IN HUMAN EYE

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Introduction. More than 90% of cases of blindness from AMD is associated with anomalous, abnormal growth of newly formed vessels, which, originating from layer choroidal capillary vessels vascular membrane defects grow through Bruch's membrane beneath the retinal pigment epithelium and / or the neuronal epithelium. Analysis of the available literature on the structure of the vision showed the virtual absence of morphological data on the background of molecular genetic studies eyes. All this determines the seriousness of the executed research.

The aim. of our study is to examine patterns of development of human choroid.

Objectives of the study. is to establish the algorithm processes of tab, development and functional maturation of choroid human eye, the identification of the mechanisms of its development and monitoring of melanogenesis in structures of choroid.

Materials and Methods. It was studied 171 eyes of human embryos and fetuses. Used classical histological staining methods with Victoria blue and silver impregnation

and immunohistochemical techniques to identify NADPH-diaphorase, CD4, CD8, CD 68, CD163, CD 204, TUNEL-method to identify apoptorising cells, Ki67 to identify proliferative activity, Iron hematoxilin. Material analysis was performed using a microscope Olympus - Bx51 and CD25 Digital Camera with proprietary software.

Results. We found that the source of development the choroid eye is not only neuromesenchyme surrounding the optic cup, but and neuroglia of the inner wall of the optic cup. Angiogenesis in the choroid eye characterized as other structures such morphological picture of the blood vessels and fit into the framework of the classical concept of the development of the vascular pool.

Discussion. Participation of progenitor neuro glial cells - migrants from the inner wall of the optic cup in the development of the structures of transparent media of the human eye, has led to a change in the structure of concepts, not only the crystalline lens, vitreous body, cornea, but the concept of the development of Bruch's membrane, which many authors believe that is earlier than choroid, developing structure. In our studies, Bruch's membrane is formed before the other structures of choroid, as an obstacle to the emergence of choroidal vessels in the photoreceptor layer of the retina.

The presence in the kidney the growth of capillaries of macrophages phenotyping as CD68, concluded that the main supplier of vascular endothelial growth factor in the choroid are macrophages. It is concluded that the system lesions derived neuroglia for AMD for which neovascularization is secondary and primary to admit defeat of Bruch's membrane, which normally is a barrier that protects photoreceptor layer of the retina from sprouting capillaries.

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NEW TREATMENT METHOD OF A CERVICAL DISC HERNIATION

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We developed a new method of treatment of a cervical intervertebral disc herniation (Patent number RU 2421255 for the invention of the Russian Federation). The invention consists in the fact that the treatment of a cervical intervertebral disc herniation involves performing analgesic drug blockade in combination with the drug electrophoresis interstitial sites of injection with the drug Karipain. The technical result is the elimination of pain, a decrease of herniation, radicular restoration of conductivity. Restoration of root conductivity is achieved as a result of the method of treatment of cervical intervertebral disc herniation and is expressed in the improvement of excitation by motor and sensory nerve conductors of the upper extremities. This occurs because of a decrease (or disappearance) compression roots hernia.

A method for treating a cervical intervertebral disc herniations in the following manner.

The patient is in the prone position. Analgesic blockade carried out in the pathology of the spinal cord and spine area of the intervertebral foramen of the cervical vertebrae to the presence of the corresponding segment hernia of cervical intervertebral disc. Thereafter, the needle is attached to the cathode. On the occipital region set surface electrode, which is connected to the anode. The surface electrode is immersed in a cloth moistened with a solution Karipain, the contents of one vial (1 g) was dissolved in 10 ml. saline. After connecting all the electrodes carried electrophoresis interstitial sites of injection, gradually increasing the strength of the current to 4 - 7 mA, duration of the procedure for 10-12 minutes every day, 12-15 per treatment procedures.

Over the years 2005-2013 using the proposed method were treated more than 850 patients with herniated cervical intervertebral disc in age from 18 to 67 years. When contacting all patients carried neuroimaging studies: MRI or computed tomography, ultrasound cervical spine condition assessment to identify of cervical intervertebral disc herniation. As a result of treatment, most patients (82.7%) was achieved stable pronounced (confirmed in further dynamic studies) a positive result. In the remaining patients expressed positive effect was less, or the effect of treatment lasted for less amount of time required to conduct additional treatment.

The treatment of a large group of patients did not reveal any cases of deterioration of patients, both clinical and morphological and functional. For monitoring patient outcomes was performed MRI - study twice in determining the indications for cervical intervertebral disc herniation and at the end of treatment to monitor treatment outcomes.

Thus, the new method allows for the treatment of patients with herniated cervical intervertebral disc. The result of this treatment is to eliminate pain, a decrease of herniation, the restoration of root conduction.

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SIMULTANEOUS LAPAROSCOPIC SURGERY FOR MORBID OBESITY COMBINED WITH GASTROESOPHAGEAL REFLUX DISEASE

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It is a well-known fact that an elevated body mass index (BMI) frequently results in the development of gastroesophageal reflux disease (GERD) symptoms, amongst which heartburn and regurgitation are the most often complaints. Hence, elaboration of laparoscopic surgical technique allowing simultaneous correction of alimentary obesity and GERD appears to be an important step forward.

Materials and methods: Over the period between 2010 and 2013, we operated 175 patients with GERD, of them 80 (45.7%) suffered from obesity with BMI exceeding 30 kg/m². Out of these patients with comorbidities (obesity and GERD), 60 were selected in this study as matching the following inclusion criteria: BMI 35 - 50 kg/m² (obesity class II

and III) and no previous abdominal surgeries in the past. The patients were randomized in two groups 30 patients each. Group 1 underwent laparoscopic fundocorporogastropliation (LFCGP). Treatment of Group 2 was limited to laparoscopic Nissen fundoplication (LNF).

Patients average age was 37.4 ± 5.1 in Group 1 and 44.3 ± 7.2 in Group 2 ($P > 0.05$). Female to male ratio in the Group 1 was 22:8 and in Group 2 - 19:11. Average BMI in Group 1 was $42.1 \pm 6.3 \text{ kg/m}^2$ and in Group 2 - $41.6 \pm 9.2 \text{ kg/m}^2$ ($P > 0.05$).

All patients had an X-ray test performed with barium contrast, esophagogastrosocopy before the surgery and in 1, 3, 6, 12 and 24 months after the surgery. In the postoperative period 24hr pH monitoring of the esophagus lower third was performed. This study was conducted within 1-24 months after the surgery.

Bariatric effectiveness was assessed by excessive weight loss percentage (%EWL).

Outcome: Post-operative esophagogastrosocopy showed no endoscopic signs of reflux esophagitis. Group 1 patients esophagogastrosocopy revealed a typical view of invaginated greater curvature in the stomach, which had a restrictive as well as an intra-gastric balloon effect thus significantly reducing inner gastric volume.

Average excessive weight loss (EWL) one month after the surgery was $20.2 \pm 4.07\%$ in Group 1 against $3.87 \pm 1.25\%$ in Group 2. By the 3rd month the EWL was $26.5 \pm 4.35\%$ and $6.0 \pm 1.6\%$ respectively. In 6 months EWL in the Group 1 and 2 was $47.37 \pm 6.45\%$ and $7.5 \pm 1.6\%$ respectively. After 12 months of the observation the weight loss was $57.83 \pm 4.7\%$ and $9.6 \pm 1.9\%$, after 18 months - $64.17 \pm 3.3\%$ against $10.7 \pm 1.7\%$ respectively. In the end of the trial, which was 24 months after the surgery, the EWL was $66.37 \pm 3.1\%$ in Group 1 and $11.9 \pm 1.4\%$ in Group 2. All observations demonstrate a statistically significant difference ($P < 0.0001$).

Data calculation allowed to estimate the DeMeester score reflecting pH at gastroesophageal junction, which was 12.0 ± 4.3 in Group 1 patients and 13.1 ± 9.3 in Group 2. It should be noted though that these differences were not statistically significant ($P > 0.05$).

Conclusion: Our trial results have shown that the designed laparoscopic fundocorporogastropliation provides an anti-reflux effect similar to the standard Nissen laparoscopic fundoplication, at the same time significantly surpassing it in terms of bariatric effectiveness.

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THE TREATMENT FOR COMPLICATIONS AFTER LAPAROSCOPIC FUNDOPLICATION

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Purpose: This retrospective study reports the reasons for reoperation after laparoscopic fundoplication and the choice of treatment for the complications requiring reoperation.

Methods: From 2005 to 2013, 477 patients underwent laparoscopic total fundoplication with cruroraphy for gastroesophageal reflux disease with hiatal hernia. Five of these operations (1%) were reoperations.

Results: All reoperations were completed laparoscopically, despite varying degrees of adhesions in the area of the previous surgery. The mean duration of reoperation was 37 ± 7.4 minutes. The mean time between primary and redo operations was 3 months. The reasons for the late complications requiring reoperation were as follows:

- Stenosis of the esophagus due to tightly-stitched diaphragmatic crura: 3 patients. This was presumably caused by using a thin (<34 Fr) esophageal-gastric tube. It was treated by laparoscopic expanding diaphragmo-crurotomy.
- Stenosis of the esophagus due to a tight fundoplication wrap: 1 patient. This was presumably caused by not dividing the upper short gastric vessels at the bottom of a small stomach and/or by using a thin esophageal-gastric tube. It was treated by laparoscopic separation of the tight fundoplication wrap, division of the short gastric vessels, and performing a “Floppy Nissen” fundoplication.
- Stenosis of the esophagogastric transition due to malposition during the initial operation (malformation): 1 patient. This was presumably caused by capturing and holding the anterior wall of the body of the stomach (not the posterior wall of the fundus) through the retroesophageal orifice. It was treated by laparoscopic separation of the incorrectly superimposed fundoplication wrap, eliminating the malformation, and performing a “Floppy Nissen” fundoplication.

With compulsory intraoperative transhiatal dissection of the esophagus for small shortening, we never encountered relapse of the hiatal hernia or migration of the fundoplication wrap.

Conclusions: The main reasons for poor results after laparoscopic antireflux operations appeared to be the use of a thin esophageal-gastric tube; preservation of the upper short gastric vessels in the presence of a small fundus; and incorrectly positioning of the fundoplication wrap during the first operation, by capturing and holding the anterior wall body of the stomach through the retroesophageal orifice.

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**EIGHT-YEAR FOLLOW-UP AFTER LAPAROSCOPIC
ANTIREFLUX OPERATIONS WITHOUT MESH PROSTHESIS**

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Background: This retrospective study reports the long-term results of laparoscopic antireflux surgery after primary and redo fundoplication.

Methods: From 2005 to 2013, 477 patients underwent laparoscopic total fundoplication with cruroraphy for gastroesophageal reflux disease (GERD) with

hiatal hernia (HH). Primary and redo operations were performed by a single surgeon. We excluded patients undergoing surgery at other hospitals or by other surgeons. All operations involved a posterior cruroraphy with wide stitching of crural muscle tissue using nonabsorbable sutures. An optional anterior cruroraphy was performed for rare cases of large HH. Mesh prostheses to reduce and strengthen the esophageal hiatus were not used, even with large HHs. An average of 3 (range, 2–5) crural stitches were used. The results were evaluated using the GERD-HRQL questionnaire.

Results: All primary and redo operations were completed laparoscopically. There were no deaths. The mean primary operation duration was 68 ± 17.4 minutes, and the mean redo operation duration was 37 ± 7.4 minutes. The mean time between primary and reoperation was 3 months. The mean perioperative hospital stay was 3 days (range, 2–7). The median follow-up time was 60 months (range, 6–108). For patients undergoing primary laparoscopic fundoplication with cruroraphy, the mean GERD-HRQL was 6.5 (range, 0–41). Complete satisfaction with the operation for several years was reported by 395 patients (82.8%). Irregular drug intake after surgery, with no evidence of recurrence, was reported in 77 patients (16.1%). Only 5 patients (1%) required reoperation. For these patients, the mean GERD-HRQL was 26.5 (range, 19–32) before reoperation and 2 after reoperation. At reoperation, fibrosis was noted around the nonabsorbable suture material on the crural diaphragm, which was similar to but less extensive than that found after mesh-hioplasty.

Conclusions: In more than 82.8% of our patients, the surgical results were regarded as excellent or good. Wide suturing of the crural diaphragm without the use of mesh prosthesis did not increase the likelihood of HH recurrence.

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ANALYSIS OF EXPRESSION OF VEGF-A IN WALKER 256 CARCINOSARCOMA UNDER THE INFLUENCE OF MELATONIN

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Objective. This study aimed to determine the expression of VEGF-A by immunohistochemistry in the Walker carcinosarcoma 256 at Wistar rats and under the influence of melatonin.

Materials and methods. Male rats of the Wistar breed line were used in the research. Used an implantation strain of Walker carcinosarcoma 256 (W256) supported by in vivo (Laboratory of physiological genetics of Institute of Cytology and Genetics of the Siberian Branch of the Russian Academy of Science, Novosibirsk). Coarse dispersion of W256 cells was implanted into the femoral muscle of male Wistar rats of 1×10^6 cells. The rats

were randomly divided into two different groups (n=7): c W256; c W256 under the melatonin influence (ICN Biomedicals Inc. USA). Melatonin (Mlt) in a dose of 10 mg/kg was abdominally injected for 14 days. A vernier caliper was used to determine the mean diameter of the tumors in three mutually perpendicular directions. All manipulations were made 5 days later, from the moment of subinoculation of tumor. Tumor in group with W256 was taken on 5th, 7th and 14th days for research; in group with W256 at Mlt application – on 10th, 12th and 19th days. Immunohistochemical researches was performed by a standard technique. Morphometric research was conducted on photographic prints by Micros MC 300A (Austria) microscope and CX 13c (Baumer) camera with final augmentation of $\times 600$ and ImageJ 1.42g software (National Institute of Health, USA). The area covered by VEGF-A (s area), average gray value of brightness of the area covered by VEGF-A (r area), average gray value of brightness of the background (r background) were determined. On the basis of these data were calculated the following: 1) the intensity of the color of the background (ic background) by formula: $ic\ background = 255 - r\ background$; 2) the intensity of the color of the area covered by VEGF-A (ic area) by formula: $ic\ area = 255 - r\ area - ic\ background$; 3) percent area covered by VEGF-A on formula: $s\ area\ (\%) = s\ area \times 100 / 21455,3328$; 4) content ratio of VEGF-A, on formula: $\acute{u} = area\ (\%) \times ic\ area$. We used SPSS software, version 11.5.0 (SPSS, Inc., Chicago, USA) for data processing and statistical analysis. Results. The immunohistochemical analysis showed that the relative area covered by VEGF-A in comparison with the control of 2,64 considerably decreased in 2,31 and in 2,03 times respectively at rats with W256 at Mlt treatment during all the experiment. Herewith the size of intensity indicator of VEGF-A staining was authentically also less in group with W256 at Mlt treatment in 1,10; in 1,08 and in 1,04 times respectively comparings with control. It is important to notice that the size of indicator of the relative VEGF-A content on the covered area at group with W256 at Mlt treatment was considerably reduced in comparison with control in 2,89; in 2,50 and by 2,12 times respectively. The correlation analysis in W256 group without treatment revealed strong positive connection between the size of percent area covered by VEGF-A and size of relative content of VEGF-A ($r = 0,986$). The revealed interrelation allows to consider that the augmentation of the relative content of VEGF-A at W256 induces neoangiogenesis. In addition to the above the functional connetion between the size of the percent area covered by VEGF-A and size of VEGF-A integrative density ($r = 1,000$) is revealed at W256 at Mlt influence. The revealed interrelation allows considering that decrease of percent area covered by VEGF-A in Walker carcinosarcoma 256 testifies to decreasing of its relative content.

Conclusions. Daily treatment with melatonin was accompanied by significant reduction of VEGF-A in Walker 256. Identified antiangiogenic effects makes even more appealing the study of melatonin as an antitumor agent.

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ROLE OF POLYMORPHISMS OF IL-1SS GENE IN THE DEVELOPMENT OF SYMPTOMATIC TEMPORAL LOBE EPILEPSY IN PATIENTS WITH CHRONICAL HERPETIC INFECTION: A PILOT STUDY

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Introduction: IL-1 β may play a role in the increase or decrease neuronal excitability. The studies of Russian authors (Terskova N.V. et al., 2013) were shown that the highest producing polymorphic allelic variants -3954*C and -511*C gene IL1 β increases pro-inflammatory effect on example of children with chronicle adenoiditis. Association studies of the polymorphic allelic variants may be relevant in the study of inflammation proconvulsant effect of chronic HSV-neuroinfection and help to rethink some important pathogenesis of symptomatic (para-infectious) focal epilepsy.

Purpose: The study of frequency polymorphisms -511 C>T (rs16944) and -3954 C>T (rs1143644) gene of the pro-inflammatory cytokine IL1 β and its role in development of symptomatic epilepsy in patients with chronic herpetic infection.

Methods: The study included 78 persons. Group 1 - patients with chronic HSV infection without symptomatic focal epilepsy (34 pers.; mean age - 34,5 ye.o.). Group 2 - patients with chronic HSV infection complicated by symptomatic focal epilepsy (44 pers.; mean age - 26 ye.o.). Volume of research: history of the disease, epidemiological history, neurological examination, video-EEG monitoring, brain MRI, MR spectroscopy, immune status, serology, consultation of immunologist, PCR – real - time.

Results: The frequency of genotypes CC, CT, TT gene IL1 β (-3954 C>T, rs1143644) in the first group were 74%, 12%, 15%, respectively; in the second group - 39%, 39%, 23%, respectively. The frequency of highest producing allele *C gene IL1 β (- 3954C, rs1143644) in the first group was 86% (p <0.05). The frequency of the genotypes CC, CT, TT gene IL1 β (-511 C>T, rs16944) in the first group is 59%, 32%, 9%, respectively, and in the second group 48%, 34%, 18%, respectively. The frequency of highest producing allele of IL1 β (- 511 C) in the first group result was 91% (p <0.05). The frequency of homozygous carriers highest producing polymorphic allelic variants (-3954*C and -511*C) in the first group was 35%, p <0.05. And, the frequency of association of heterozygous carrier on one of the tests in the second group was 57%, p<0.05.

Conclusion: We were shown the prognostic impact of possible association of heterozygous carrier of highest producing polymorphic allelic variants -3954 *C and -511 *C gene IL1 β on the risk of symptomatic (para-infectious) focal epilepsy development in patients with chronic HSV neuroinfection.

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FEEDING AND CEREBRAL ADAPTION OF PREMATURE CHILDREN

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Timely and balanced nutrition is one of the most important aspects in care for premature babies with low and very low birth weight. Contemporary concepts of nutritional support for such patients are based on the early forced nutrients supply principle aimed at reaching the intrauterine fetal growth rate appropriate to the gestational age. The main aspect of this concept is proper protein intake. Moreover, when choosing an infant formula, attention should be paid to the content of long-chain polyunsaturated fatty acids which are important for nerve fiber myelination, synaptic connections maturation and organization, visual analyzer development, proper formation of the child's cognitive functions. Almost all premature babies with a weight of less than 1.5 kg need partial or full parenteral nutrition. The volume of enteral nutrition should be gradually increased. Full parenteral nutrition should be combined with trophic feeding. Breast milk (colostrum) should be used as the first substrate. However, in spite of special ingredients, milk of women who gave birth to premature babies can only meet needs of babies with a weight of more than 2 kg, while babies with lower weight experience protein, mineral matters and vitamins deficiency. Thus, it is necessary to enrich their nutrition. Breast milk enhancers or mixed feeding with specialized products are used for that purpose. Premature babies' nutrition with specialized products should be stopped gradually and nutrition with standard formulas should be started in the same manner. When a baby's weight reaches 2500 grams, further nutrition with enriched products should not be contraindicated and proper volume (about 30%) of enriched products should be a part of the diet. The period of combined nutrition with formulas depends on a baby's birth weight (gestation term) and can last until the baby reaches 9 month.

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CHANGES OF THE INTRACARDIAC HEMODYNAMICS AND NT-PROBNP DURING THE TRIMETAZIDINE TREATMENT OF PAROXYSMAL ATRIAL FIBRILLATION

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Atrial fibrillation (AF) is one of the most common rhythm disorders. Patients with AF have a worse quality of life, a reduced tolerance to physical activity and an increased risk of thromboembolic complications. AF causes overstrain from the volume and pressure of the left heart, which leads to the increase in the synthesis of natriuretic peptides. The higher the level of the brain natriuretic peptide (NT-proBNP), the higher is the left ventricular dysfunction and heart failure.

The objective of the research was to evaluate changes of the intracardiac hemodynamics and the NT-proBNP dynamics during the trimetazidine treatment of the paroxysmal atrial fibrillation.

Materials and methods. During the research, we observed 50 patients with the paroxysmal atrial fibrillation with CHD without any CHF symptoms. On average, the age of patients was 65 ± 2 . The patients received ECG, echocardiographic and Holter ECG monitoring as well as the dynamic examination of NT-proBNP before and after the treatment.

The patients were divided into 2 groups. The first group ($n=33$) included patients who did not have any recurring paroxysmal AF after the restoration of the sinus rhythm during the Holter ECG monitoring. The second group ($n=17$) consisted of patients who had recurring paroxysmal AF after the restoration of the sinus rhythm. All the patients received the conventional antiarrhythmic amiodarone therapy. After the saturation period, trimetazidine in the dose of 70 mg per day in the course of 8 weeks was added to the treatment.

Results. In the beginning, the patients of the two groups did not have any differences in regard to the linear sizes of the left atrium, which were 43.6 mm and 43.4 mm, correspondingly. There was a significant increase of the initial NT-proBNP level up to 1033 pg/ml ($p<0.001$) among the patients of the second group; the corresponding value among the patients of the first group was 520 pg/ml. The ejection fraction fluctuated within normal limits, however, there was a significant difference between the two groups: 59% in the first group, 62.4% ($p<0.05$) in the second one.

Against the background of the paroxysmal AF, there was a significant increase of the systolic pulmonary artery pressure, the value of which was 28.1 mmHg in the first group and 32.1 mmHg ($p<0.05$) in the second one. Therefore, the AF recurrence in the second group led to an increase in the pulmonary artery pressure with a significant increase of the NT-proBNP level, which shows a considerable overstress of the left heart, particularly in the left atrium.

After the treatment, all the patients were divided into two subgroups. The subgroup

A included patients who did not have any paroxysmal AF in the course of 8 weeks. The subgroup B was composed of patients who had AF of short duration within the same period of time.

We determined that among the patients of the subgroup A there was a significant reduction of the left atrium size up to 41.7 mm ($p<0.05$), pressure suppression in the pulmonary artery down to 23 mmHg ($p<0.001$), the ejection fraction grew up to 62% ($p<0.05$), with the NT-proBNP level being 117 pg/ml. In the subgroup B, the left atrium size was 43.5 mm, the pulmonary artery pressure was considerably reduced down to 28.5 mmHg, the ejection fraction went down to 56.5%, the NT-proBNP level being 86 pg/ml.

This way, AF recurrence is accompanied by the overstress in the left heart against the background of the increase of the pulmonary artery pressure, which leads to a decrease in the inotropic function of the heart. A combined therapy with trimetazidine significantly improves the energetic myocardial metabolism affected by ischemia and hypoxia, reduces intracellular acidosis, normalises the sodium and calcium ion content in cardiomyocytes, which leads to a decrease in the AF recurrence and an improvement of the inotropic function of the heart.

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INHALATION SURFACTANT THERAPY OF NEWBORN INFANTS WITH PROLONGED ARTIFICIAL LUNG VENTILATION

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The objective of the research was to evaluate the effectiveness of the inhalation surfactant therapy in case of newborn infants with respiratory distress.

Materials and methods. We observed 13 premature newborn infants at the gestational age of 31.8 ± 2.8 weeks, birth weight of 1825 ± 600.9 gr. The Apgar score at the first minute after birth was 4.3 ± 1.4 . After birth, all newborn infants required artificial lung ventilation (ALV) due to the fact that the respiratory distress was the leading symptom caused by the acute intranatal hypoxia, neonatal amniotic fluid aspiration and respiratory distress syndrome. All the newborn infants had severe disease symptoms, prolonged AVL; 3 infants (23%) had high-frequency AVL. In order to shorten the AVL application, newborn infants received inhalation surfactant-BL therapy as a part of a combined therapy. The

drug dose was 75 mg. The drug emulsion was transported into the nebuliser chamber. The inhaler was placed in the breathing circuit at the inhalation line. During inhalation, we used the SIMV mode with an individual selection of optimal parameters for each newborn infant. The inhalation lasted 15 minutes. We analysed central venous blood gas composition and lactate level, determined cholesterol and triglyceride level of the central venous blood, registered the changes in the AVL mode and parameters and carried out a histological placenta study. The statistical processing of data was performed by using the standard programme Statistica 6 (USA). The differences were considered to be reliable if the statistical significance level was $p < 0.05$.

Results and discussion. The course of the disease was characterised by the disturbances of the gas exchange lung function and metabolism. Lactic acidosis and hypoxemia were determined within the first postnatal hours. All the newborn infants received ALV in the controlled ventilation mode with strict parameters. 3 infants received high-frequency ALV and inotropic dofamine support in the dose of $5-7.5 \mu\text{g/kg/min}$. The low content of triglycerides – $0.36 \pm 0.16 \text{ mmol/l}$ – and cholesterol – $1.5 \pm 0.7 \text{ mmol/l}$ – were typical for all the newborn infants at birth. The morphological placenta research showed that in 69.2% cases the pregnancy was complicated by a chronic subcompensated placental insufficiency and acute placental insufficiency. In 30.8% cases the chronic subcompensated placental insufficiency occurred together with the acute placental insufficiency. The disturbance of the placental blood circulation led to a severe foetus hypoxia, lactic acidosis, low cholesterol and triglyceride content, unfavourable course of the disease and a significant ALV prolongation.

Taking into consideration the severity of the disease and the ALV duration, inhalation of the surfactant-BL in the dose of 75 mg was applied after the condition was stabilised. The ALV duration before the inhalation lasted 78 to 144 hours. In 2 cases, ALC had to be applied twice. After the surfactant inhalation, 69,2% of newborn infants restored independent respiratory function and were extubated. The ALV duration after the surfactant-BL inhalation was 22 hours on average [4-68 hours]. We used the following transfer regimen to the independent respiratory function: ALV → assisted lung ventilation → CPAP → extubation. There were no cases of the repeated intubation after the inhalation therapy. After the surfactant-BL inhalation, 4 (30.8%) newborn infants remained in the ALV control mode. In these cases, the ALV duration was more than 168 hours and was caused by the severity of the disease. 3 newborn infants received high-frequency ALV. The surfactant-BL inhalation made it possible to change the regimen of the respiratory support and lower the ALV parameters. The ventilation regimen was changed to high-frequency ALV → assisted lung ventilation → CPAP.

This way, the morphological lung immaturity, low antenatal cholesterol and triglyceride production and hypoxia contribute to a much later restoration of the endogenous surfactant production. The secondary surfactant deficiency supports respiratory failure in case of newborn infants, thus prolonging the ALV. The surfactant-

BL inhalation tactics has a pathogenetic justification – phospholipid restoration on the surface of the alveolar epithelium, improvement of the mucociliary clearance and stimulation of the endogenous surfactant production.

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EPITHELIAL REST CELLS OF MALASSE IN STRUCTURE OF HUMAN PERIODONT

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Introduction. As various targets and producers of cytokines, growth factors, adhesion compounds, their receptors, and other biologically active molecules PDE undoubtedly act as an important part in the regulation of intercellular and intertissue interactions in the periodontal tissues. Due to its ability to affect cells of various types of PDE are involved in regulation of some processes and periodontal tissues of the tooth. In pathological conditions in violation intraparadontal tissue homeostasis sprawling PDE acquire powerful destructive potential and are capable of causing profound destruction of surrounding tissues. Using the method of immune histochemistry to identify dendritic cells we have found that the content of Langerhans cells corpuscles Malassa activity correlates with proliferative processes in epithelial component periapical lesions, as well as with the degree of infiltration of lymphocytes, epithelial PDE. In this regard, proposed that the Langerhans cells secrete factors that directly regulate cell proliferation EOM. Probably Langerhans cells and have an indirect effect on the proliferation of the epithelium, the PDE, as they participate in the regulation of lymphocyte migration, secretory products which have a mitogenic effect on the cells EOM.

Antigen presenting dendritic Langerhans cells, like T-lymphocytes in normal PDE absent, however, they appear as in the case of cell proliferation of the epithelium, as well as during its infiltration of T-lymphocytes. In various formations periapical (granulomas granulomas with epithelial components of radicular cysts) Langerhans cells are more numerous in the epithelial component than in the connective tissue. Modern concepts of the PDE and growth mechanisms of its regulation are based on empirical data that sprawl EOM noted in their irritation associated with tooth extraction is accompanied by the release of various cytokines and growth factors by cells of damaged tissues. Therefore, further study of the PDE system in the interstices interactions in periodontal offers viable opportunities for directional effective influence on the regeneration of tissues in various pathological conditions of periodontal.

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ARE VARIANT IL10, TLR9 AND NRF2 GENES ON A PLAYER LIST TO AFFECT THE COURSE OF HEALTH CARE-ASSOCIATED INFECTION IN CRITICALLY ILL PATIENTS?

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Health care-associated infections (HAI) remain a serious challenge for patients in Intensive Care Units (ICU) affecting the course of illness, outcome and health care expenses. Deciphering the molecular mechanisms of critical illness and risk stratification of ICU patients may impact the development of critical care personalization. Three groups of polymorphic genes that control innate immunity and cytoprotection (both involved in pathogenesis of critical illness) have been demonstrated their power in prognosis of sepsis, multiple organ dysfunction and outcomes in critically ill patients. These genes encode: (a) cytokines, the major signaling molecules in host's both systemic inflammatory responses to infection or non-infectious insults, and compensatory anti-inflammatory responses (CAR); (b) toll-like receptors (TLR) sensing the pathogen-associated and damage-associated molecular patterns including circulating microbial and host's DNA that signal to amplify the pro-inflammatory responses; (c) molecules involved in cytoprotective anti-oxidative responses. Our aim was to initiate the study determining whether the innate immunity/cytoprotection variant gene combinations orchestrate the course of critical care illness in patients with HAI. The study was approved by the Ethical Committee. Based on available functional polymorphism data the following variant genes were selected: (1) IL10, rs1800896, A/G (main mediator of CAR), (2) TLR9, rs352162, C/T (receptor for circulating bacterial or self DNA), and (3) NRF2, rs6726395, A/G (transcription factor, master regulator of expression of a set of genes that control anti-oxidant responses mediating cytoprotection from oxidative damage). Methods. The study group (n=58) included post-surgery (pancreatic necrosis, pleural empyema, abscess, peritonitis, pyelonephritis) and cancer patients. The group was selected based on HAI proven by both (a) positive bacterial cultures of an endotracheal aspirate harvested on admission to ICU and (b) recent hospitalization in anamnesis. The additional criterion included the availability of informed consent for the study provided by a patient or his/her representative. Hemodynamics indexes and extravascular lung water were determined by transpulmonary thermodilution method (PiCCOplus). Septic shock and acute respiratory distress syndrome (ARDS) were diagnosed according to the Surviving Sepsis Campaign 2013 and 2012 Berlin definition,

respectively. DNA was isolated from the whole blood (Diatom DNA Prep 200, Isogene, Russia) and genotyping was performed by PCR with a set of specific primers for each polymorphic site. Amplified PCR products were analyzed in a 2% agarose gel. The data were analyzed with the aid of GraphPad InStat and GraphPad Prism 6 and the Odds Ratio, Positive and Negative Predictive Values were calculated. Significance at $P < 0,05$ was determined using Fisher Exact Test, Mann-Whitney test or Kruskal-Wallis Test with a multiple comparison Dunn post-test where appropriate. Results. To determine the effect of allele alone or in combination with allele of other gene under the recessive hypothesis, the cohort was subdivided into different pairs of subgroups of patients and frequencies of "homozygote positive" vs. "homozygote negative" (all others) patients were compared in paired groups (pneumonia vs. no pneumonia, ARDS vs. no ARDS, patients with septic shock vs. no shock patients, patients with significant inflammation (CPIS >5) vs. subgroup with CPIS <5 (all on admission)). The data demonstrate for the first time that in patients with microbiologically diagnosed lung infection the homozygote state of two genes in a combination: (a) TLR9 C/C and NRF2 G/G or (b) IL10 G/G and NRF2 G/G are protective against pneumonia, ARDS, septic shock or the lung oedema increase during 7-day ICU stay despite treatment.

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TDM IN ROUTINE PSYCHIATRIC PRACTICE

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Introduction: According to various estimates, up to 40 percent of patients with acute schizophrenia don't reach a sufficient level of remission of psychotic symptoms in spite of treatment. Poor treatment response leads to increased duration of hospitalization, heavy therapeutic schemes with multiple antipsychotics given simultaneously, administration of high doses of drugs and other negative consequences.

Hypothesis: TDM can be useful method of improving treatment response in patients with acute schizophrenia.

Methods: Forty from planned 60 inpatients of both sexes from 18 to 65 years with acute schizophrenia, treated with aripirazol, paliperidone, haloperidol, zuclopenthixol, clozapine, risperidone, quetiapine or olanzapine, were included. Psychometric scales (PANSS, NSA, CGI-S, CGI-I) were used for clinical evaluation. Severity of side effects was measured with the UKU scale. During the study 3 blood samples for assessment of pharmacokinetic parameters (7, 28 and 49 days from the start of therapy, ± 3 days for each sampling, 2 blood samples (28 and 49 days, (± 3 days for each sampling) to assess the level of glucose and blood prolactin level (evaluation of side effects of therapy) were taken. If deviation of antipsychotic plasma concentration from the optimum together with insufficient effect or

severe side effects after 28 days of treatment occurred treatment scheme could be changed. The results of the new treatment were assessed on the day 49. Antipsychotics and their active metabolites concentrations were determined using a validated method in which high-performance liquid chromatography is coupled to tandem mass spectrometry.

Results: The assay method was sufficiently sensitive, with a lower limit of quantification (LLOQ) of 0.5 ng/ml for the haloperidol and 1 ng/ml for the other neuroleptics. The method was also accurate and precise. The coefficient of variation for repeatability or intermediate precision estimated at three levels of concentration for each neuroleptic never exceeded 11%. In 47% percent of samples deviations from optimal pharmacokinetic values (below the optimal level in 28% of cases, higher - 19%) were found. The change of treatment possible due to external reasons only in a number of cases on basis of the TDM led to significant clinical improvement.

Discussion: The obtained results demonstrate the significant percentage of cases with deviation of pharmacokinetic parameters from the optimum. This deviation not in all cases impacts the treatment response. High individual variability of pharmacokinetic parameters does not allow to make strict recommendations on basis of the TDM data but this method could be adjunctive source of information for psychiatrist and help them in optimizing therapeutic approaches to treatment of acute schizophrenia.

Conclusion: TDM can find its place in routine clinical practice as an adjunctive objective criteria for adjusting antipsychotic treatment regimen in each individual case of schizophrenia exacerbation.

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EXTERNAL FIXATION IN THE TREATMENT OF PATHOLOGICAL FRACTURES OF LIMBS WITH METASTATIC LESION

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Introduction: metastatic bone disease is one of the most complex problems of modern orthopaedic oncology. Bone metastases occur in 17-50 % of patients with malignant solid tumors. The main method of treatment of patients with metastatic solid tumors and bone disease is a complex treatment, which includes chemotherapy, immunotherapy, hormone therapy, radiation therapy, the use of bisphosphonates and radionuclides, as well as surgical treatment. Surgical treatment of metastatic bone disease, including pathological fractures is mainly presented by endoprosthesis, transosseus osteosynthesis, and intramedullary osteosynthesis, as adjuncts to fill bone defects using allografts, autografts and bone cement. Surgical treatment for metastatic lesions of long bones can reduce pain, improves the support ability and function of the limb. In addition to that, surgical treatment improves the quality of life of patients in the immediate postoperative period and allows for more specific therapy.

Materials and Methods: 24 patients were treated with metastatic long bones. Metastatic lesions were observed in metastatic renal cell carcinoma - 9 (37,5 %), breast cancer - 7 (29,1 %), multiple myeloma - 4 (16,7 %), lung cancer - 2 (8,3 %), thyroid cancer - 1 (4,2 %), bowel cancer - 1 (4,2 %). Metastatic lesions were located: the proximal femur - 13 (54,2 %), femoral shaft - 5 (20,8 %), the diaphysis of the humerus - 3 (12,5 %), distal femur - 2 (8,3 %), the tibial shaft - 1 (4,2 %). Transosseous extrafocal osteosynthesis was performed using external fixators such as Kostiuk rod. Postoperatively, 24 patients received radiation therapy to the locus of a metastatic lesion to a total focal dose - 40 Gray. Besides radiotherapy patients received 20 courses of intravenous chemotherapy, immunotherapy and bisphosphonates. 4 patients underwent courses of chemotherapy, hormonal therapy and bisphosphonates.

Results: period of observation after transosseous extrafocal osteosynthesis averaged 36 months. In cases of 9 (37.5 %) patients consolidation of pathological bone fracture occurred under the effect of radiation therapy and bisphosphonates, 6 (25 %) patients because of the absence of a pathological fracture consolidation underwent further treatment with reinforced osteosynthesis using bone cement, 6 (25 %) patients underwent resection of bone segment with tumour and joint arthroplasty, 3 (12,5 %) patients underwent amputation. Good functional results were obtained in 15 (62,5 %) patients, satisfactory in 7 (29,2 %). 2 (8,3 %) patients died from progression of the underlying disease after an average of 5 months.

Conclusion: In metastatic long bone lesions external fixation method allows to restore limb function and support ability of the limb, it also allows to conduct further radiation therapy, combination chemotherapy, hormonal therapy, immunotherapy and bisphosphonates. With a positive response to a complex (radiotherapy, chemotherapy, hormonal therapy, immunotherapy, bisphosphonates) treatment patients can undergo organ-surgical treatment in the form of arthroplasty or reinforced osteosynthesis using bone cement.

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MARKTAUSBLICK AUF MEDIKAMENTE GEGEN FETTLLEIBIGKEIT

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Das Problem des Adipositas ist sehr aktuell. Die Prävalenz der Adipositas hat sich in den letzten 15 Jahren nahezu verdoppelt. Experten prophezeien eine weitere Zunahme für das nächste Jahrtausend.

In der Ukraine leidet unter der Adipositas etwa 15 % unsere Bevölkerungen.

Fettleibigkeit (Adipositas) entsteht, wenn sich übermäßig viel Fettgewebe im Körper ansammelt.

Das Gesundheitsrisiko von Adipositas wird im Alltag oft unterschätzt. Diabetes mellitus, Bluthochdruck und Schlaganfälle sind typische Folgeerkrankungen. An der Kombination aus Übergewicht, Bewegungsmangel, Bluthochdruck und Diabetis Mellitus sterben jedes Jahr doppelt so viele Menschen als durch Krebs. Zusätzlich zu den körperlichen Beschwerden kann massives Übergewicht außerdem zu einer psychischen Belastung werden.

Als Maß für Übergewicht dient der sogenannte Body-Mass-Index (BMI). Der BMI wird berechnet, indem man das Gewicht durch das Quadrat der Größe (in Meter) teilt (kg/m^2).

Normalgewicht entspricht einem BMI zwischen 19 und 25 kg/m^2 .

Übergewicht (leichte Adipositas) liegt zwischen 25 und 30 kg/m^2 vor.

Von Fettleibigkeit spricht man ab einem BMI von 30 kg/m^2 .

Alle Medikamente zur Gewichtsreduktion auf dem Markt der Ukraine lassen sich in folgende Gruppen unterteilt werden:

- Medikamente zur Gewichtsreduktion, die Verringerung der Menge an Energie liefern;

- Medikamente zur Gewichtsreduktion, die Energieaufwand forcieren (Koffein);

- Andere Medikamente für Gewichtsverlust (Sitzungen, Tees, Nahrungsergänzungsmittel, homöopathische Heilmittel, etc.).

Die Nahrungsergänzungsmittel unterteilt in drei Gruppen:

Nutraceutical - ist wesentlich biologisch aktiven Substanzen, die verwendet werden, um die chemische Zusammensetzung der menschlichen Nahrung zu korrigieren.

Paraharmazeutik - biologisch aktiven Substanzen, die eine pharmakologische Aktivität aufweisen, um die physiologischen Grenzen der funktionellen Aktivität der Organe und Systeme, die Verhinderung von pathologischen Zuständen und unterstützende Behandlung zu unterstützen.

Eubiotik - nahrungsergänzungsmittel mit lebenden Mikroorganismen.

Nach Recherchen Marketing-Gruppe "Business Kredit" Betrag hat (für das Jahr 2013) aus dem Verkauf der ausländischen Vermögenswerte auf Gewichtsregulierung ausgemacht:

- Biologisch aktive Substanzen 52820.648 Tsd. UAH.

- Kosmetik 34 724000 Tsd. UAH.

- Kosmetische Heilmittel 216 178 Tsd. UAH .

Aus dem Verkauf von Fahrzeugen der inländischen Regulierung Verlust:

- Biologisch aktive Verbindungen, 17108, 146 Tsd. UAH.

- Kosmetik - 889 572000 Tsd. UAH.

Die Ursachen für Übergewicht und Adipositas liegen meist in einer Kombination aus genetischer Veranlagung und ungesundem Lebensstil.

Zur Prävention von Übergewicht und Adipositas sind daher Maßnahmen in den Bereichen Ernährung, Bewegung und Stressbewältigung sinnvoll.

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POST-SURGICAL REHABILITATION OF PATIENTS AFTER NON-SPECIFIC ULCERATIVE COLITIS SURGERY

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Topicality. Radical surgery in severe non-specific colitis (NUC) cases is total colectomy by means of creating an ileoanal anastomosis with a pouch from the ileum.

At the same time, this surgery is frequently accompanied by complications and undesired consequences. Some surgeons recommend making several multiple-stage surgeries alongside a powerful antiulcer therapy. However, other surgeons speak in favour of a single-stage radical surgery. For this reason, total and post-surgical lethality remain high and make 10-12% on average, without any tendency to decrease.

Materials and methods. Over the last 5 years, in the Scientific Centre of Coloproctology, 172 NUC patients had various surgeries. 83 (82.1%) patients had a planned surgery, 78 (45.3%) patients had a single-stage surgery and 94 (54.7%) had several multiple-stage surgeries. An S-pouch was used in all these cases. Taking into consideration the minimum and moderate activity of the inflammation process at the preparation stage, we conducted a local antiulcer therapy. Medical treatment was successful in case of 44 (25.6%) patients who had a single-stage surgery.

9 patients with preventive ileostomy were in a poor condition. In case of 5 patients, after their condition improved, the ileostomy was closed 6 months later. These patients also had laparotomy, total colectomy and an anterior rectum resection with a low ileorectal anastomosis. The other 4 patients were characterised by a high activity of the inflammatory ulcerative process in the rectum and had total colectomy with single-barreled ileostomy. Out of 51 patients with total colectomy with single-barreled ileostomy, 11 patients had the ileostomy closed with a pouch anastomosis.

Results and discussion. In the post-surgical period, 17 (9.8%) patients had 23 complications. 3 (1.7%) patients had a pouch leakage. 2 (1.2%) patients with a total rectum failure, leak and toxic dilation had an urgent colectomy with terminal ileostomy. After the ileal pouch-anal anastomosis, 3 (1.7%) patients had tissue suppuration in the presacral area. 1 (0.6%) patient had post-surgical peritonitis. This patient had relaparotomy with the pouch removed and ileostomy; unfortunately, this patient deceased. In general, post-surgical lethality made up 1.7% (3 deceased patients). We analysed the intraluminal pressure in the pouch by means of balloon manometry on day 10-12 and 6 months after the surgery. In the early post-surgical period, manometry indicators were 13 mmWC, 6 months later - 28 mmWC. The tendency of the intraluminal pressure in the pouch to increase shows its direct dependence on the anal sphincter function recovery.

Conclusion. After the analysis of the obtained functional results we came to the conclusion that total colectomy, anterior rectum resection with a low or ultra-low ileal

pouch-anal anastomosis are the preferred surgical treatment methods for the NUC because they make it possible to achieve satisfactory medical and social rehabilitation of patients.

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CHRONIC KIDNEY DISEASE AS A RISK FACTOR FOR RECURRENCES OF ATRIAL FIBRILLATION AFTER SURGICAL RADIO-FREQUENCY ABLATION OF PULMONARY VEINS

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Background. Permanent atrial fibrillation (pAF) can be a serious concomitant problem in patients undergoing open heart surgery. Generally radio-frequency energy has become the most widely used energy source for AF ablation surgery. It was shown that a sinus rhythm conversion rate of almost 80% at one year after surgery in patients with atrioventricular replacement or coronary artery bypass grafting (CABG) and concomitant monopolar endocardial radio-frequency ablation (RFA). Acute kidney injury (AKI) is a serious complication after cardiothoracic surgery and is associated with increased short-term mortality. AKI develops in 5% to 30% of patients who undergo cardiothoracic surgery.

Research objective: to estimate a predictive role of the chronic kidney disease (CKD) in recurrences of the AF in the patients who undergo RFA of pulmonary veins during CABG.

Material and methods. Research included 318 patients (208 men and 110 women) aged from 42 till 68 years (mean age 59.4 ± 7.3 years) in 3 months after CABG and RFA. The duration of persistent AF made from 1 to 8 years and on the average 5.6 ± 1.1 years. 75 patients (23.6%) were diagnosed with CKD (the 1st group) with glomerular filtration rate (GFR) from 89 to 45 ml/min /1.75 m² and the other 243 patients (76.4%) had GFR higher than 90 ml/min /1.75 m². Exclusion criteria were primary kidney disease, congestive heart failure functional class III and IV, diabetes type 2. GFR was calculated using MDRD equation. The diagnosis of AKI was based on the level of serum creatinine (sCr) using RIFLE criteria. All patients were repeatedly performed 24-hour electrocardiogram monitoring. The follow-up period was from 1 to 3 years after operation.

Results. Late recurrences of AF were noted in 30 patients (40.0%) in the 1st group and in 65 patients (26.7%) in the 2nd group. Difference was significant $\chi^2 = 5.46$ ($p=0.016$). Besides, the efficiency of RFA in combination with antiarrhythmic pharmacotherapy made 65.3% in the 1st group and 81.5% in the 2nd group ($p=0.006$). Patients of the 1st group were divided into 2 subgroups: in 18 patients (24.0%) the increase of GFR was noted on the average at 22.5% ($p=0.011$) at the end of the first year after RFA; the changes in GFR in other 57 patients haven't occurred or were unremarkable ($p>0.05$). It should be noted that late recurrences of AF, frequency and periodically of recurrences of AF inversely correlate with

values of GFR after CABG and RFA. It is also revealed that effectiveness of RFA in patients of the 1st group associates with the stage of CKD. So, the effectiveness of RFA accounted for 54.2% in patients with GFR lower than 60 ml/min /1.75 m² and 65.3% (p=0.023) in patients with GFR 89-60 ml/min/1.75 m². The effectiveness of RFA in combination with antiarrhythmic therapy accounted for 64.1 and 72.8% respectively (p=0.034). Also, the frequency of hospitalization because of AF paroxysms made 3.2±0.5 in the 1st group and 1.4±0.3 (p=0.005) in the 2nd group for year. 2-year mortality in the 1st group was significantly higher than in the 2nd group: 13.3 and 7.8% respectively (p=0.008).

Conclusions. It was revealed that decrease in glomerular filtration rate in the patients underwent RFA procedure of pulmonary veins is associated with the increased risk of recurrence of AF. Also preoperative left atrial size and pAF-duration were identified to be useful variables to predict the success rate of bipolar RF ablation in CABG/AV patients.

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SHORT-TERM RESULTS OF THE MANAGEMENT OF ESSEX-LOPRESTI AND OTHER LONGITUDINAL RADIO-ULNAR DISSOCIATION INJURIES

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In 2013 we managed 3 patients with Essex-Lopresti and longitudinal radio-ulnar dissociation injuries. Two of the patients had a classical Essex-Lopresti lesion consisting of the 3 classical components of the Essex-Lopresti injury i.e. fracture of the radial head, rupture of the interosseous membrane and disruption of the distal radioulnar joint. One patient had no radial fracture only dislocation of both the radial and ulnar heads and longitudinal radial migration. All 3 patients had a similar mechanism of injury and a longitudinal radio-ulnar dissociation.

All patients presented with forearm, distal radio-ulnar and elbow joint pain with marked restriction of forearm pronation and supination. The Radial pull-test elicited longitudinal instability in all patients. Positive ulnar variance, instability of the head of the ulnar and radio-carpal tenderness was also present.

All 3 patients had anterior-posterior and lateral x-rays of the wrist and elbow as well as Computed Tomography (CT) of the forearm. One patient had a Mason type III radial head fracture. Another had a Mason type 1 radial head fracture while the third had both radial and ulnar head dislocations with interosseous membrane rupture and no fractures. In addition all 3 patients had forearm Magnetic Resonance Imaging (MRI). However, the MRI findings did not detect the IOM rupture which shows low specificity and sensitivity in IOM rupture diagnosis.

The patient with only the longitudinal radio-ulnar dissociation who had both radial and ulnar head dislocations was managed conservatively. Both dislocations were reduced

the elbow was immobilized in a split long arm cast applied for 2 weeks.

At 6 month follow-up had slight pain at the radio-carpal joint and no pain at the elbow joint. The Flexion/extension of the elbow was ($5^{\circ}/135^{\circ}$), forearm pronation/supination ($75^{\circ}/80^{\circ}$). The Mayo index was 84.

The patient with Mason type III radial head fracture had surgical management. The patient had radial head replacement with a bipolar radial head prosthesis, 2 parallel K-wire fixation of the distal radio-ulnar joint for 6 weeks and immobilization in a long arm cast for 2 weeks. At 6 month follow-up patient had no pain at the radio-carpal or elbow joint. The Flexion/extension of the elbow was ($10^{\circ}/135^{\circ}$), forearm pronation/supination ($75^{\circ}/80^{\circ}$). The Mayo index was 86.

The patient with Mason type I radial head fracture also had surgical management. The patient had only 2 parallel K-wire fixation of the distal radio-ulnar joint for 6 weeks and immobilization in a long arm cast for 2 weeks. On the 2nd day after removal of K-wires patient complained of pain and instability in the distal radio-ulnar joint and mid-third of the forearm. X-rays showed secondary displacement of the radial head with longitudinal proximal migration of the radius evident by increased ulnar variance and positive radial pull-test. This precipitated the immobilization of the wrist in an orthotic device for 3 weeks. At 3 month follow-up there was slight pain and instability at the distal radio-ulnar joint but no pain at the elbow joint. The Flexion/extension of the elbow was ($5^{\circ}/135^{\circ}$), forearm pronation/supination ($45^{\circ}/50^{\circ}$). The Mayo index was 69. The management of this patient is still ongoing.

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ULTRASOUND DIAGNOSIS OF CERVICAL INTERVERTEBRAL DISC HERNIATIONS (A NEW METHOD)

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We have developed a method of ultrasound diagnostics dorsal herniations of the cervical intervertebral discs (Patent number RU 2421143 for the invention of the Russian Federation). The invention consists in that when polypositional ultrasound scanning in real time, determine the anteroposterior size of the spinal canal define a transverse dimension of the spinal canal, calculated index value of the spinal canal transverse dimension ratio of the spinal canal to the anteroposterior size of the spinal canal, while with increasing quantities index of the spinal canal to $1,80 \pm 0,11$ and more dorsal diagnose cervical intervertebral disc protrusion with increasing value of the index of the spinal canal to $2,19 \pm 0,20$ and more dorsal diagnose cervical intervertebral disc herniation.

The method is as follows. Polypositional carried ultrasound scanning in real-time determination of anteroposterior size of the spinal canal, the definition of the transverse dimension of the spinal canal, spinal canal index computation ratio of the transverse size

of the spinal canal in the anteroposterior size of the spinal canal. In the study group of healthy patients (46 patients aged 18 to 44 years): the transverse dimension of the spinal canal $16,3 \pm 0,43$ mm anteroposterior spinal canal size $12,3 \pm 0,33$ mm , the ratio of the spinal canal $1,3 \pm 0,1$.

In the study of patients with the presence of dorsal protrusions and herniations of the cervical intervertebral disc results were different. The greatest changes were observed in the study of patients with the presence of the dorsal cervical intervertebral disc herniations. For example , in the study group of 49 patients aged 20 to 47 years , results were obtained: the transverse dimension of the spinal canal $16,2 \pm 0,4$ mm anteroposterior spinal canal size $8,0 \pm 0,3^*$ mm, the ratio of the spinal canal $2,2 \text{ mm} \pm 0,2^*$ (* - significant statistical differences indicators in patients and the healthy group ($P < 0,01$)). Many patients previously or subsequently were examined by magnetic resonance imaging and (or) computed tomography. When this established the presence of the dorsal protrusion of intervertebral discs in the form of hernia.

Thus, the use of this method allows for an objective diagnosis of dorsal protrusions and herniations of the cervical intervertebral discs, establishing a precise localization of the pathological process in the form of the dorsal and dorsal protrusion of cervical intervertebral disc herniations, improve the quality of research, as well as providing opportunities to establish control treatment results in the presence of dorsal protrusions and cervical intervertebral disc herniations. This method can be applied in the ultrasound department, specialized offices ultrasound diagnostics for the detection of dorsal protrusions and herniations of the cervical intervertebral discs. A method of diagnosing the dorsal paramedian herniation lumbar intervertebral discs provides a small amount of time to execute it.

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FEATURES IMMUNE HOMEOSTASIS MUCOSA OF THE GASTROINTESTINAL TRACT IN CHILDREN WITH PATHOLOGY

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Introduction: Previously, we investigated H. pylori infection of the adult patients with gastrointestinal diseases in Vladivostok, Far Eastern Russia. In this study, we further investigated the role of Helicobacter pylori infection in lactase deficiency pathogenesis in

children. In the pediatric fields, secondary and transient lactase deficiency was seen during clinical practice of different gastrointestinal diseases. Many previous studies have shown the mucosal conditions of small intestine and duodenum in secondary lactase deficiency; however, local immune responses in gastrointestinal tract have not been examined. Especially, conditions of gastric mucosa and epithelium in different pathogenetic variants of lactase deficiency in infants and children under 3 years have not been well studied. In this study, we investigated roles of *H.pylori* infection and immune responses of gastric mucosa and epithelium in, pathogenetic aspects of lactase deficiency in children under 3 years.

Methods: Sixty-three pediatric patients (age: 5 months to 3 years) with different loss of weight in Regional Clinical Center of Maternity, Vladivostok, Russia, were also included during 2008-2011. All patients were diagnosed as lactase deficiency. Morphological changes of gastrointestinal mucosa were examined by endoscopy and dark field microscopy. *H. pylori* in biopsy specimens was detected by immunostaining CD4-, CD8-, CD 68-, CD163-, or CD204-positive immune cells in the specimens were detected by immunostaining.

Results: In our previous study, 89.9% of patients (age, 15 to 80 years) were *H. pylori*-positive, Regarding the virulence genotype of *H.pylori*, 79.4% were *cagA*-positive. As for EPIYA motif of *cagA*, ABC type was the most prevalent and accounted for 73.2%; ABCC type for 14.6%; AB or ABCCC type for 4.9%, and novel AAABC type for 2.4%. No ABD type was detected.

In this study, 95% of children under 3 years with secondary lactase deficiency were *H. pylori*-positive. We have established changes of immune cell; numbers and condition in cellular and humoral immunity according to clinical manifestations of this disease. Increase of proliferative activity of immune cells in epithelial layers and the cells without contact to epithelial wall in mucosa were found. Immunostaining showed the increase of immune cells positive for CD4, CDS, CD 68, CD163, and CD204 in gastrointestinal epithelium in *H. pylori*-positive lactase deficiency patients.

Discussion: In our previous study, *cagA* -positive *H. pylori* mainly belonged to Western type (EPYIA-ABC type) although Vladivostok is geographically located in East Asia.

Present study is the first investigation of lactase deficiency with *H. pylori* infection in children under 3 years in Vladivostok, Russia. Our data suggest mechanisms of pathogenicity of lactase deficiency under *H. pylori* infection. Our data are also useful for development of immune response algorithm during medication of those patients and for monitoring of morphological condition of gastrointestinal mucosa in children during various pathologic processes associated with malabsorption and lactase deficiency. Further investigation is required to reveal the exact mechanisms of lactase deficiency under *H. pylori* infection.

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MECHANISMS OF CARCINOGENESIS

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Introduction. According to who, cancer of the stomach in the structure of Oncology is. Stomach cancer each year become ill more than 1 million people. In the Russian Federation for oncological disease stomach cancer 3 takes place after lung cancer and skin disease are diagnosed each year, 32 cases per 100000 population of gastric cancer. The problem is the world in oncogenesis and studied, and least studied. There is no data on changes in immune homeostasis of gastric mucosa in terms not only of reparative regeneration, but also physiological.

Methods. Biopsy material obtained from cardiac, gastric antrum and fundal divisions under the Sydney system in accordance with the gold standard of the World Health Organization. Analysis of results carried out in accordance with the criteria of the morphological section the Sydney classification, supplementing the international classification of gastritis and visual-analog scale with semi quantitative evaluation standards of morphological changes of microbial media, as well as the presence of spontaneous recovery of 98% in the case of, for example, the papilloma virus. Biological samples and gastric biopsy material obtained were obtained at the time of the 203 fibergastroduodenoscopy patients ranging in age from 34 to 78 years in the period from 2004 to 2012, on the basis of FESMC (Russia), as with the pathology of the stomach and without moderate clinical manifestations.

Results. By using immune histochemistry revealed the different phenotypes of cells monocytes on different CCM, and connective tissue mast cells in the mucosa's own discs. Immune histochemical was identify HbP, gene activity Ki67, CD4, CD5, CD8, CD10, CD34, CD68, CD117, CD163, CD204, c-kit—receptor factors stem cells, mine hazard firm DAKO to illustrate and further comparative analysis of the dynamics of disease in different periods. Participation in the immunocytes feature provided mechanisms for restructuring of connective and epithelial structures woven own LPs at physiological and mucosal reparative regeneration of the stomach wall. Identification of immune cells was carried out on the same circuit, despite the different Antigen localization in cellular structures: membranes, Lysosomes, nucleus, Golgi complex. The existence of HbP was determined using microbiological and molecular-genetic studies of selected strains helicobacter pilori with subsequent analysis on pathogenic microorganism genes in the genome. Helicobacter pylori infection received additional confirmation using immunohistochemical techniques using antibodies to helicobacter. Additional proof of the blood came from helicobacter using scanning electron microscopy. The results of their observations. Microbiological method research gave culture HbP from 95% (193 of 203) patients who are using the molecular-

genetic analysis have been described as Cag A-, Vac A- positive strains with established cag PAI and cag A gene: AAABC Cag A, severe type and truncated (shortened) ABC Cag A, type of unknown function. Just as us growth and rejuvenation of stomach cancer, registered a case of cancer in women 36 years. Like other authors, we have increased the number of infiltrative crayfish. Carcinogenesis is marked with the same frequency in patients without previous gastric ulcers, regardless of which had gastritis: erosivno-yazate or atrophic. Discussion. Dynamics changes of macrophage infiltrate the stomach wall corresponded to increased proliferativnoy activity of epithelial mucous membrane, and was highest when the proliferative activity has dropped due to the depletion of the cambium. Single work focused on phenotypes cell infiltration mucous membrane stomach and tumors.

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CHARACTERISTIC HYPOTHALAMIC NEURONS IN CEREBRAL AND HEART ISCHEMIA.

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Introduction. In developed countries, mortality from neurodegenerative, cerebrovascular and cardiovascular diseases in the structure of total mortality is a 2-3rd place in Russia, there is a similar situation. Over the past 5 years, only in the Russian Federation from diseases of the circulatory system of 6.4 million people died, that allows to consider this pathology global epidemic. Neuroendocrinology today has a large number of mutually exclusive facts, views, hypotheses and concepts regarding the functional role of individual hypothalamic nuclei and hystophysiological meaning of certain structural changes in the secretory neurons during ischemia. However, questions remain obscure specificity of morphological changes in the hypothalamus. One of the contentious issues is the role in the induction of neuronal apoptosis lipofuscin detected in brain tissue from people of different age groups. Some authors believe that the pigment of the "aging" of the neuron, and it is connected with the processes of the incomplete breakdown of substances in the lysosomes. According to the theory S.E. Toth (1968), in the genesis of lipofuscin granules and mitochondria are involved granular EPS, which after packaging dictyosome Golgi take the form of granules.

Opponents of solvency theory SE Toth said the accumulation of lipofuscin genetically programmed and deny its formation and accumulation, as a result of metabolic breakdown of organelles within the cell. The presence of a minor research on human material, the lack of systematic analysis, as in the age aspect, and in pathology, leave the problem of the role of lipofuscin in normal and infarct- stroke open that dictates the continuation

of the work in this direction. Current data on the controversial role of lipofuscin in the metabolism of the nerve cells and the lack of conclusive evidence of his involvement in physiological and reparative regeneration of neurons in the brain dictate the need for research is morphological character. The purpose of this study is warning gerontological changes of brain neurons and improve treatment of stroke patients. Accordingly objectives were as follows: Study the morphology of neurons in the anterior hypothalamus man after a stroke. 2. Lipofustinsoderzhaschih Get characteristic nuclei neurons of the anterior hypothalamus with chronic ischemia. 3. Set topographical features of the distribution of hypothalamic neurons containing lipofuscin granules and their relationship to blood vessels.

Methods. In this paper we analyzed biopsies material sides and bottom of the third ventricle in 14 male patients of different age groups, deaths from stroke, prepared in accordance. The control group consisted of 28 patients who died from injuries incompatible with life, presumably without somatic pathology in age from 24 to 76 years.

Used classical histological methods of research with hematoxylin-eosin staining for general morphological pattern of neurons of the anterior hypothalamus person. Analysis of the material was performed using a microscope Olympus - Bx82 and digital camera CDh82 with proprietary software.

Results. In our studies of neurons anterior hypothalamic nuclei have large size, reaching 100-120 microns. The nucleus with a round shape and heterochromatin eukaryotic or uniformly distributed in karyoplasm or disposed in a ring around the periphery. Some of the neurons has a light-colored perinuclear space, which may indicate membership in neuron apoptosis. Small cell glia evenly distributed around neurons. Blood vessels of the microvasculature we studied drugs hypothalamic structures do not form the blood-brain barrier, as in other parts of the brain. Capillary wall is presented flat elongated endothelial cells with the corresponding elongated shape bright basophilic nuclei. We noted that the diameter of the capillaries up to 10 microns, in the wall of the larger capillaries include pericytes, which are located in the disintegrations of the basement membrane. Found that as a result of chronic ischemia and develop a massive stroke in the precentral gyrus of the human brain neurons in the anterior hypothalamus accumulate large lipofuscin granules, filling the entire cytoplasm around the nucleus. Some of the cells contain a nucleus with clear margins in most cells nukleolemma destroyed, chromatin is distributed randomly, nucleoli are not identified as research Sendrowski K, Sobaniec W, Sobaniec P, Sobaniec-Lotowska ME. (2013) who consider, as we do, this type of cell degeneration to aponekrosis. In neurons of the anterior hypothalamus structure of nuclei indicates a different level of disorganization of chromatin, the destruction of the nuclear envelope, apoptosis of neurons. Beads are darker brown. In some cells the entire cytoplasm is filled with granules, the nucleus can not be identified. Acquisition sharp basophilia glia surrounding neurons indicates apoptosis. We have identified four types of granule cells: cell type 1, almost devoid of granules, in our opinion, the most actively carve neurosecretion; Type 2 cells with a moderate rate of excretion neyrosokreta and therefore contain it in a small amount of granules in the perinuclear zone; 3 cell types with reduced activity and excretion neurosecretion cytoplasm crowded granules.

4th type corresponds apoptoziruyuschim neurons. Changes in the core did not wear the classical pattern of apoptosis.

Discussion. Our data partially agree with the data Braak H, Braak E. (1987), which when stained neurons Nissl also identified four types of neurons based on the size of the granules. According to our data does not change the size of the granules , and their number in the cytoplasm of neurons , reflecting the secretory activity of the cells . Therefore, we believe that the presence of the same size pellets can confirm that this is the result of accumulation of secretions in certain structures such as lysosomes, as studies Feeney EJ, Austin S, Chien YH, Mandel H, Schoser B, Prater S, Hwu WL, Ralston E , Kishnani PS1, Raben N. (2014) suggested that the accumulation of lipofuscin - the result of inefficient lysosomal degradation. Many authors consider the accumulation of lipofuscin in the cytoplasm as a precursor of neuronal apoptosis_ But the fact of its discovery in neurocyte people aged 20 years who died from causes unrelated to the ischemic brain damage, evidence of accumulation of lipofuscin as a physiological process, and possibly to act as a depot of oxygen. Obviously, the problem with brain ischemia in not only is the consumption of oxygen, but in inappropriate neuronal trophic software in general.

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PHYSIOLOGICAL REGENERATION OF THE STRUCTURES OF THE HUMAN EYE

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Introduction. More than 90% of cases of blindness from AMD is associated with anomalous, abnormal growth of newly formed vessels, which, originating from layer horoidal capillary vessels vascular membrane defects grow through Bruch's membrane beneath the retinal pigment epithelium and / or the neuronal epithelium. Analysis of the available literature on the structure of the vision showed the virtual absence of morphological data on the background of molecular genetic studies eyes. All this determines the seriousness of the research we have done.

The aim of our study is to examine patterns of development of human choroid.

Objectives of the study is to establish the algorithm processes of tab, development and functional maturation of choroid, the identification of the mechanisms of its development and monitoring of melanogenesis in structures of choroid.

Methods. It was studied 171 eyes of human embryos and fetuses. Used classical histological staining methods with Victoria blue and silver impregnation and immunohistochemical

techniques to identify NADPH-diaphorase, CD4, CD8, CD 68, CD163, CD 204, TUNEL-method to identify apoptorising cells, Ki67 to identify proliferative activity, Iron hematoxilin. Material analysis was performed using a microscope Olympus - Bx51 and CD25 Digital Camera with proprietary software.

Results. We found that the source of the choroid is not only Neuromesenchyme surrounding the optic cup, and neuroglia of the inner wall of the optic cup. Angiogenesis in the choroid characterized as other structures such morphological picture of the blood vessels and fit into the framework of the classical concept of the development of the vascular pool.

Discussion. Participation of progenitor neuro glial cells - migrants from the inner wall of the optic cup in the development of the structures of transparent media of the human eye, has led to a change in the structure of concepts, not only the lens, vitreous humor, cornea, but the concept of the development of Bruch's membrane, which many authors believe that is earlier than vascular, developing structure. In our studies, Bruch's membrane is formed before the other structures of choroid, as an obstacle to the emergence of choroidal vessels in the photoreceptor layer of the retina.

The presence in the kidney the growth of capillaries of macrophages phenotyping as CD68, concluded that the main supplier of vascular endothelial growth factor in the choroid are macrophages. It is concluded that the system lesions derived neuroglia for AMD for which neovascularization is secondary and primary to admit defeat of Bruch's membrane, which normally is a barrier that protects photoreceptor layer of the retina from sprouting capillaries.

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FEATURES OF THE IMMUNE HOMEOSTASIS OF HUMAN ORAL MUCOSA

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Introduction. The mucous membrane is implemented Border immune defense, so the study of cell-cell contacts of immune competent cells, especially local immunity associated with the mucous membranes directly into the mucous membranes, as well as their influence on the proliferation and apoptosis of epithelial cells is particularly relevant.

The aim of our research is to improve the quality and effectiveness of orthopedic dental treatment by taking into consideration local immune homeostasis of the oral mucosa in contact with various designs of dentures.

1. To develop modern methods of assessment of local immune homeostasis of the oral mucosa and to study its condition in orthopedic dental patients before treatment.
2. To study the local immune homeostasis of the mucous membranes, interacts with materials and structures of fixed prostheses, including dentures on implants.
3. To characterize of the immune homeostasis of the mucous membranes, interacts with the materials and structures of partial dentures.
4. To investigate the immune homeostasis of the mucous membranes, interacts with the materials and structures of complete dentures.
5. Develop algorithms for the selection and design of dental prostheses with the homeostasis of the mucous membranes, interacts with the materials and structures of dentures.

Methods. Immunohistochemical method with immune phenotyping markers SD68 (dendritic cells, Langerhans cells), SD163 (interstitial macrophages), SD204 (mast cells), CD4, CD8. Immune phenotyping was performed in the laboratory of the University of Pathomorphology in Niigata city (Japan), markers specific for these cell types.

Results. A morphological study RBCU biopsies taken from patients prior to dental prosthetics and in different types of occlusal rehabilitation prosthetic. We examined 97 patients aged 20 to 85 years who were in the control and experimental groups with associated pathology of dentition (focal and generalized catarrhal gingivitis to moderate). These patients were planned a prosthetic rehabilitation. Analysis of these and literature data on the peculiarities of local mucosal immunity gum area prosthetic bed in response to different methods of prosthesis showed that acute local inflammation occurred redistribution of immunocytes, their recruitment from the bloodstream in the inflammation and changes in the activity of proliferative processes in cells of the epithelium and lamina propria of the mucosa.

Discussion. In the mucous membrane was recorded significant decrease in the level of cells of number of populations and subpopulations of keratinocytes in all age groups studied. These data give an idea of the leading of the pathogenesis of inflammatory changes in the gums, and identify ways of preventing the removal of the risk factors.

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ANGIOGENESIS MUCOUS PROXIMAL GASTROINTESTINAL TRACT IN MYELOMA

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Introduction. Myeloma refers to peripheral lymphoproliferative tumors and is 1%

Myeloma refers to peripheral lymphoproliferative tumors and is. 100 thousand people observed -1-2 cases of multiple myeloma. Given the severity of the disease inevitably unfavorable outcome, as well as the fact of hitting socially active people, aged 40 to 60 years, the study of pathogenetic mechanisms of multiple myeloma is one of the most important trends in medicine. It is known that plasmacytoma accompanied by marked angiogenesis in tumors, but the question of whether the induction of angiogenesis is a generalized process, at present unknown.

Methods. Material gingival mucosa in the proximal gastrointestinal tract, tooth implantation zone taken as clinically indicated and with informed consent, in accordance with the provisions of the Helsinki deklratsii and the authorization of the Ethics Committee FEFU. When stained with hematoxylin-eosin studied morphology microvasculature. Functionality microvascular gums examined by detecting alkaline phosphatase in the vascular wall, which is a transport enzyme and reflects the degree of maturity of the endothelium. Also, sections were processed for immunohistochemistry detection of CD44, CD138, common to myeloma cells, and CD45-leukocyte common antigen marker. Made preparations studied with a microscope Olympus.

Results. We found that vascularization gingival mucosa in a patient with multiple myeloma have higher rates compared with patients in this age group who have a somatic pathology and in patients without baseline disease. Number of capillary density and vascular network was significantly higher than in patients in this age group without myeloma disease ($P < 0.05$). Identified kidney capillary growth. Since the pathogenesis of multiple myeloma, great importance is attached tumor angiogenesis, one can assume that the contents of endothelial growth factors is observed not only in tumors, but also in other structures of the body removed from the tumor by significant distance. It is believed that the myeloma cells themselves synthesized vascular endothelial growth factors (VEGF-vascular endothelial growth factor) and metalloproteinases (MP), which interact with receptors on stromal cells stimulate the secretion of IL-6 and TNF- α . In experimental studies have shown that VEGF and MP enhance tumor neovascularization process and promote the proliferation of myeloma cells. The presence of angiogenesis in the mucosa of the gums show generalization of the process, inappropriate stromal-epithelial-mesenchymal interactions. Immunohistochemistry for detection of CD44, CD138, common to myeloma cells, and CD45-leukocyte common antigen marker showed that the expression of CD45 - leukocyte common antigen in myeloma patients is reduced compared with other dental patients.

Discussion. Enhanced angiogenesis in combination with the increased number of cells having surface receptors for CD45, CD44 and CD138 in the gingival tissues may indicate an increase in proliferation of myeloma cells is not only in tumors, but also the development process in areas distant from the tumor. The main immunological marker allowing differentiated tumor and non-tumor plasma cells is antigen CD19, so we continue the investigation of pathological changes in tissues gingival mucosa in the implantation. Normal plasma cells typically retain the ability of expression of CD19 (one of the earliest B-antigens linear), whereas the majority of myeloma cells lose the ability to express it.

Furthermore, on the surface of myeloma cells often detected CD58 (LFA-3) and CD56 (NCAM). These markers are usually of normal plasma cells are not found. Expression of CD28 revealed by high proliferative activity of myeloma cells, typically for progressive and recurrent disease, and is absent from normal plasma cells.

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APPLICATION OF IMMUNOHISTOCHEMICAL MARKERS IN THE DIAGNOSIS OF DENTAL DISEASE OF DIABETES IN CHILDREN

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Introduction. Human Health - is the process of preservation and development of biological, physiological and psychological capabilities and optimal social activity with a maximum life expectancy. High prevalence of endocrine diseases in children is a major health and social problems to be resolved. According to epidemiological studies conducted in Russia, 15% of children suffer from diseases of the endocrine system. Diabetes relates to diseases of the endocrine system, in which changes in immunological reactivity, disturbed protein and mineral metabolism, hypoxia, clinical manifestations in the oral cavity with diabetes affect the dental status of children. High prevalence and intensity of caries of inflammatory periodontal diseases, chronic diseases of the lips and tongue are typical manifestations of diabetes. Main features of periodontal tissues in children and adolescents are bleeding gums and dental stone. Therefore, central to the preservation of the teeth in children is to study the mechanisms of pathogenesis of the interaction of immune effector cells in the periodontal structures.

Aim of research. The aim of the study is to establish the distinctive features of the immunophagocytes interactions with microbial contamination and pathological processes in the periodontal structures.

Materials and methods. Material provided the biopsy material obtained mucous membranes inside children from 12 to 15 years, obtained with a clinically-based oral hygiene for children. Fence material made in accordance with the Helsinki Declaration and with the consent of the patients and their parents, as well as to the positive decision on the fence material of the Ethics Committee FEFU. Scrapings from paradontal pocket were studied using contrast microscopy, biopsy studied slices after immunohistochemical staining to identify CD effector immune cells.

Results. Found in the oral cavity of children of the monitoring group in fazovokontrastnoj microscopy mucus from the gingival sulci, microorganisms are not detected. In a group of children with diabetes and in the face of inflammatory periodontal

diseases are microorganisms, and blood cell leukocyte pool are identified. Staining slices immunohistochemical marks identified effector immunocytes and qualitative and quantitative performance ratios in the system immunophagocytes.

Conclusions and Discussions. Obtained in the study data to enhance understanding of the mechanisms of pathogenesis of inflammatory periodontal diseases and can serve as the basis for the development of new treatment methods, pathogenetically teeth in children.

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USING HFJV FOR TREATING SEVERE PNEUMONIA IN PATIENTS WITH TRAUMATIC BRAIN INJURIES

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It should be noted that, in recent decades, despite some successes achieved in the treatment of patients with severe pneumonia occurring in patients with traumatic brain injuries (TBI), mortality still remains high.

The purpose of the study. Evaluating the effectiveness of the treatment of nosocomial pneumonia (NP), and the hemodynamic effects of high-frequency jet ventilation (HFJV) in patients with TBI and application protocol developed antibiotic resistance.

Material and methods. In a comparative analysis included all patients received in RRCEM TBI in the treatment process, which further developed the NP. The material was collected for the period from 2009 to 2010 (before the protocol), and from 2010 to 2012 (after the introduction of the protocol). The average age of the patients was 35 ± 2 years. Level of consciousness - $17,1 \pm 3,2$ on a scale Glasgow-Pittsburg.

Developed a protocol for the use of antimicrobial therapy included ceftriaxon in the first three days, and to give the results of studies bacterial held its replacement by a more sensitive antibiotic. If the result was negative sputum culture, connect combination tsefabaktama and amikacin or ciprofloxacin. The complex therapy included HFJV, which was held in conjunction with conventional mechanical ventilation. Options HFJV: BF 100 cycles per min., V 100-150 ml, pressure 3-3.5 kg/cm² ratio breath / exhalation 1:2. Speaker wires: CBS, ICP (Transkraneal Doppler method) and hemodynamic parameters.

Results and discussion. A comparative analysis of different ventilation modes with HFJV studied parameters, seen significant benefits. So ICP - $19,1 \pm 2,3$ and CPP - $50,9 \pm 5,9$, AVDO₂ - $23,1 \pm 2,8$ Vm cm / a, Pi - $1,39 \pm 0,2$, KO - $1,36 \pm 0,01$, that most distinguishes HFJV physiologic and less negative effects on intracranial pressure, which must also be considered in this group of patients. The peculiarity of this regime for TBI patients with NP join, is to improve the drainage function and appearance effect autoPEEP.

According to the analysis of the use of adequate empirical antibiotic therapy regimes, did not reduce the incidence of NP. On the basis of the scheme starting antibiotic therapy:

1. Mepenam (4g per day) and amikacini (1500-2000 mg per day) and 2. Cefoperazone + Sulbactam (4g per day) and levofloxacin (1000 per day), after antibiotic treatment continued according to the results of bacterial sputum. With the application of the protocol to reduce mortality by 4.2%. Clinically it is manifested signs of intoxication reduction: reduction of leukocytosis and leukocyte index of intoxication, the change in leucogram, reducing the duration of prolonged mechanical ventilation (an average of 3 days).

Conclusion: During mechanical ventilation in patients with TBI main principle is to achieve synchronicity patient and respirator. Regardless of the mode, the ventilator should not be accompanied by increased intracranial pressure and $AVDO_2$, and is required to maintain adequate oxygenation of the brain. This requirement corresponds to HFJV. And the use of empirical antibiotic therapy with drugs having maximum activity against all gram (-) and gram (+) pathogens hospital NP in patients traumatic brain injury, not only improved clinical outcomes, but also reduced mortality by 6%, while reducing the cost of treatment whole.

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GENETIC PREDICTORS OF SUSCEPTIBILITY AND OUTCOME IN NOSOCOMIAL PNEUMONIA

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This study was conducted to establish the possible contribution of genetic host factors in the susceptibility to development of critical illness. Genetic associations were evaluated in a group of accident victims who sustained severe, mostly life-threatening physical trauma and patients with acute diseases requiring extensive surgery (419 high-risk patients, 81.1% males, mean age 42.9 ± 0.9 years). The most prevalent complication in the group under study was nosocomial pneumonia (NP) (268 patients). As would be expected, NP cases were more likely to have acute respiratory distress syndrome (ARDS) (69 patients (25.8%) in NP group versus 3 patients (2.0%) in non-NP group), sepsis (77 patients (28.71%) in NP group versus 3 patients (2.0%) in non-NP group), and multiple organ failure (MOF) (105 patients (39.2%) in NP group versus 4 patients (2.6%) in non-NP group). Incidence of mechanical ventilation was significantly higher in NP patients (122 patients (45.5%) in NP group versus 17 patients (11.3%) in non-NP group); durations of mechanical ventilation (15.8 ± 0.8 days in NP group versus 6.0 ± 1.7 days in non-NP group) and stay in ICU (20.2 ± 1.8 days in NP group versus 5.7 ± 0.6 days in non-NP group) were significantly longer in NP cases than in at-risk controls. Hospital mortality for subjects with NP was higher than in non-NP group (92 patients (34.3%) in NP group versus 4 patients (2.6%) in non-NP group). All subjects were genotyped for 14 SNPs in the metabolic pathways

of xenobiotics detoxification (CYP1A1 (3 sites), AhR, ABCB1), redox-status SOD2, CAT, GCLC, and vascular homeostasis ACE, AGT, AGTR1, NOS3, MTHFR, VEGF α). Multiple SNP statistical analysis was performed using WinSTAT software.

A comparison of distributions of the genotypes between NP cases and non-NP controls did not reveal significant associations. In the group of nosocomial pneumonia (268 patients) the risk of ARDS was significantly higher for the carriers of CYP1A1 rs2606345 T/T genotypes ($P=0.0027$, $OR=2.38$, 95% CI: 1.35–4.17) and AhR rs2066853 G/A-A/A genotypes ($P=0.0012$, $OR=2.94$, 95% CI: 1.54–5.60). AGTR1 rs5186 allele C was more common among NP non-survivors ($P=0.0023$, $OR=1.83$, 95% CI: 1.24–2.72). A possible association between two more sets of NP patients: with/without sepsis and with/without MOF was studied by multivariate regression analysis as well. None of the SNPs were associated with these endpoints in our assay. We next analyzed the 14 SNPs for associations with the length of ICU stay. The duration of stay in intensive care units (ICU) was higher for NP patients with ABCB1 rs1045642-T allele ($P=0.0045$).

We further explored the multiplicative genetic model in metabolic pathways of the genes demonstrating pronounced effects on both ARDS and in-hospital mortality (xenobiotics detoxification CYP1A1 and AhR genes and RAS family genes: ACE, AGT, AGTR1) for modulating all studied endpoints risk. The cumulative effect of the risk alleles in the genes comprising two sets of genes partners (xenobiotics detoxification: CYP1A1, AhR and RAS family: ACE, AGT, AGTR1) was associated with the development of both NP and ARDS. More than two risk alleles in abovementioned genes did increase NP risk ($P=0.017$, $OR=2.04$, 95 % CI 1.16–3.57). The carriage of more than four risk alleles was associated with susceptibility to ARDS in NP patients ($P=0.0012$, $OR=2.56$, 95 % CI 1.46–4.49). We did not observe associations between the same multiplicative genetic models and sepsis or MOF risk in NP patients.

Nowadays it has become clear that multifactorial diseases are associated with a large number of genetic variants each contributing only a small percentage to the overall phenotype. A key finding of our study is the similar direction of the association in the shared metabolic pathways in NP and ARDS. Five-gene panels may help to identify subgroups at high and low risk of these outputs.

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SECONDARY PREVENTION OF COMPLICATIONS IN CARDIAC MALFUNCTION AMONG PATIENTS WITH VIRAL-BACTERIAL PNEUMONIA IN THE NORTH

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Objective. Secondary prevention of complications in cardiac malfunction among patients with viral-bacterial pneumonia in the North.

Materials and methods. We observed two groups of patients. The main group

(n=20) consisted of patients with viral-bacterial pneumonia (etiology - AH1N1 virus, pneumococcal or staphylococcal). The group included 7 men and 13 women between 18 and 56 years of age. The course of the disease was severe among all patients in the group. 12 patients were diagnosed with bilateral subtotal pneumonia, 6 patients with right-sided subtotal pneumonia and 2 patients with left-sided subtotal pneumonia. All patients had indications of the acute respiratory distress syndrome. The control group (n=20) consisted of patients between 18 and 58 years of age, 6 men and 14 women with a similar localisation of the pathologic process in the lungs and the course of the disease. All patients were examined using clinical, biochemical, functional and radioactive methods. As part of the traditional emergency treatment, the patients of the main group additionally received high-frequency ALV, surfactant inhalation in the dose of 75 mg/kg, dornase alfa in the dose of 25 mg twice a day, immunomodulators, antioxidants, glucocorticosteroids in the dose of 10 mg/kg as well as imidazolyl ethanamide pentandioic acid ("Ingavirin") in the dose of 90 mg or oseltamivir ("Tamiflu") in the dose of 75 mg twice a day. As part of the emergency treatment, the patients of the control group received umifenovir ("Arbidol") in the dose of 200 mg 4 times a day.

Results of the research

The results of the research showed that among the patients of the main group it was possible to stabilise the parameters of the end-diastolic dimension of the right and left ventricle of heart (in cm), systolic pulmonary pressure, thickness of the anterior wall of the right ventricle (in cm), ejection fraction of the left ventricle and ejection fraction of the right ventricle, end-systolic dimension of the right and left ventricle (in cm) as well as the ratio E/A in the left ventricle and E/A in the right ventricle. The corresponding parameters among the patients of the control group did not significantly change.

We also determined that the cumulative index of complications (in points) in the first days, then in 12 and 30 days, correspondently, was 55.0; 9.1; 4.3 points among the patients of the main group and was 72.0; 48.0; 20.4 points among the patients of the control group.

It is necessary to point out that the significant regression of the infiltration changes in the lungs among the patients of the main group was observed 18-49 days since the beginning of the treatment, whereas it only started to be apparent 36-38 days since the start of the combined therapy among the patients of the control group.

Conclusions. The most expressed positive therapeutic effect of emergency therapy and the decrease in the duration of the main flu symptoms (headache, dizziness, fatigue, pharyngitis, rhinitis) were observed among patients with viral-bacterial pneumonia from the main group.

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TREATMENT OF NON-ALCOHOLIC FATTY LIVER DISEASE

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According to data presented by many authors, the number of chronic liver diseases of different etiology is constantly growing. The most common disease is a non-alcoholic fatty liver disease (NAFLD). For example, its frequency in Europe is 24%, being 74% among overweight people and 9% among people with normal weight. According to the data collected in Russia in 2007, NAFLD is diagnosed in 27% of Russians who turn to a general practitioner for help. Among a great number of drugs with a hepatotropic effect, the question about the choice of a drug for the adequate prevention of the NAFLD progression remains unanswered, thus determining the topicality of our research.

We observed 25 patients with NAFLD at the steatosis stage, whose average age was 45.4 ± 16.2 . Methods of examination included questions, examination, quality of life assessment (SF-35 survey), clinical and biochemical blood tests, FibroMAX tests, bacteriological analysis of the large intestine contents (RT-PCR), bioimpedance analysis of the body composition and liver ultrasound. All the patients received innovative biologically active additives "Hepaguard Active" (Eurasian patent No. 019268 from 28.02.14), 1 capsule 3 times a day during meals in the course of three months. This BAA composition includes essential phospholipids, L carnitine and vitamin E.

Results of the research. During the therapy we noticed a clear positive dynamics in the frequency of complaints about discomfort and sensation of heaviness in the right subcostal area, nausea and stool disorders ($p < 0.05$), which proves the drug effectiveness regarding subjective disease characteristics. The results from clinical blood tests (haemoglobin, leucocytes, erythrocytes, platelets, ESR) and biochemical blood tests (whole protein, amylase, total bilirubin, glucose, ALT, SGOT, GGT, ALP) before and after the treatment were within normal limits. During the therapy, there was a clear tendency towards a reduction of lipid profile parameters. For example, we noticed a statistically significant decrease of total cholesterol (TC) level from 5.9 to 5.1 mmol/l and low density lipoproteins (LDL) from 4.1 to 3.8 mmol/l ($p < 0.05$). We also noticed a tendency towards a reduction of very low density lipoproteins (VLDL), triglycerides (TG) and atherogenic index (AI); however, there were no statistically significant differences. The results of FibroMAX tests including the evaluation of steatosis and fibrosis activity and severity also showed positive dynamics in all parameters. However, we did not obtain any statistically significant differences due to the fact that 3 months of observation are not sufficient for a morphological liver evaluation.

In regard to the quantitative determination of the main bacterial groups in stool using the PCR method, the overwhelming majority of patients was characterised by microbial imbalance (dysbiosis of the large intestine) which expressed itself, first of all,

in a significant decrease of the bacteroid part (bacterial group with highly developed glycobioime). It was shown that the decrease of the bacteroid part in the microbiota of the large intestine was characteristic for overweight and obese patients and that the loss of weight together with low calorie diets was accompanied by a significant increase in the number of bacteroids, which, in its turn, can be an indirect criterion for the effectiveness of the suggested therapy. The increase of the bacteroid part in this group of patients is associated with the improvement of energy exchange regulation and the risk reduction of metabolic syndrome development.

In our research, after the therapy there was a significant increase of the bacteroid part from $11.3\% \pm 10.6$ (average \pm SD) to $47.6\% \pm 28.8$ from the total number of microorganisms ($p < 0.0001$), which demonstrates the ability of the drug to restore the disturbed microbial balance in the large intestine associated with overweight/obesity and risk of developing systematic metabolic disorders. In doing so, the increase of the bacteroid part did not disturb the balance of anaerobic representatives of the intestinal microbiota. For example, the share of one of the main firmicutes representatives *Faecalibacterium prausnitzii* did not decrease, on the contrary, it had a tendency to increase (from 0.9% to 1.7%; the difference is not significant).

Against the background of the therapy all the patients had a weight loss in regard to the initial overweight. For example, based on the results of the bioimpedance body composition analysis, there was a significant reduction of the body mass index (BMI), on average, by 10.7% and of the amount of fatty tissue by 20.6%. At the same time, the active cell mass grew by 8.6%, which demonstrates the normalisation of metabolism.

The ultrasound liver examination also showed positive dynamics due to the tendency of liver size normalisation among patients with hepatomegaly and to the regression of indications of fatty liver infiltration.

When assessing the quality of life among all the patients (100%) before the treatment, there was a reduction of parameters which characterised physical and psychological health components. After the treatment, there was a significant ($p < 0.05$) improvement of parameters characterising the physical health component according to all scores.

Conclusion. The BAA "Hepaguard Active" contributes to the positive dynamics of the NAFLD symptoms at the steatosis stage, improves liver condition, normalises lipidic spectrum, reduction of excess weight, removes microbial imbalance in the large intestine associated with obesity and systematic metabolic disorders and, finally, improves the quality of life of patients.

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FEATURES OF MICROVASCULATURE AND PROLIFERATIVE ACTIVITY OF TUMOR CELLS IN MENINGOTHELIAL BRAIN TUMORS DEPENDING ON THE CELLULAR ANAPLASIA DEGREE

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Meningiomas are the most common kind of neoplasms of brain membranes and spinal cord and comprise up to 30% of all intracranial tumors (Matsko D.E., 1998; Cordera S. et al., 2002; Claus E.B. et al., 2005). Angiogenesis or the formation of new blood vessels from preexisting capillaries is a topic in which researchers are concerned about for many years.

The purpose of the study is to explore the features of microvasculature in meningothelial brain tumors of varying degrees of cellular anaplasia.

Materials and Methods. Thirty-eight (16 males and 22 females) patients (aged from 24 to 69 y.o.) of neurosurgical departments of Chelyabinsk Regional Clinical Hospitals 1 and 2 with histologically verified meningothelial brain tumors of grade I (n=29, meningotheliomatous meningiomas) and grade II (n=9, atypical meningiomas) of cellular anaplasia were examined during the study. Pathohistological study of tumor tissue micropreparations stained by hematoxylin and eosin, immunohistochemistry with mono- and polyclonal antibodies D2-40 (clone D2- 40), CD31 (clone JC70A), CD34 Class II (clone QBEnd 10), CD68 (clone KP1), von Willebrand Factor (polyclonal) were performed to identify the microenvironment of tumor cells and tumor vascularization features. To assess the tumor proliferative activity monoclonal antibodies Ki- 67 (Clone MIB- 1) were used. Atypical meningiomas were characterized by greater (1.5-2 times) degree of vascularization than meningotheliomatous ones. It dealt with both formed mature CD34+ vessels and small neogenic CD31+ capillaries. There weren't any significant difference in the expression of von Willebrand factor by vascular endothelium. Attention was paid to irregular vascularization in different parts of atypical meningiomas, as well as to the appearance of vessels with double-contour walls in their tissue, when space between CD34+ endothelium was filled in with concentric structures from tumor cells. The expression of D2-40 in tumors vessels of both groups was not identified. CD68 was expressed in the form of cytoplasmic granules in 7-15% of the cells of atypical meningiomas and only in 3-5% of the cells of typical ones. With the increase of the

degree of cell anaplasia, the proliferative activity intensification of tumor cells from 0.5-2.8% in meningotheliomatous meningiomas to 2.5-9 % in atypical meningiomas was determined.

Thus, meningiomas of I and II grades of cellular anaplasia differ both qualitatively and quantitatively by the degree of vascularization and intensity of angiogenesis.

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MITOCHONDRIAL DNA OF INJURED PERSONS WITH SEVERE CONCOMITANT INJURIES

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The objective of the research was to study the mitochondrial DNA (mtDNA) content in blood serum among healthy people and among injured persons with severe concomitant injuries over a period of time as well as to determine a possible connection between the mtDNA and the severity of the injury and development of infectious pulmonary complications.

Materials and methods. We observed 25 patients with a severe concomitant injury who were treated in the resuscitation department (lethality made up 20%) and 7 healthy volunteers from among resident doctors. Over a period of time, at different times after the injury (within the first 6-12 hours, 12-24 hours, 3 days, 5-7 days), the mtDNA was found in the blood serum of the injured patients. The gender distribution was as follows: 75% men, 25% women. The average age of patients was 43 ± 17 . The average injury severity score (ISS) was 40.2 ± 9.2 . When analysing infectious pulmonary complications, we determined that in the course of the injury 16 (64%) patients received complications in the form of purulent tracheobronchitis and pneumonia. Taking into consideration the development of infectious pulmonary complications, the patients were divided into two groups. Group I was made up of patients without pneumonia (9 patients) and Group II (16 patients) consisted of patients diagnosed with pneumonia 4 ± 1 days after the injury. The level of the mtDNA was expressed in relative values, with 100% being the arithmetic mean value R among the healthy volunteers.

Results. The correlation analysis between the ISS score and the mtDNA content showed that there was a significant correlation ($P < 0.05$) between the ISS and the measurements taken at the end of the first day ($r = 0.809$). When studying the mtDNA content within the first 12 hours after the injury, we determined a significant increase of the normal content

among the deceased and surviving patients, with the mtDNA level being significantly higher among the deceased compared to the survivors ($P<0.05$).

The comparative analysis of the mtDNA content in Groups I and II revealed considerable differences both in quantitative parameters and dynamics. Within the first 6-12 hours after the injury, there was an increase of the mtDNA in both groups in comparison to the control group. However, the mtDNA content among patients with later infectious pulmonary complications was 34 times higher than the norm and became 48 times higher than the norm within the following 12 hours. The mtDNA level only became 17 times higher than the norm among patients without infectious pulmonary complications, with a later decrease of the mtDNA level by a half within the following 12 hours. 3 days after the injury there were only minimal differences between the two groups, with the mtDNA level still being higher than the normal limit.

Conclusions. The conducted statistical survey showed a significant correlation ($P<0.05$) between the ISS score and the mtDNA content among patients with a severe concomitant injury within 24 hours ($r=0.809$). The mtDNA content doubled within the first 12 hours after the injury among the deceased in comparison to the group of the surviving patients, the differences in the mtDNA levels between the groups being significant using Mann-Whitney U test ($P<0.05$).

The significant increase of the mtDNA level within the first day after the injury among patients with later infectious pulmonary complications in comparison to patients without them shows the promising character of a further research in this direction for the purpose of early determination of the high-risk development of infectious complications among patients with severe concomitant injuries.

This way, we showed the reason to monitor the mtDNA level among patients with severe concomitant injuries right after their hospitalisation.

L.I. Sienogonova

SÜSSIGKEITEN FÜR SPORTLER "TRIUMPH"

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Um den Bereich der inländischen Erzeugnisse in der Staats Einrichtung erweitern "Luhansker Nationale Taras Schevtschenko Universität", so die Entwicklung der Lebensmittel für die Athleten. Im Februar 2014 erhielt ein Patent für Gebrauchsmuster Nummer 87544 der Ukraina "Süßigkeiten für die Athleten "TRIUMPH ".

Aufgelaufene und ausländische Erfahrung zeigt deutlich, dass der effektivste Weg der Korrektur Kraftsportler ist die Entwicklung und schaffen Produkte ausreichend mit Nährstoffen, in der Regel aus natürlichen Rohstoffen, die zur Erhaltung oder schnell wieder den Zustand eines Athleten, bieten ihn mit den notwendigen Nährstoffen bei niedrigen Lautstärken erlauben befestigte Verbrauch.

Das Ziel unserer Arbeit war die Entwicklung und Bewertung von Gebrauchseigenschaften Süßigkeiten für Sportler angereichert Funktions Kompositionen Nährstoffgehalt, die ausreichende Zufuhr Sportler braucht.

In der Konsumgüter markiert Mangel an Süßwaren, mit Vitaminen und Mineralstoffen angereichert. Es erkennt die Notwendigkeit, die Reichweite und Umfang der Produktion der inländischen Erzeugnisse für Athleten erweitern.

Mit Hilfe mathematischer Modellierung unter Berücksichtigung Verwendung der Ergebnisse der Beurteilung Verkostung Fertigprodukte Gelehrten die Anforderungen des Sports Nutritologie "Lugansk Nationalen Taras Schewtschenko" KF Produktionsstätte von "Serhyes" LLC "Rozmai" (Lugansk) entwickelt und in Übereinstimmung mit genehmigten gegründet bestellen komplexe technische Dokumentation.

Süßigkeiten "Triumph" mit der funktionellen Zusammensetzung des Pulvers, die Wurzel Rhaponticum carthamoides, L-Carnitin, Vitaminen Gemovital enthält, ist es empfehlenswert, Sport für Athleten mit einem primären Manifestation der Ausdauer zu üben.

Candy "Triumph" angereichert funktionale Zusammensetzung, ist es empfehlenswert, den Sport für zusätzliche Kraftsportler während der schweren physischen und psychischen Stress, vor allem in der irrationalen (unsymmetrisch) Leistung und unter ungünstigen klimatischen Bedingungen (üben Höhenlage, Sauerstoffmangel, Jetlag, Umwelt Verschmutzung der Umwelt, etc.), um die Leistung und Ausdauer zu erhöhen.

Sie sind für die Verwendung in einer Stunde ausgelegt vor oder eine halbe Stunde nach dem Training nach individuellen Programm Ernährung und Bewegung, die die Anpassung des menschlichen Körpers an hohe körperliche Aktivität in den extremen Bedingungen, die Verbesserung der körperlichen Leistungsfähigkeit und emotionale Stabilität erleichtern wird.

Auch die Verwendung dieser Zugaben die Vitalität der Athleten zu verbessern, wodurch die Menge an Fettgewebe, Muskel Gewebewachstum, die normale Funktion des Nervensystems, Antioxidans-Aktivität des Körpers und Energieübertragung.

Candy "Triumph" spezielle diätetische Verwendung sind nicht toxisch, nicht in der Struktur der Substanzen von der Medizinischen Kodex des Internationalen Olympischen Komitees und der Welt-Anti-Doping-Code der Olympischen Bewegung, verboten.

Der tägliche Verzehr von Süßigkeiten angereicherten vorgeschlagene Formulierung nicht zur Sucht führen.

Unsere Perspektiven für die weitere Forschung in diese Richtung ist es, die Palette von Lebensmitteln für Sportler aus verschiedenen Sportarten, mit biologisch aktiven Verbindungen für die Zukunft weit verbreiteten Einsatz in Profi-und Amateursport gerichtet physiologischen Wirkung auf den Körper angereichert erweitern.

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**PERSONAL ACCOMPANYING REMOTE-NONINVASIVE
MEDICAL SYSTEM**

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Use of computer technologies for medical purposes has led to creation of powerful diagnostic systems for long-term monitoring and recording of large amount of various biomedical signals. These diagnostic systems have been designed for stationary use and focused on long-term continuous supervision over seriously ill patients and present an opportunity for detailed analysis of recorded signals. Similar systems, but in simpler hardware-software configuration, are used for monitoring intermediate ambulatory condition of patients. The sphere of mobile devices used for sports and prevention purposes, as well as mobile phone applications, intended for solution of niche biomedical problems of individual use (fitness trackers, sport organizers, pressure meters, blood glucose meters, etc.) is developing very intensively nowadays. Mobile systems for personalized medicine should be given special consideration. Their potential has initially been oriented towards their use in aerospace medicine. Nowadays, personalized medical technologies are available for civilian use. Personal mobile medicine allows to fulfill tasks according to patients' specific needs. The system uses mobile applications, the infrastructure of cellular communication, Wi-Fi, GPS, etc. Wide-spread implementation of personalized medicine into healthcare practice can have essential impact on diagnostics and treatment, particularly of oncological diseases. At the same time, personalized medicine requires high-quality diagnostics, utilization of hi-tech solutions. In order to practice it, there is no need to use costly stationary or mobile (transportable) diagnostic systems. Centralized approach to personalized medicine with creation of specialized centers and utilization of available communication networks is of vital importance here. Restriction of opportunities of the mobile personalized system does not present any problems nowadays. Development and improvement of situational (run-time) mobile diagnostics methods is an important task for improvement of personalized system mechanism: method of binding signals with time, possibility of process's optimization with the use of multi-stream architecture, individual consolidation of the system for an individual patient, depending on the clinical picture. At the present moment, the IT Laboratory for Humanitarian and Scientific Investigations of Saratov State University is working on the development of an Android-based personal accompanying remote-noninvasive medical system. The main functions of the system are: prevention, recovery medicine, diagnostics of physiological parameters in real time mode, prompt notification of critical modes, cardiovascular stimulation, etc. The main peculiarity of the system is the integrated module of external visual control of motive functions based on the photogrammetric Webcams, which are providing high-quality diagnostics of typical and non-typical motor patterns. The advantages of the system are: high precision of measurements, simplicity of utilization, immediacy, (diagnostics is carried out in real time mode). With the help of previously developed personalized systems we succeeded in

implementing a number of new approaches, which are potentially innovative for remote diagnostics and treatment. Clinical approbation of the proposed personal accompanying remote and noninvasive medical system is planned for the nearest future. The obtained results allow us to hope for implementation of effective and consumer-friendly mobile personalized medical system into practical healthcare in the nearest future.

E.E. Slusareva
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ANALYSIS OF CERVIX UTERI ILLNESS'S CAUSES

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Timeliness. The issue of diacrisis and treatment of cervix uteri pathobiology becomes more pending due to the increase of cervix uteri cancer disease incidents, especially of young cohorts. This alines the search of the new diagnostic tear and methods of the background pathobiology treatment. The inflammatory process takes the leading position among the causes of the cervix uteri benign diseases – 92.2%. In this context the epithelium's aging and ecdysis is violated and intends the dysplastic deviation.

Goal of research: make a reappraisal of the cervix uteri's background and pre-malignant conditions causes in accordance on the data of the "Regional clinical center of the specialized medical treatment", to study the role of the genital infection in the pathobiology genesis.

Methods. The cervix uteri assessment was performed with the help of visual examination, colposcopy, microbiological and oncocytological analysis of the material, collected from the exo- and endocervix. In order to verify the activator the bacteriologic, chemoluminescent methods and the method of polymerase chain reaction were used. 600 women at the age between 18 and 66, with the middle age of 41, were examined.

Results and discussion. Among the examined women, 170 of women were salutary (28.3%). The background cervix uteri disease were detected in 191 women (31.8%). The cervical intraepithelial neoplasia (CIN I) was detected in 185 women (31.8%), CIN II – in 54 (9%) and CIN III – in 4 patients (0.66%). Cervical cancer was detected in 3 women. *C.trachomatis* (36,1%), *M.hominis* (21,2%), *Trich.vaginalis* (16,7%), реже встречались *Neisseria gonorrhoeae* .(11,2%), *U.urealiticum* (6,7%) were among the main inflectional agents among the women with background diseases. The dominant microflora in women with precancer of cervix uteri were *C.trachomatis* (42,1%), HPV (12.7%), where the HPV of high oncogenous risk was detected in 6.7%, low – in 4.3%. The herpes simplex virus of type 6 was detected in 3.2% of women, *M.hominis* – in 13%.

Conclusion. The cause of the background and precancer diseases of the cervix uteri are mainly sexually-transmitted infections, and the most frequently detested activator is *C.trachomatis*. The forehanded care of the phlogotic process allows to prevent the pathologic behavior.

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**SECRETORY-SYNTHETIC KINESIS OF BLOOD MONOCYTES
AND PERITONIAL MACROPHAGES OF WOMEN
WITH PERIODIC DISORDER OF THE MENSTRUAL CYCLE**

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Timeliness. Regular menstrual cycle is an important women's health indicator. It's uniformity is under strict control of gonadotropic hormones of the adenohypophysis that target the ovary leading it to the cyclic variations. Estrogens and progesterone, in their turn, are capable to interplay with the cells of the macrophage system by means of the steroid hormones' receptor present on the cytolemma. The up-regulation of the cell receptors is accompanied with the arousal of the macrophage cells.

Goal of research. To estimate the process of the blood monocytes and peritoneal macrophages arousal in accordance with the level of fusion and secretion of the lysozyme of women with periodic disorder of the menstrual cycle occurring in hypomenorrhea and hypermenorrhea.

Methods. 62 women were observed: 32 women – having hypomenorrhea, 30 – having hypermenorrhea. The control group was made of 20 healthy women. The diagnosis was based on the rhythm and dimension of the menses. The blood monocytes were detected on the density cushion of the ficoll-verografin and the peritoneal macrophages were extracted out of suspension taken by cultocentesis method. The cells were extracted by reattachment to the glass surface. In order to detect the stability of the monocytes/macrophages' lysosome membranes with the calculation of the stability index, the culture of the extracted cells was performed. The micromethod was used in order to detect the secrete lysosyme, and after 4-6 times of congelation- defrosting of the cultured cells- general lysosyme. The stability index was calculated in accordance with the following formula: $Lsec/Lgen \times 100\%$

Results and discussion. Women with hypermenorrhea have a labialization of monocyte's lysosome membranes and peritoneal macrophages with the arousal of stability index up to 64.7% (the stability index of healthy women is 53-59%) and the enhancement of the secretion of these cells. Women with hypomenorrhea have a stabilization of monocytes/macrophages (the stability index is 47.8%) and the decrease of their secretion. The synthetic activity of the blood monocytes and peritoneal macrophages of women with hypomenorrhea and hypermenorrhea in comparison with healthy women is reduced.

Conclusion. The change of the secretory-synthetic kinesis of the macrophage cells determines the process of their activation and involvement in the regulation of the menstrual cycle due to the effector activity of the cells and their lysosome ferments.

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PREVALENCE OF FEBRILE SEIZURES AROUND CHILDREN IN THE KRASNOYARSK CITY

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Febrile seizures (FS) are benign, age-dependent, genetically predisposed condition in which the brain is susceptible to epileptic seizures, occurring in response to the fever. FS are the most common type of seizures in childhood, often occurring between 3 months and 5 years of age and affecting 2% to 5% in childhood population.

The Krasnoyarsk is a city and the administrative center of Krasnoyarsk Krai (Russia), located on the Yenisei River. It is the first city in Eastern Siberia. The Krasnoyarsk city experiences a continental climate with long and very cold winters, and short but warm summers. Its July and winter climate is very similar to the climate of Winnipeg, Canada, which is a good deal further south geographically. The summer is in comparison shorter and winter is longer compared to the Canadian inland, but peaks are similar. Compared to climates on a similar latitude, the Krasnoyarsk has a lot warmer summers than being found in Aberdeen, Scotland, and also much colder winters. The summer is also on average warmer than expected at similar inland latitudes of Scandinavia, due to its much farther inland location. Very few major cities on earth have higher differentials between summer and winter temperatures than the Krasnoyarsk.

Purpose

The study of FS prevalence in childhood population in the Krasnoyarsk city.

Methods

The retrospective analysis of official medical records of infectious division of City Children's Clinical Hospital No. 1 (Krasnoyarsk) held us in 2009 to 2012. For the analyzed period in an infectious hospital 578 children with FS plus an acute respiratory virus infection (ARVI) are hospitalized.

Results

The prevalence of FS among children aged from newborn to 14 years old was 75-112/100000 childhood population of the Krasnoyarsk city in 2009-2012. Annually the increase in number of the entered patients with FS occurred during the winter and spring period that is bound to lifting of incidence of ARVI and flu. Relation FS around boys and girls was 57.3% vs 42.7%. We showed a dominance of FS around children from 12 to 36 month old (57.6%).

The greatest number of FS registered in 2010 - 177 (30.6%), and the lowest in 2009 - 130 (22.5%). Leading place on the frequency of cases of FS among districts of the Krasnoyarsk city take Soviet's district (179 pers.) is as the most multioccupied and big on the area the district of the Krasnoyarsk city, and also Lenin's district (112 pers.) is as the most adverse in social aspect the industrial region.

Conclusions

FS prevalence in the Krasnoyarsk city exceeds those in the Russian Federation. The conducted research testifies that development and carrying out correcting actions are necessary for decrease in risk of FS development in the studied nursery of childhood population of Eastern Siberia.

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STRUCTURE OF HUMAN EYE LENS

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Introduction: Human lens are located behind the iris by attaching to ciliary body. In his bed lens held Zinn elastic bunch and bunch Hyaloid and lens Viger. In separate statements Cornelius Celsus and Galen found data not only on the lens, but also on the possible causes of his turbidity. Johannes Kepler gested assumption about the possible role of the refractive lens and Risso in 1705 proved dissecting dead eyes that can cause blindness turbidity lens. As dioptric apparatus of the eye, he reproduces DIT on the retinal surface and reduced inverted picture of the subject under consideration. At the same time, the lens is a retinal light color filter protecting it from harmful short-wavelength light rays. The lens helps reduce - what in the eye thromatic aberration transforming edge images expressions in color by absorbing a signification as blue and violet rays. Opacities, or cataracts are due to a number of reasons. The methods developed for the surgical treatment does not always lead to the restoration of sight. Therefore development of non-invasive treatments for cataracts is one of the pressing issues of Ophthalmology which requires comprehensive data on the morphological characteristics of the lens and its interaction with the surrounding structures. This was the basis to justify the purpose of our study.

Methods: We have studied the human eye at the age of 30 to 60 years with the help of morphological studies.

Results: We found that the lens consists of: 1) out-of-ve society lens formed long fibers hexus with two wide and four narrow faces; 2) from the surrounding elastic lens capsule or bag; 3) of the lens epithelium, located on the front of the subcapsular surface her body and consisting of a single layer of cubic or planar cells. Epithelium covers only the inner surface of the anterior capsule sion, therefore is called the epithelium before her bags. Its cells have a hexagonal shape. At the equator the cells acquire an elongated shape and become

Dotterel konye fiber. Fiber formation occurs throughout life resulting in an increase of the lens. However an excessive increase of the lens does not occur as the central more than old fibers lose water condensed in the center and gradually form a compact nucleus. Plasma membrane of the cell currently contains pores that facilitate the passage there through of supply substances. The core is surrounded by a membrane with pores of a two. The outer layer is a continuation of her endoplasmic reticulum. The cytoplasm contains numerous ribosomes, mitochondria and small size are usually constructed of, the elements of the Golgi complex, dense lysosomes. Visible pinocytic vacuoles centrioles microtubules. In addition to actin in human lens epithelial cells and found tubulin vimetin. The function of the lens epithelium is forming fibers. Differentiation of cells morphologically expressed in progressive elongated cells whose bases are displaced toward the equator to the posterior capsule and anterior peaks rising from the equator toward the front pole. Therefore spinning epithelium goes directly to younger lens fibers, the synthesis of lens fibers in is done mainly on the basis of the organization of their diploid nuclei. Central, denser part of the lens - its core - consists of meridional fibers with serrated edges and lacking nuclei. Fibers comprising a softer peripheric substance stocked nuclei have smooth contours and there are several spiral. Substance that binds the fiber accumulates on the front and back sides of the lens in the lens as a three-arm star. Here comes the junction of lens fibers. The fibers, originating from the star's center on the opposite end of the beam at the end of another star and vice versa. Thus the fibers are not all cover - half lens. Lenticular star local we offer so that the rays of one pass between another. In humans lenticular star-lot wrong ray.

She combined peculiar refraction. The ability of the epithelial cells to capsule persists throughout life. In the anterior capsule found channels dimensions 02-0,5 m going to the equator. It can be assumed that they are involved in the flow of nutrients to the lens. Capsule crunch structure less human face, has the same electron density throughout.

Conclusion: Interest in the study of the structure of the lens capsule is associated with widespread extra capsular cataract extraction. Lens is attached to the ciliary body by means of the ciliary ligamentation, which consists of a homogeneous and inextensible fibers con starting from the basement membrane of the ciliary epithelium and attach to the lens capsule on both sides of the equator.

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DIAGNOSIS, TREATMENT STRATEGY AND RESUSCITATION ASPECTS OF UNSTABLE PELVIC INJURIES

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Material data of the study were the results of treatment 285 patients with various types of pelvic injuries. The bulk of 217 (76 %) patients, made the most affected of working

age 25-55 years. Dominated by males 208 (73%) patients, 77 women (27%). Given the fact that the main cause of pelvic injuries were traffic accidents and falls from a height, combined and multiple nature of the injury was observed in 202 (71 %) patients. Of these, 159 patients had a traumatic brain injury, of varying severity, injuries of the chest and lungs in 56 injuries of abdominal organs in 67, damaged kidneys and bladder was observed in 31 patients and 146 patients with combined injuries of limb bones. In 216 patients brought to the hospital marked effects of traumatic shock of varying severity.

According to clinical and anatomic variants of pelvic injuries and treatment tactics affected divided into three groups according to the classification of the Documentation Centre of AO. 1 -Group: fractures of the pelvis Type A - 99 patients, group 2: Type B - 106 patients, group 3: Type C - 80 patients.

All patients with lesions of the pelvic bones volume surveys, and treatment was carried out by the standard procedure, taking into account the dominant pathology. In the presence of hemodynamic instability was performed for shock events. Simultaneously carried out the inspection including sampling tests (complete blood count, urinalysis, blood group and Rh factor, blood biochemistry and coagulation), conducted an x-ray examination, ultrasound examination of the internal organs, ECHO cerebroskopy, when indicated performed computed tomography and computed tomography multiskannuyu.

Treatment of pelvic injuries is only part of the overall therapeutic measures. Focused on evaluation of the severity of the victims, as the bulk of patients admitted to a state of shock of varying severity. It should be noted that examination of the patients was carried out against the background of antishock therapy and anesthesia.

The first group of 99 patients (type A) in this group, 41 (41.4%) patients underwent surgery. With boundary fractures iliac wing fixation with compression screws was performed. When fractures branches lonno-ischial bone in cases with associated injuries of the abdomen and urinary tract (JavaScript epitsistostomy requiring early activation) performed anterior stabilization lightweight option rod device clinic.

In the second group of 106 patients (type B) given that in this group of patients there is no vertical displacement halves of the pelvis , and the presence of damage to the pelvis in an " open book" offset easily eliminated in the apparatus , which was 94 (88.7%) patients. In this group of patients the best treatment for pelvic injuries was osteosynthesis rod apparatus. Term fixation hardware was 2-2.5 months.

In the third group, 70 (87.5%) patients (type C), we used the methods of immersion osteosynthesis and percutaneous osteosynthesis Colon acetabular threaded rods 21 cases, and in combination with transosseus osteosynthesis devices using rod holds 35 surgeries .

All patients were operated on in the early posttraumatic period to 10 days. In all cases, has been completely restored stability of the pelvic ring, which led to a decrease in the pain factor contributed to stop bleeding - being a powerful factor antishock therapy.

The results of treatment should certainly depend on the quality reduction. Of the 182 patients treated with various options of surgical correction of the total reduction achieved in 114 (62.9 %) cases, these patients obtained excellent results. In 48 (26%) cases, the

reduction was incomplete, excellent functional outcome in this group obtained in 15 (31.2%) patients, good in 33 (68.8%) patients. With poor repositioning was 20 (11%) patients, 13 (65%) cases, the result was regarded as satisfactory. In 7 (34%) patients with vertical and rotational instability obtained poor results.

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EFFICIENCY ASSESSMENT OF EMERGENCY MEDICAL CARE ORGANIZATION OF VICTIMS IN ROAD ACCIDENTS IN THE REPUBLIC OF KAZAKHSTAN

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Road and transport traumatism is the complex problem occupying one of leading places among the major social, medical, demographic and economic tasks. According to a databank of road and transport accidents (RTA) 17 542 road and transport accidents were registered in the Republic of Kazakhstan during 10 months in 2013, against 11 186 road and transport accidents registered in the similar period of 2012. For the past period it was observed the increase in the number of registered road and transport accidents at 56,8%. The extent of the damage caused by road and transport accidents in the economy of Kazakhstan over the last 5 years was more than 300 billion tenge (about 2 billion dollars).

Despite taken essential measures for improvement of the situations, connected with road and transport safety and the organizations of emergency medical care at RTAs, at present time there is no uniform methodology of efficiency assessment of this activity direction. In this regard we develop the complex model of efficiency assessment of the organization of emergency medical care of victims in the road and transport accidents at pre-hospital stage in Kazakhstan.

Already the first received results revealed shortcomings of its organization:

- in 3 areas of the country, extent zone of stations service (departments) of an emergency medical service (further - EMS) on highways with intensive traffic is exceeded 50 km;
- in 3 city stations and EMS departments there is incomplete completeness of staff (less than 83% of regular number);
- in 27,5% of cases, the messages about road and transport accidents arrive to EMS operators late (10 min. from the moment of road and transport accident event);
- deviations of standards when carrying out diagnostic actions are allowed in 9,9% of cases, medical - in 11,9%, evacuation - in 8,7% of cases of emergency medical care rendering for victims in EMS.

Distinctions in terms and quality of the emergency medical care rendering to victims in road and traffic accidents by teams of EMS of various category and specialty have been revealed:

- assistance time to the victims on a place of road and traffic accidents by medical teams of RTA is shorter (88,3% of victims were assisted on the road and traffic accident

place quicker 20 min.), and the duration of victims delivery to the medical organizations is the longest (9,1% of victims are delivered to the reception ward later the time of "gold hour"). Specialized teams assisted longer than others on the places of accidents (in 23,3% of cases more than 20 min.), medical teams most quickly evacuate victims in the medical organizations (69,5% of victims were hospitalized within "goldhour");

- mistakes in a formulation of diagnoses and treatment of victims in road and transport accidents at specialized teams have been noted in 1,6-3% of cases, at medical general specialties teams in 5,3-9% of cases, at medical assistant's teams in 22-23,2% of cases. Mistakes having been done during evacuation activities of specialized teams were revealed in 2-3,3% of cases, at medical general specialties teams in 4,2-11,4% of cases, medical assistant's teams in 11-22,1% of cases of medical assistance care.

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EFFECT OF GOLD NANOPARTICLES ON IMMUNE HOMEOSTASIS IN EXPERIMENTAL CANCER PROCESS

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Gold nanoparticles (GNP) are able to destroy the tumor vessels and slow the cancer progress, so they are promising for the development of new approaches to the treatment of malignancies.

Objective: To study the mechanisms of GNP elimination and their impact on bloodstream after subcutaneous injection.

Methods: We used 25 male rats FPC. The control group included 5 of intact animals. In experimental group were included 20 rats. Ehrlich sarcoma was grafted on their back. On 16th day after tumor transplantation animals were divided on two subgroups. In the 16 days after tumor transplantation into inguinal area subcutaneously was injected 0,5 ml 0,01M NaCl solution to animals of first subgroup and 0,5 ml 50% stabilized suspension of GNP to second subgroup. Material was taken at 1, 3, 5, 7, 10 and 12th day after injection of NaCl solution and GNP. Morphological studies were carried out after hemotoxilin - eosin staining.

Results: In the control group, no morphological changes of tissues were found. In the first animal subgroup we also did not find morphological changes of the internal organs and blood vessels outside the tumor.

In second subgroup at the site of GNP injection we observed destruction of endothelial cells and the basement membrane. It was found macrophages carry out elimination of GNP. At the 4 -5th day most macrophages were localized near the walls of blood vessels and migrate through it into the bloodstream. In blood vessels, we observed destroyed macrophages, releasing GNP in blood. At 7, 10 and 12th days after GNP injection the same generalized changes were found out in blood vessels, both in intact tissues and in

adjacent ones to the tumor (erythrocytes stasis , congestion, capillary thrombosis), as well as locuses of the death and destruction of endothelium and basement membrane. There were also found macrophages with single GNP inclusions.

Conclusions: In rats after subcutaneous injection GNP elimination occurs through phagocytosis by macrophages. After nanoparticles releasing into the bloodstream nonspecific reaction appears in the vascular bed in any body parts, including in the area of tumor growth. In the vessels are identified mosaic damage to the endothelial cells and destruction of the basal membrane, thrombosis and erythrocyte stasis. The presence of macrophages loaded single GNP may indicate the secondary phagocytosis in the area of blood vessels damage caused by GNP who got into circulatory bed.

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FREQUENCY OF OCCURRENCE OF NON-SMALL CELL LUNG CANCER IN KRASNOYARSK REGION

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A lung cancer is a malignant tumor of the surface epithelium of the bronchial mucosa, the mucous glands of the bronchioles and alveoli. This is the most common malignancy in the world; it represents 14% of all cancers. Annually in Russia get sick with lung cancer more than 63,000 people, including more than 53,000 men. More than 20,000 or 34.2% of cases are detected in stage IV of disease. The main histological types of tumor are Adenocarcinoma, Squamous-Cell Carcinoma, Small Cell Carcinoma, Large Cell Carcinoma and Low Differentiated Carcinoma. Clinical picture of the disease, response to treatment and life expectancy is often determined by patient age, disease stage, and to a greater extent of tumor histotypes.

Purpose: The study of frequency of various forms of lung cancer according to the data Thoracic Department of KRCOD.

Methods: A.I. Kryzhanovsky Krasnoyarsk Regional Clinical Oncology Dispensary (KRCOD) provides treatment and medical examination of cancer patients from all over the Krasnoyarsk Region and adjacent territories. We have analyzed medical records (Form 003 / u) of 74 patients with the diagnosis Lung Cancer on admission to the Thoracic Department of KRCOD from November 2012 to March 2013.

Results: We have obtained the following results: the average age of patients was 61.4 years old, the minimum age - 38 years old, maximum age - 75 years old. Distribution of patients by sex: 91% of men, 9% of women. The frequency of histological types of tumors: 40% - Adenocarcinoma, 35% - Squamous-Cell Carcinoma, 6% - Small-Cell Cancer, 3% - Low Differentiated Carcinoma, 3% - Large Cell carcinoma, 3% - Glandular Squamous-Cell Carcinoma, 10% of patients do not histologic type verified. Most patients received in

the stage III of the disease - 32%, in the stage II - 24%, in the stage IV - 20%, in the stage I - 13%. In 11% clinical cases – the hospitalized stage of the disease was not verified.

Conclusion: We have shown that Lung Cancer occurs more frequently in men, the vast number of patients coming to the surgical treatment in the Thoracic Department of KRCOD in the stage III of the disease. The most common histological types of the tumors are Adenocarcinoma and Squamous-Cell Carcinoma. The authors suggest that the high incidence of Lung Cancer among residents of Krasnoyarsk region requires the development of a personalized approach to preventive measures among the population.

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FEATURES OF HBP INFECTION IN GASTROINTESTINAL PREMATURE INFANTS

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Studied immune homeostasis of the mucous membrane of the gastrointestinal tract of children between the ages of 1.5 to 3 years, with a history of prematurity. Found that there are differences between the characteristics of the immune homeostasis in preterm and term infants in the relevant age groups. Concluded that the term infants at the age of 3 years, the number of antigen-presenting cells in the epithelial disc higher than in preterm, and the number of epithelial cells on the surface of epithelial exclusion plate, lower. This may be due to the higher barrier properties of epithelial layer of term infants.

Introduction. Analysis of papers devoted to the pathology of the gastrointestinal tract in children, reveals many of the data on the state of the small intestinal mucosa, with no information on the barrier properties and the local immune homeostasis epithelial records in other parts of the gastrointestinal tract, not only in children younger age group 3 - years, but also almost no data on the differences between the barrier properties of epithelial plates in term and preterm children.

Material and methods: Material the archives of the gastric mucosa biopsies youngest age groups, treated for various diseases of the gastrointestinal tract, which have been studied by immunohistochemical methods. Considered different epithelial plates in a comparative perspective in term (control group) and preterm infants (experimental group). The paper used Olympus Bx52 microscope with a digital camera and software for morphometric analysis. Fence material made with informed consent of parents for clinical diagnostic purposes.

Results and discussion. Urease test conducted for the presence HbP showed that HbP detected only 25% of children surveyed. Microbiological methods with sowing content of mucus is the most reliable, since HbP detected in 95% of children. It was established that in the control groups and in the experimental group of children are significant differences in the amount of exfoliated into the lumen of the epithelial cells. The number

of antigen presenting cells in the control group is significantly higher than the group of preterm infants. This may be due to the fact that the covering epithelial cells are cells having properties of immune cells, secrete cytokines to attract macrophages and other immune-effector cells phagocytic zone in the pathological process [4, 9]. Prematurity, the imperfection of the immune response and reduced migration of immune cells in the damage zone HbP gastric mucosa of children, the function of effector immune cells is realized through the involvement of epithelial cells in the cellular interactions.

Conclusions: The immune response and barrier properties of epithelial plates gastric mucosa in term and preterm infants differ in content of antigen presenting cells. In the group of preterm infants their number is lower than in full-term group. In the immune response involved epithelial cells, exfoliate the surface epithelial layer of the mucosa. Premature babies their number was significantly higher, indicating a greater degree of damage in terms of infection HbP. Epithelial damage is accompanied by more severe diarrhea, which reflects not only the absence of certain enzymes, but also compounded by the lack providing cell membrane digestion. Epithelial regeneration plate gastric mucosa in preterm infants takes longer because it requires more time for differentiation and specialization effector epithelial cells.

D.V. Vorobyev

APPLICATION PROSPECTS OF TRANSDERMAL ELECTROFARMSTIMULATION AND ELECTROAPPLICATION IN TREATMENT OF DISEASES OF THE MUSCULOSKELETAL SYSTEM

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At present, the abundance of degenerative and dystrophic diseases of the musculoskeletal system in the developed countries has reached epidemic sizes. Thus, according to the WHO predictions, the number of osteoarthritis patients over 50 will double in the course of the next 20 years. For this reason, the development of techniques which will increase the effectiveness of treatment of these diseases is an urgent task for the modern medicine.

In 2002, Dr Vorobiev first suggested a new method of introduction of pharmaceutical substances by means of stimulating bipolar pulse currents used for electroanalgesia (patent of invention No. 2290217 of the Russian Federation, D.V: Vorobiev), which was named transdermal electrofarmstimulation (TEFS).

At the Chair of Chemistry, Faculty of Pharmaceutics of the Samara State Medical University, it was proved that it was possible to introduce novocaine, albumin and sodium lignite into biological tissue by means of TEFS.

We conducted clinical studies in the city's Rheumatologic Centre and clinic No. in

Samara. We observed 102 patients with osteoarthritis of the knee joint in the age between 43 and 75. The comparison group (n=51) was treated using the conventional therapy according to the decree of the Ministry of Health and Social Development of the Russian Federation No.123 from 11.02.2006. In addition to the conventional therapy, the patients of the main group (n=51) received an application of a 10% solution of medical mud from Sergiev mineral waters resort on the knee joint, introduced by TEFS. Before treatment, the total WOMAC pain score was 41.4 ± 0.13 , that of stiffness – 12.9 ± 0.17 and that of lower extremity functional insufficiency – 12.9 ± 0.12 , lower extremity functional scale LEFS – 14.9 ± 3.4 , test for walking the distance of 15 meters – 31.8 ± 4.6 s. The daily diclofenac dose was 143.0 ± 26.3 mg.

After the treatment, the total WOMAN score changed as follows: the pain score in the comparison group was 34.9 ± 0.14 and that in the main group – 27.4 ± 0.17 . The stiffness score in the comparison group was 7.9 ± 0.16 , that in the main group – 5.1 ± 0.17 . The lower extremity functional insufficiency in the comparison group was 92.7 ± 0.17 , that in the main group – 73.8 ± 0.17 . The LEFS in the comparison group was 52.1 ± 1.9 , that in the main group – 69.3 ± 2.1 . The time needed to walk the distance of 15meters in the comparison group was 27.3 ± 4.2 s, that in the main group – 19.2 ± 4.6 s. The daily diclofenac dose in the comparison group was 90.3 ± 21.8 mg, in the main group – 66.0 ± 36.3 mg. All the results were statistically significant ($p < 0,05$). Therefore, the TEFS application considerably improved clinical parameters in the main group.

Studies conducted 6 months after the treatment showed less recurrences of the disease in the main group.

In order to expand the TEFS application possibilities, we developed a medical electrode - electroapplicator (certificate No. 20 2008 002 814.0 “Medizinische Elektrode Vorobyev D”). At present, we are conducting experimental and clinical tests for the effectiveness of its application at the Chair of Human and Animal Physiology of the Samara State University and in the veterinary clinic “Calipso”.

The possibility to introduce a pharmaceutical substance subcutaneously by combining several physical factors opens wide prospects for the TEFS application in clinical and experimental medical practice.

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ANALYSIS OF CARDIAC RHYTHM AND CONDUCTION IN ACUTE POISONING WITH VERAPAMIL

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Feature of acute poisoning antagonists slow calcium channels is their effect on the cardiovascular system. Given several conflicting published data on the effects of drugs

on cardiac function, one of our tasks was to analyze the rhythm and conduction in toxic concentrations in their body.

In the group of patients included poisoning verapamil (n=63). The control group consisted of 24 healthy people. Verapamil dose received ranged from 720 to 1040 mg (hypotension group n = 22) of from 400 to 680 mg (normotension group n=27), 520 to 680 mg (in hypertensive group n = 14). In all cases the diagnosis was confirmed by poisoning antagonists blocked the detection in biological fluids.

Regardless of the level of blood pressure in all groups of patients with marked bradycardia verapamil poisoning . With respect to the control group , the group of patients with hypotension cardiac cycle duration was increased by 33,7 % and the rate is less than 34,2 %. PQ interval was increased by 27,2% , QRS complex by 25%, the QT interval by 16,6 %, and systolic ejection fraction was reduced by 26% relative to control. Detailed analysis showed that 14 patients (63,7 %) PQ interval was 200 ms, indicating that inappropriate conduct through the atrioventricular node and the development of AV block I degree. In 2 patients (9,1%) partially dropped QRS complex, indicating that the development of AV block II degree and 1 patient (4,6%) showed complete AV block . Lengthening of the QRS interval of 120 ms or more was observed in 11 patients (50%), which may indicate the intraventricular conduction delay associated with bundle-branch block. 13 patients (59,1 %) was observed QT interval over 440 ms, indicating that the effect of toxic doses of verapamil on electrical ventricular systole .

In patients with normotension duration of the cardiac cycle, relative to the control group, was increased by 34,3% and the rate is less than 34,2%. PQ interval was increased by 19,1%, QRS complex by 23,6%, the QT interval by 13,4%, and systolic ejection fraction was reduced by 28,2% relative to the control. In 11 patients (40,8%) PQ interval was 200 ms, and intraventricular conduction delay with QRS interval prolongation greater than 120 ms was observed in 10 patients (37,1%). QT interval over 440 ms was observed in 6 patients (22,3%).

With respect to the control group in the group of patients with hypertensive heart cycle duration was increased by 32,4% and the rate is less than 32,8%. PQ interval was increased by 19,1%, QRS complex by 23,6%, the QT interval by 13,4%, and systolic ejection fraction was reduced by 28,2% relative to the control. 4 patients (28,6%) PQ interval was 200 ms QRS interval exceeds 120 ms, and the QT interval was more than 440 ms.

So, in all three groups of patients with acute poisoning with verapamil , irrespective of the extent of blood pressure, bradycardia was observed , through violation of the atrioventricular node, there was a delay in intraventricular conduction and ventricular systole lengthened electric, which may be a sign of reaching toxic levels of the drug in blood and the diagnostic criterion poisoning. Differences in the clinical picture of acute poisoning with verapamil may be explained by variability in plasma concentrations of drugs and their variable bioavailability.

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REHABILITATION OF TB PATIENTS: ISSUES AND POSSIBLE OUTCOMES

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Actuality. Nowadays epidemic TB transmission is still essential in the Russian Federation and Volgograd region. Effective TB treatment in modern society depends on epidemic, medical, social and psychological factors. To provide a proper rehabilitation to TB patients therapeutic strategies have to be followed. TB patients' treatment in health resorts where natural factors, physical methods and kumiss therapy contribute to follow-up care and vocational rehabilitation of patients with pulmonary tuberculosis should be given on time.

The aim of the study is to assess the effectiveness of health resort treatment and rehabilitation conducted to TB patients.

Materials and methods. Anonymous questionnaire of 584 tubercular patients (continuous cluster samplings), 92 phthisiatricians (basic array method) and 144 physicians (continuous cluster samplings) in Volgograd were conducted in 2012 in accordance with requirements of sociological studies.

Results. The data obtained from a comparative study showed that 21.9% of tubercular patients thought the most common cause of poor health management was doctors' misguided policies, 12.7% underlined "family circumstances", 11% associated it with financial difficulties, 5.1% didn't suit the health resort conditions, 3.9% noted refusal from the department of Social Security and only 2.6% had contraindications to sanatorium treatment.

Almost half of tubercular patients (47%) and 56.5% of phthisiatricians believe that TB patients should undergo sanatorium treatment after in-patient treatment. A rehabilitation process is closely connected with treatment given in health resorts contributing both to health recovery and physiological and social adaptation.

Only 34.9% of patients and 30.4% of phthisiatricians were satisfied with rehabilitation completely, 58.7% of phthisiatricians and 65.1% of patients were not satisfied with it.

At present TB patient management is mostly based on drug therapy, but social, psychological and other rehabilitation aspects are not taken into account. This statement was confirmed by 76.1% of phthisiatricians and 20.6% had some doubt about it. 3.3% had difficulty in responding, but none refuted it.

Phthisiatricians' and physicians' views were the same: physicians (88.8%) agreed that TB treatment is mainly based on drug therapy and social, psychological and other aspects are not given enough attention to. 5.6% respondents didn't agree with it, 5.6% respondents had difficulty in responding.

Conclusion. The analysis of the research findings shows that most TB patients (65.1%) are not satisfied with the rehabilitation procedures they obtain. Their dissatisfaction is

accounted for by the lack of continuity of care for TB in health-care settings.

Phthisiatricians (96.7%) and physicians (88.8%) suppose that TB patients receive only pharmacological therapy; however, social, psychological and other aspects of treatment process are not profoundly covered.

To sum all up, there is an increasing demand for rehabilitation procedures in health-care settings.

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**ROLE OF ENDOGENOUS INTOXICATION MARKERS
IN THE PREDICTION OF POSTOPERATIVE COMPLICATIONS
AMONG CHILDREN WITH ACUTE INTESTINAL
OBSTRUCTION**

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For the correct treatment of patients in the early postoperative period, it is extremely important to determine members of the immune protection and factors and mechanisms which lead to the development of local and system complications. Nowadays, optimisation measures in the area of treatment of surgical infections and postoperative complications in paediatric surgery call for great attention and guarantee a positive tendency in the treatment results. At present, it is necessary to improve the results of surgical treatment of patients with acute intestinal obstruction by means of early combined diagnostics. This can be achieved by the correlation of the laboratory markers of endogenous intoxication before and after the elimination of the acute process.

The objective of the research was to optimise the surgical treatment of patients with acute intestinal obstruction by means of early diagnostics and prediction of postoperative complications.

Materials and methods. We observed children who came to the Astrakhan's Regional Children's Hospital with acute intestinal obstruction in the period between 2009 and 2013. The children were divided into groups according to the nosology: 197 patients with intussusception and 20 patients with adhesive obstruction. Patients with intussusception were between 5 months and 2.5 years; 130 boys and 67 girls. Adhesive obstruction was observed among patients between 5 and 16 years old; 14 boys and 6 girls. 77 patients had surgery, 62 patients with intussusception and 15 with adhesive obstruction.

The samples were taken before the surgery and on the 1st, 3rd and 5th day in the postoperative period. In order to determine serum concentrations of cytokine IL-2 and IL-4, we used a solid-phase immunoenzyme method using the reagent kit from "Protein contour", St. Petersburg. Another marker for the endogenous intoxication is represented by medium molecular weight oligopeptides (MCM). The control group consisted of 30 children who were hospitalised for a planned surgery.

Results and discussion. The results of the research showed a different degree of activation among the inflammatory markers. Compared to the control group, on day 1 and 3 after the surgery we observed a significant increase of the pro-inflammatory IL-2 (466.5 ± 4.9 pg/ml, $p < 0.01$) and the anti-inflammatory IL-4 (27.3 ± 4.1 pg/ml, $p < 0.01$). The analysis of the indices dynamics of the inflammation mediators in the postoperative period showed a maximum increase of the pro-inflammatory and anti-inflammatory interleukins on day 3 after the surgery. On day 5 after the surgery, there was a decrease in the pro-inflammatory IL-2 level (180.4 ± 3.5 pg/ml, $p < 0.05$); the level of the anti-inflammatory cytokine IL-4 (26.6 ± 3.6 pg/ml, $p < 0.01$) remained increased on day 1 and 3 after the surgery, MCM was, on average, 0.38 ± 0.04 ($p \leq 0.05$), on day 5 – 0.54 ± 0.06 ($p \leq 0.05$). The MCM level in the blood serum was growing and was significantly ($p \leq 0.05$) higher than that among children in the control group.

Conclusions. The determination of marker levels of the endogenous intoxication is an important determining factor for the prediction of complications in the postoperative period, which enables the control of the inflammatory process among children with acute intestinal obstruction and the optimisation of treatment.

Olga V. Zhukova

EVALUATION OF THE CLINICAL AND ECONOMIC RATIONALITY IN TREATMENT OF A DISEASE (E.G. ACUTE AND RECURRENT OBSTRUCTIVE BRONCHITIS) USING MATHEMATICAL METHODS

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Bronchial obstruction is an actual problem in pulmonology of childhood and high rate determined by the prevalence of acute obstructive bronchitis and recurrence, which may lead to bronchial asthma. Recurrence of obstructive bronchitis in children with increased intracellular infections. These processes may lead to the formation of bronchial asthma. Symptoms of bronchial asthma observed in more than 150 million people worldwide. In European countries, asthma affects up to 5-8% of the adult population and up to 10-15% of children. Throughout the world the cost of treatment of asthma ranges from 1 to 1.5% of the total medical costs.

Objective: development, implementation and optimization of mathematical approaches to evaluating the clinical and economic rationality treatment of the disease (for example, acute and recurrent obstructive bronchitis).

Methods. 1) construction of the “decision tree” to assess the economic component of the basal and antibiotic treatment of obstructive bronchitis and to estimate the incremental costs for negative clinical effects; 2) Markov modeling - for the evaluation of the transition from an acute obstructive bronchitis to recurrent form and asthma, as

well as the costs associated with these transitions over a long time horizon; 3) Fishburne method - to separate classes of drugs on clinical efficacy, and 4) correlation and regression analysis - to assess the influence of the "atypical" microflora to the threat of asthma.

Results. By the "decision tree" to determine the optimal scheme of basic therapy (bronchodilators, inhaled corticosteroids, mucolytic), and best group of antibiotics (macrolides) for the treatment of acute and recurrent obstructive bronchitis in children. Probability of positive clinical effects from the use of the optimal scheme as basic therapy is very high and is 0,996. In this connection, the average additional cost of using this scheme is minimal. Probability of positive clinical effects in the use of macrolides in the treatment of acute and recurrent bronchitis obstructive is relatively 0,953 0,565 - to 0,530 -protected penicillins and - for cephalosporins. According to the simulation received Markovski formation of bronchial asthma for 18-year planning horizon in 8.96% of cases. The prevalence of "atypical" infections among patients was 32.2%. When they are disseminated formation of bronchial asthma obtained in 37.7%. Antibiotics used in the calculation result of weighting coefficients (Fishburne method and the principle of fuzzy majority) were distributed to clinical efficacy levels (high, medium, low). High levels include of macrolide antibiotics. With increasing prevalence of obstructive bronchitis asthma threat formation increased by 80.4%, while increasing cases of obstructive bronchitis on the background of "atypical" infections - the threat is increased by 92.6% (results of regression analysis).

Conclusions. Methodological approaches based on mathematical methods have been developed. They allow to evaluate the rationality of therapy (for example, treatment of obstructive bronchitis possibility of its transition to recurrent forms and asthma).

The data obtained in the simulation give the whole picture of the disease in the long term. Increase of costs currently for rational diagnosis and rational drug therapy reduces the costs for the treatment of serious chronic diseases in the future.

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WOMEN'S LEVEL OF HEALTH AS A FACTOR OF FORMATION OF CONGENITAL MALFORMATIONS IN CHILDREN

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The aim of the study was to identify the risk factors contributing to the formation of congenital malformations in fetus and newborns.

Material and methods of investigation. The analysis of health status women was carried out among 93 women whose pregnancy was terminated for medical indications due to the pathology of the fetus or premature birth with CM.

Results and Discussion. During the investigation we studied influence of age on the formation of CM. It was established that in the study group 54, 8 % were women older

than 35 years, whereas in control group - 22, 4 % ($p < 0, 05$).

Among stillborn and newborns as well as interrupted pregnancy with defect of development prevailed the defect of the cardiovascular system: a combined CM (13, 9), transposition of the great vessels in combination with ventricular septal defect (VSD) (9.6), common atrium (8,6), atrial septal defect (ASD) in combination with ventricular septal defect (VSD) and patent ductus arteriosus (PDA) (11.8%), Tetralogy of Fallot has diagnosed in 5.3%. Central nervous system defect (CNS) : meningocele lumbosacral - 3.2%, anencephaly - 7.5%, hypoplasia of the frontal bones of the skull - 3.2 %, hydrocephalus - 8.4%, Sp. Bifida-4,3%. Gastrointestinal tract defects - gastroschisis 2.1%.

Proportion of women employed in hazardous work (chemical industry, gas contamination) in the study group was higher than in the control group (14.39 and 6.3%, $p < 0.05$ respectively). Specific weight of unemployed women in the study group was 44.2 % in comparison with 26.9% in the control group ($p < 0.01$); Women who gave birth to children with CM - 30.4 % were single-parent families or families with an absent of registered marriage, while the similar situation in the control group was in 19.5% ($p < 0,01$). Burdened obstetric history was significantly more often at secundipara women (36.3% vs. 3.7%. $p < 0.05$). Indicated that in a group of secundipara women the probability of having children with CM incompatible with life is upper for 15.2% than at primipara 3.8% ($p < 0.05$). At women who were in the study group the frequency of early term miscarriages and premature births (22.8 and 11.8%) was significantly higher than in women of the control group (16.7% and 3.12, $p < 0.01$).

Among women of two groups showed that the pregnancy often been accompanied by fetal infection. Prevailing infections were: CMV (cytomegalovirus infection) in 52.1% in women in the main group and 45.38% in the women in the control group ($p < 0.05$); herpes virus infection 27.3% and 12.5% ($p < 0.05$) respectively. Frequency of extragenital diseases was higher in the study group (59.31 % in comparison with 43.8%, $p < 0.01$). In the structure of extragenital pathology among women prevailed urinary system diseases (28.9% in the study group versus 13.08% in the control group, $p < 0.01$ respectively), and endocrine diseases (30.3% and 18.2 % , $p < 0.01$).

Conclusion. The most significant risk factors of CM development during the pregnancy were women older than 35 years, unfavorable social live conditions, burdened obstetric history, chronic pathology of the mother including infectious diseases, their exacerbations, and acute disease. Early diagnosis and counting of risk predictors in women anamnesis will contribute to the development and conducting of timely prevention of the formation of CM in fetus and newborn, thus reducing perinatal and infant mortality.

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CORRECTION OF INTESTINAL MICROBIOCENOSIS DISORDERS IN THE COMBINATION THERAPY OF LIVER CIRRHOSIS PATIENTS

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The objective of the research was to assess the application effectiveness of the symbiotic LINEX® in the combination therapy of liver cirrhosis patients.

Materials and methods. We observed 74 patients with liver cirrhosis in randomized groups. In the main group, consisting of 44 patients, patients received the symbiotic LINEX® in addition to the main treatment. 30 patients in the control group received only standard therapy. All patients underwent a comprehensive clinical and laboratory examination over time, which included clinical blood analysis, biochemical blood analysis, ultrasound of the abdominal cavity, bacteriological stool examination, composition of biological blood markers by means of gas chromatography mass spectrometry, number connection tests and the short form (36) health survey. The obtained results were statistically processed.

Results. Before treatment, all patients (100%) were diagnosed with manifestations of sytolytic, cholestatic, astheno-vegetative and dyspeptic syndromes; nagging pain prevailed in the right hypochondriac region. The bacteriological stool analysis of all liver cirrhosis patients showed a microbiocenosis disorder of the large intestine among all patients (15% - degree 1, 40% - degree 2, 25% - degree 3 and 20% - degree 4). The analysis of the microbial composition by means of mass spectrometry revealed a deficiency in lactobacillus, bifidobacterium, propionibacterium and eubacterium colonisation. After treatment, patients who additionally received the probiotics had a significantly lower manifestations of abdominal pain and dyspeptic syndrome ($P<0.05$) in comparison to the patients of the control group. There was a significant reduction of the leucocytes level among the patients of the main group from 12.6 ± 0.83 to 6.54 ± 1.12 ($P<0.05$) and an ESR reduction ($P<0.05$), which proves the reduction in the intensity of the inflammation changes in blood. Patients who received the symbiotic also showed a significant improvement in the biochemical parameters (ALT, AST, GGT and bilirubin), an improvement of the protein synthetic liver function (the total protein level increased from 74.0 ± 0.50 to 78.1 ± 0.80 g/l, ($P<0.05$), that of albumin – from 30.6 ± 1.7 to 35.5 ± 1.6 g/l ($P<0.05$), the number of bifidobacteria grew from 8.7 ± 0.1 to 9.1 ± 0.1 Lg CFU/g ($P<0.05$), that of lactobacilli from 3.6 ± 0.2 to 5.2 ± 0.2 Lg CFU/g ($P<0.05$) and the total number of Escherichia increased from 7.6 ± 0.3 to 7.9 ± 0.3 Lg CFU/g ($P<0.05$). The mass spectrometry showed a tendency towards the normalisation of the microbial markers. According to the results of the abdominal ultrasound, patients of the main group also showed a reduction of the edematous-ascitic

syndrome and a decrease of the liver encephalopathy: NCT decreased from 51.0 ± 3.58 s to 29.7 ± 4.10 s, ($P < 0.05$). The life quality score improved as well.

Conclusion. The symbiotic LINEX®, by normalising the intestinal microbiocenosis, has a positive influence on the course and the prognosis of the liver cirrhosis and is not only a symptomatic but also a potentiating treatment within the pathogenetic therapy.

E.A. Glikman

DISTANT TEACHING OF NON-CONVENTIONAL THERAPIES

International Academy of Acupuncture, Psychopuncture and East medicine "Yin Yang", Veliky Novgorod, Russia

International Academy "Yin and Yang" was opened in 2008. One of the main tasks was to spread the knowledge of the eastern (Chinese medicine. This was the subject of numerous conferences organized both at the Academy and outside its walls.

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A.N. Gulkov
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SPECIAL INFLUENCE OF CARBON NANOTUBES ON THE MUCOSAL EPITHELIAL CELLS OF RATS GASTER

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Introduction. The main researches of toxic kinetic and nanoparticles focus on studies related to the assessment of biological and toxic effects of nanoparticles, as well as possible future use as a means of drug delivery and diagnostic purposes.

Study the most general laws of the biological and toxic effects of nanoparticles, depending on their shape, size, form factor, the source material, surface area, surface charge, impurities and other physical and chemical characteristics of the structure and the mechanisms of their effects on cells and tissues, consider topical issues nanotoxicology. Equally important are the studies that determine the dose, route of delivering and the concentration of nanoparticles in the target organ, duration of exposure.

The purpose of this study was to investigate the reactions of the structure of the mucosa of the gastrointestinal tract in CBA mice at inserting of oral multi-walled carbon nanotubes, and also consider the features of overcoming the epithelial barrier, intestinal absorption and renal responses.

Methods. During the study the different parts of the gastrointestinal tract and kidneys 60 CBA mice (vivarium TIBOH FEB RAS) after oral inserting of nanotubes for 2, 3, 4, 5, 6 days. To eliminate the effect on the proliferative activity of epithelial cells of the mucous membrane of the gastrointestinal tract of estrogen in the experiments involved only male mice. Biopsy specimens were carried out in accordance with the "Rules of the work with experimental animals" from 12.08.1977. Gastric biopsies were taken in accordance with the gold standard of WHO cardia, fundus and antrum. The collected material was sliced to semithin tissue sections of gastrointestinal tract and kidneys, which were stained with hematoxylin-eosin. Analysis of the material held on the microscope Olympus Bx51 (Japan) with a digital camera, CD 25, and proprietary software for morphometric studies.

Results. During the experiment, there was a migration of nanotubes through mucosal barrier, the epithelium and its basement membrane. Nanotubes on the first day of the experiment are identified at the level of mucosal mucosal barrier wall of the esophagus,

cardiac, fundal and antral. On the second and third days in the wall of the mucosa of the duodenum, small intestine and colon nanoparticles overcome mucosal, epithelial barrier, where they are identifiable by light microscope. The second face of nanotubes passing through the stage of the epithelial barrier is directly cytoplasm of the epithelium.

Discussion. First nanotubes occupy border position in the apical part of the epithelium, then they reach the basement membrane of the epithelium, where they are arranged in a line parallel to the basal membrane. In case of oral insertion of nanotubes reaction and permeability of the epithelium of the mucous membrane of the intestine is most pronounced compared to epithelial cells of the mucous membrane of the stomach, duodenum, small intestine and colon. In the absence of receptor recognition of nanotubes due to the presence of certain chemical properties, as part of a short-term experiment, there is only contamination of nanoparticles in epithelial cells.

In this case, we have noted as a defensive reaction of the mucous membrane increased secretory activity of the glandular epithelium. In general, we observed that the multi-walled carbon nanotubes do not have a pronounced toxic effect on the body CBA mice with short-term experiment. Despite this, it is necessary to point out some of the nanomaterial immunogenicity and increased migratory activity of the cells, which is manifested in the lymphoid infiltration.

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PREOPERATIVE ASSESSMENT OF THE SEVERITY AND OPTIMIZATION OF ANESTHETIC SUPPORT IN NEWBORNS WITH CONGENITAL MALFORMATIONS

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Urgency.

Newborns with congenital malformations take one of the leading places in the structure of surgical diseases. Mortality of children with this disease takes up to 80%.

Purpose of the study.

To improve the assessment method of anesthetic and intensive care risks in the preoperative period, to optimize anesthetic techniques in newborns with congenital malformation.

Materials and the methods of study. The study involved 103 newborns (in the days 1st -3rd from their birth), admitted to the pediatric anesthesiology, intensive care unit of the National Medical Center of the Republic of Tajikistan for the surgical correction of existing malformations in the period from 2008 to 2013. Newborns have been received with esophageal atresia, fistulous form 23 (22.3%), embryonal hernia 31 (30.0%), Hirschsprung disease 17 (16.5%) and anal atresia 32 (31.0%). Since the admission of the newborns, the diagnostics on the severity of patients were performed in accordance

with developed program, including gestational age, their age at admission (h), duration of surgery and the length of stay in the hospital. The success of treatment, as in other age group is determined by an adequate assessment of the severity of the child.

These studies were based on noninvasive monitoring, which enabled to identify any deviations of organs or body systems, as well as the dynamics of their recovery during preoperative preparation. The aim of noninvasive monitoring was to identify circulatory deficiency and disorders of tissue perfusion. In assessing the severity of hemodynamic the accuracy was obtained by determining cardiac output, minute volume of blood and the total peripheral vascular resistance, central venous pressure by Waldman apparatus. The heart rate exceeded the age norm, depended on the severity of the condition and dehydration. Blood pressure was reduced only in patients in critical condition.

Another important complex of symptom in assessing the condition severity of newborns was assessing of respiratory function and oxygen supply of tissues. In many of newborns performing a simple pulseoximetry with measurement of SpO₂ was enough to solve their respiratory support. The results obtained allowed us to more accurately determine the condition severity of newborns and its dynamics during preoperative preparation.

Conclusions. Thus, before performing surgery in newborns it is needed to perform a phased preparation of the newborn: diagnosis of the severity, the choice of the volumes and duration of preoperative preparation and the choice of anesthesia methods. In some cases, for the surgical treatment of newborns the regional analgesia techniques are preferred.

Yuriy Sapilo

ACUPUNCTURE OF PROF. KANDAROV

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Acupuncture of prof.Kandarov used diagnostically is an integrated examination of the patient taking into account the complexity and dynamics of processes within the body. Bearing in mind the difficulty in developing skills in pulse diagnostics and unreliability of instrumentation for testing the representative points of acupuncture, the author suggests that the patient should be examined using acupuncture which can be applied by acupuncturists. This method can be reconciled with the European approach and complemented by modern investigation methods. Moreover, physicians should be warned that conventional diagnostic techniques and European urgent therapy may be helpful in obscure cases with acute pathology.

Traditionally, the determination of hyperalgesic zones, i.e. the skin area in which reflected pain arises in the impaired viscera as well as zones of pain and temperature hyperalgesia is used for diagnostic acupuncture. These zones were first discovered T.A. Zakharyin in 1889 and described by H. Head in 1893 – 1896. Later on, in medicine, the zones detected in the region of the head, chest, abdomen, upper and lower limbs in case of visceral diseases were called the Zakharyin-Head zones. According to H. Head's data,

the boundaries of these zones correspond to dermatomes, i.e. radicular distribution of skin sensitivity. Each organ has its segmental innervation in certain areas of the skin, and this explains the origin of hyperalgesic zones. These zones originate due to the irradiation of an impulse from an affected viscus. To date, the problem related to the mechanism clarifying the origin of the Zakharyin-Head zones of hyperalgesia cannot be considered finally resolved.

The basic principle of diagnostic acupuncture offered by prof. Kandarov consists in revealing hyperalgesia (hyperesthesia) in reflexogenic projection zones (those of the scalp, orbit, external auditory canal, etc.) and points-analogs. According to this principle, within the body there are several reflexogenic projection zones enabling the physician to apply them for doubling diagnostic manipulations while making precise diagnosis, i.e. the physician is given a free hand and option when diagnosing.

Long-term experience allows the author to come to the conclusion that the presence of a channel dysfunction brings about hypersensitivity in certain projection zones. The presence of hypersensitivity on one of the sides is regarded as hyperfunction of the corresponding channel branch, the presence of hyperesthesia on the opposite side is regarded as hypofunction or relative emptiness of this branch.

With the skills developed, this method of diagnostic acupuncture offered is simple and allows detecting the start of disease development in a viscus at an early stage.

While investigating hyperalgesic zones, it is advisable to press on symmetric sites moderately and uniformly. A probe is applied to the skin without any effort, or few needles (special method) are running manually on the skin area under investigation. A special care has to be taken when palpating points in the region of the external auditory canal to evade a possible violent vegetovascular response. Besides, it should be kept in view that hyperalgesic zone detection often causes severe painfulness.

This method of prof. Kandarov is very usefull and effective for treatment of different diseases.

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A. Altaeva
D.B. Kulov

REVISITING THE PREVALENCE OF CYTOMEGALOVIRUS INFECTION IN CHILDHOOD

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Relevance.

At the present time, increasing of patients' number with Cytomegalovirus (CMVI) becomes evident in all countries of the world, and this process is closely connected with the improving of the diagnosis quality and with the real growth of incidence rate. The goal of the investigation is to study and to organize clinical manifestations of Cytomegalovirus infection in children.

Material and methods:

We conducted a retrospective analysis of 120 medical histories of children with a diagnosis of Cytomegalovirus infection, treated in the Regional Children's Clinical Hospital and Regional infectious hospital of Karaganda from 2003 to 2013. It was carried out structural analysis of clinical manifestations of CMVI among these children.

Results and discussion

Revealed significant changes of the nervous system are intracranial hypertension and syndrome of hydrocephalus. Taking into account the arranging, the impairments of nervous system were ranked as outlined below: muscular hypotonia, hyporeflexia, tremor, strabismus, convulsive readiness/ convulsions, nystagmus, uveitis, retinopathy, hearing loss. The main neurosonographic signs were revealed, they significantly prevail in the control group: ventriculomegalia, cyst vascular plexuses, induration of vascular plexuses, signs of acute presence of periventricular calcified focuses located in the brain, angiopathy, malformation of plexuses, induration of periventricular areas, intraventricular hemorrhage. In addition, children of this group were revealed supplemental chords and the mitral valve prolapse. In addition, it was diagnosed functional cardiopathy, disturbances of the rhythm and conduction/ neurality, including arrhythmia, right Impairments of the liver and the spleen were revealed of patients. At the studying of the structure of impairments of the liver and the spleen at CMVI were diagnosed a hepatomegalia, a hepatosplenomegalia, hepatitis, including anticteric, jaundice (conjugated, hemolytic, parenchymal, a syndrome of cholestasis, an atresia of biliary tracts. Children were revealed the isolated proteinuria, microhematuria, leukocyturia, pyelonephritis, urinary tract infection. The kidney diseases of two ill children were complicated by acute renal failure.

Conclusion. The main systems of body impaired at the CMVI were the central nervous system, cardiovascular system, digestive system, and urinary system. Comparing with the comparison group, there is significant dependency between the Cytomegalovirus infection and the significant increasing of the cases of intracranial hypertension, syndrome of hydrocephaly, meningitis, meningoencephalitis, cysts, angiopathy, convulsions syndrome, congenital heart disease, arrhythmias and conduction disorders, carditis. In the structure of other pathologies it was revealed the predominance of occurring of hepatitis, hepatosplenomegaly, hemolytic jaundice, pyelonephritis, congenital uronephropatia.

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