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INTERNATIONAL CONFERENCES DEDICATED TO THE 90TH ANNIVERSARY OF YSMU FOUNDATION

6-10 OCTOBER, 2010

ABSTRACTS

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Dear friends and colleagues,

It is with great pleasure that I welcome you to the Yerevan State Medical University to celebrate the 90th anniversary of our Alma Mater. This is a memorable event having united outstanding researchers, professors and our graduates under the roof of YSMU. Striving to do the best for our students, physicians and the population, we undertake and launch innovative projects, reform the current educational system, renovate university and clinical facilities implement congresses and conferences. The celebration of the 90th anniversary is not an exception: numerous conferences and symposiums will be held in fundamental medical

directions within which we will witness expert presentations, get familiar with the latest medical achievements and host distinguished speakers.

We hope to draw the attention of larger audiences to current medical issues related to perilous diseases, as well as to the introduction and application of novel therapies, cutting-edge technologies and drug usage. Hence, polemical problems and current advances will be discussed throughout the sessions devoted to the vast array of medical and clinical spectra, namely Internal Diseases, Surgery, Pharmacology, Radiology, Osteoporosis, Public Health, Maxillofacial Surgery, Cerebrovascular Pathology, etc. These academic meetings will be concluded with live tours in Yerevan and visiting sights of Armenia.

Being a leading institution of medical education in the region with spectacular physicians and scientists in research, education and clinical care, we will grant you the singular opportunity to interact with a prominent group of people, make new acquaintances and establish network of mutually beneficial cooperation. Let me once more extend my warmest greetings to all our guests, colleagues and graduates and mention, once you step into the university you will be convinced that you are a member of our family and not merely a particle of momentous celebrations.

Sincerely,

Professor Gohar P. Kyalyan

Rector of Yerevan State Medical University

A handwritten signature in blue ink, which appears to be 'G. Kyalyan', written in a cursive style.

INTERNAL DISEASES

ELECTROCARDIOGRAPHIC STUDY OF CHRONIC HEART OVEREXERTION IN ATHLETES

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Introduction: Chronic heart overexertion resulting from repeated loads, which are contrary to functional capabilities of the body, is found most frequently in athletes. Possible complaints include rapid fatigue, weakness, reduced exercise tolerance, palpitation, and the feeling of pain and pressure in the cardiac region.

Purpose: The aim of the study was to examine the details of electrocardiographic (ECG) manifestations of chronic physical overexertion.

Material and Methods: The present study involved 65 endurance-training athletes aged 18-22 years with clinical and ECG manifestations of chronic physical overexertion. ECGs were recorded before and after the graded Bicycle Ergometry Test ("until failure").

The athletes were divided into 2 groups according to the features of repolarization complex:

- ⊙ Group I: low-amplitude, double-humped, diphasic, inverse T waves,
- ⊙ Group II: atypical asymmetric T waves.

Results: Comparative analysis of the T wave amplitude in Group I is of specific interest. Decreasing of T wave amplitude in the leads with abnormal repolarization was accompanied with the same tendency in the intact leads. After the Bicycle Ergometry Test the ECG picture changed: in the first case a positive dynamics was revealed, and in the second case (intact leads) an increase of T wave amplitude was found in the leads III, aVF, V₂, V₃ and a decrease – in the leads I, aVL, V₅, V₆. In the resting ECG of II group, atypical asymmetry of the T waves with a steeper ascent and a softer descent was found. The maximum frequency of them was noticed after the exercise test.

The above-mentioned changes of T wave amplitude, polarization and shape may be influenced by numerous factors: result of prolongation or shortening of early and late repolarization, aggravation of physiological subendocardial ischemia during trainings, neurohumoral and biochemical changes.

Qualitative analyses of the ECG revealed also tachycardia at rest, migration of the pacemaker, arrhythmias and conduction changes, which may be an earlier sign of heart overexertion linked to physical and emotional overloading.

Conclusion: This research proves the efficiency of competitive athletes' systematic screening by 12-lead ECG to identify early signs of heart overexertion.

A PATHOBIONT OF THE MICROBIOTA BALANCES HOST COLONIZATION AND INTESTINAL INFLAMMATION

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Introduction: The mammalian gastrointestinal tract harbors a diverse microbiota residing in intimate contact with the host immune system. Though most associations are symbiotic or commensal, some resident bacteria (termed pathobionts) have the potential to induce disease in immunocompromised hosts. Type VI secretion systems (T6SSs) have recently emerged as a novel mechanism for forging microbial-host interactions during infection.

Purpose: The aim of this study is to understand how gut bacteria use T6SS to modulate health and disease.

Materials and Methods: We used various animal and cell culture systems during infection with intestinal pathobionts. We measured bacterial colonization numbers, immune responses, and pathology in the gut as a result of bacterial infections with and without T6SS.

Results: We reveal here a unique protective role for the T6SS of *Helicobacter hepaticus*, a Gram-negative bacterium of the murine intestinal microbiota. The T6SS of *H. hepaticus* targets effector substrates to intestinal epithelial cells (IECs). Mutants in T6SSs display higher intracellular and cell-associated numbers upon incubation with IECs, and exhibit increased bacterial colonization of the gastrointestinal tract compared to wild-type bacteria. The T6SS accordingly directs an anti-inflammatory gene expression profile in IECs co-cultured with *H. hepaticus*. Remarkably, T6SS mutants induce an exacerbated pro-inflammatory response in an experimental model of colitis. CD4⁺ T cells isolated from T6SS mutant-colonized animals produce increased T-helper 17 (Th17) cytokines in response to IECs presenting *H. hepaticus* antigens.

Conclusions: These data demonstrate that *H. hepaticus* intimately interacts with IECs and employs type VI secretion to establish a balanced host relationship by limiting microbial colonization and intestinal inflammation. We propose that altering host-bacterial equilibriums that lead to dysbacteria of the microbiota contributes to human disorders such as inflammatory bowel disease and colon cancer.

LIVER ECHOSTRUCTURE IN FAMILIAL MEDITERRANEAN FEVER PATIENTS

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Introduction: Familial Mediterranean fever (FMF) is an autosomal recessive inflammatory disease most often seen in Turks, Sephardic Jews, Armenians, and Arabs. The diagnosis of FMF is based on clinical evidence, since there is no specific diagnostic test. Manifestations are recurrent attacks of fever accompanied by serositis, mainly involving the peritoneum, pleura, pericardium, and joints.

Purpose: The study was aimed to reveal the probable diagnostic criteria of liver amyloidosis in case of FMF.

Methods: The study included 8 patients with FMF (all were M694V allele carriers), abdominal type (2 females, 6 males; average age of the patients: 23-40 years old), with frequency of attacks: 1-2 each month. All patients underwent ultrasound investigation.

Results: We revealed signs of portal hypertension: diameter of *v. porta*=13-14.5 mm (N<13 mm), diameter of *v. lienalis*=7-11 mm (N=4-6 mm), splenomegaly (more than 120x50 mm) in all cases, ascites in 3 patients (1 patient with mild, other 2 patients with moderate ascites). Liver parenchyma was hyperechogenic in all cases (hyperechogenic tissue is pathognomonic for kidney amyloidosis).

Conclusions: In populations when FMF is endemic, hyperechogenic liver with signs of portal hypertension (dilated *v. porta* and *v. lienalis*, splenomegaly, ascites) should be considered among diagnostic markers of liver amyloidosis as hyperechogenic kidneys in case of their amyloidosis.

FIRST STAGE OF FOOD ALLERGY SURVEY AMONG UNIVERSITY STUDENTS IN YEREVAN

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Background: A rising prevalence of allergy has occurred in Armenia the last years but very little information is known about food allergy, especially among young population.

Purpose: The main objective of survey was to estimate the prevalence of food allergy among university students in Yerevan.

Methods. The first questionnaire-based stage of food allergy survey was performed among students in their first to six years in different randomly chosen universities of Yerevan. The Questionnaire consisted of 30 items including questions on: food hypersensitivity and allergy symptoms presence; kind of food causing hypersensitivity; last time when food hypersensitivity occurred; medical aid appealability and allergy diagnosed by physician.

Results: Questionnaires (n=4860) were distributed among students, 4126 completed Questionnaires were given back (response rate is 84.9%) and 4071 (98.7%) were suitable for analysis. The self-reported lifetime prevalence of adverse reactions to food was 14.2% (17.8% female and 9.6% male).

The structure of allergy symptoms was as follows:

- ⊙ eczema/rush in 47.0%,
- ⊙ nasal/conjunctival in 41.4%,
- ⊙ urticaria/angioedema – 39.3%,
- ⊙ gastrointestinal – 24.6%,
- ⊙ asthma-like – 12.4%,
- ⊙ anaphylactic – 2.5%.

Among students 44.2% have reported one symptom, 36.6% two and 19.2% three or more allergy signs. Manifestations of allergy signs in the last 12 months (including those at the survey time) were reported by 61.6% and earlier by 38.4% of students.

Foodstuffs noted as causing hypersensitivity in descending order were: fruits especially citrus, eggs, chocolate, spices, honey, vegetables, nuts, chicken, fish, cow milk, meat, etc.. The reported medical aid appealability and diagnosed allergic diseases among students with food hypersensitivity were 49.7 and 36.3%, respectively.

Conclusions. The first stage data show that food hypersensitivity is essentially more prevalent in female students. The pollen-related foods are the most common foods causing hypersensitivity which can explain the high prevalence of seasonal respiratory symptoms. By the time of allergy last manifestation the cutaneous and/or gastrointestinal combined with respiratory symptoms are more frequent reported in the last 12 months than earlier, when the single symptoms especially cutaneous are more prevalent. The rates of medical aid appealability and consequently diagnosed allergy are low.

ACTION OF THE CENTRAL ASIAN COBRA VENOM *NAJA NAJA OXIANA* (NOX) ON DYNAMICS OF VESTIBULAR COMPENSATION FOLLOWING UNILATERAL LABYRINTHECTOMY

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Introduction: The problem of vestibular compensation (VC) remains one of the actual tasks of modern neuroscience directly associated with recovery of vestibular nucleus neurons activity on the injured side.

Purpose: The cobra venom action on Deiters' nucleus neurons upon dynamics of recovery after unilateral labyrinthectomy (UL) was carried out.

Material and Methods: Early and late tetanic, post tetanic potentiation and depression of the rats Deiters' nucleus neurons to bilateral high frequency stimulation of hypothalamic supraoptic (SON) and paraventricular (PVN) nuclei was studied. The analysis of spike activity by on-line selection and software package was produced.

Results: The increasing of inhibitory and excitatory reactions of Deiters' neurons at early stage of vestibular compensation following NOX injection reaching the norm at the late stage was revealed. Divergence of post stimulus activity manifestations was relatively more expressed to high frequency stimulation (100 Hz).

In a histochemical study revealing of Ca²⁺-dependent acidic phosphatase (AP) activity was carried out.

In UL animals the delay of central chromatolysis of Deiters' neurons, leading to deep neurodegenerative pattern of cellular shade, up to its total disappearance was shown. The morphological pattern indicate that upon NOX action observes hyper activation, testifying abrupt intensification of ferment activation, evidently providing assistance of injured nerve tissue purification and a tendency to adaptation as well.

Conclusion: Thus, the protective effect of NOX is obvious. However, the effect is expressive and often exceeds the normal level.

SOME EPIDEMIOLOGICAL CHARACTERISTICS OF BRUCELLOSIS IN CHILDREN IN THE REPUBLIC OF ARMENIA

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Introduction: Today's high level of brucellosis morbidity in children is an actual problem for national Healthcare and defines the importance to analysis epidemiological situation of this infectious disease in Armenia. Timely detection, diagnosis, and highly effective treatment of brucellosis obviously have the big medico social meaning for children health care.

Purpose: The aim of this work was to analyze the epidemiological situation of brucellosis in children of the Republic of Armenia.

Material and Methods: We carried out examination of 705 patients from 1 to 70 years old with primary diagnosis brucellosis at ICH "Nork" in Yerevan since 1999 to 2007. The diagnosis was confirmed by complex clinical and laboratory examination of patients (Rite`s test, Hedelson`s test, RDHA etc.).

Results: According to results of the research, 24.5% of 705 patients with brucellosis were school age children (from 6 to 17 years old). In schoolchildren acute brucellosis was detected in 59% of incidence, subacute brucellosis in 7.5% and chronic brucellosis in 33.5% of patients. The residual form of brucellosis was not documented in this age group. The overwhelming majority of patients were males (75%) and city dwellers (61.8%). It should be noted that brucellosis morbidity rate (2.4%) is low among preschool children (from 1 to 5 years old).

Conclusion: The results of research testify that a quarter of patients with brucellosis in the Republic of Armenia are school age children, the majority of them are males and city dwellers. Acute brucellosis is almost twice common among children than chronic brucellosis. Thus, in present circumstances the priority should be given to methods of prophylaxes and active detection of brucellosis among children's population.

CONDITION OF THE BONE TISSUE MINERAL DENSITY BASED ON ULTRASOUND DENSITOMETRY IN WOMEN OF YEREVAN STATE MEDICAL UNIVERSITY

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Introduction: Osteoporosis (OP) is an important medical and social problem because of its high prevalence and frequent complications, which are fractures of the skeletal bones leading to temporary or persistent disablement and impairing the quality of life. Timely diagnostics and identification of groups of risk for fractures can help avoiding the OP-consequences. The most widespread form of OP is postmenopausal one (PMOP).

Purpose: Our objective was to determine the BTMD-status of the YSMU women of different age groups according to ultrasonic characteristics of the heel bone and to assess the OP-risk and osteopenia. This research is a fragment of work on PMOP-study among women of the Armenian population.

Material and Methods: The study was performed by ultrasonic densitometry using an ultrasound densitometer (Sahara, USA). To assess the state of bone tissue we used WHO-criteria.

With the help of an ultrasound densitometer we observed 195 women, 101 of them were in postmenopause. The threat of OP-arising amongst all examined women was 2.6%. Osteopenia was observed in 46.1%, the BTMD-normal level was recorded in 51.3%. Women were distributed in four age groups.

Results: The first group included 36 women under 40, without menopause (control group), constituting 18.5% of total observed, 27 women had a normal level of BTMD, in 9 women this parameter corresponded to osteopenia.

The second group (49 women) included women at the age from 40 to 50, among them 4 (8.2%) were in menopause. In none of postmenopausal women (101) in this group the OP-risk was identified, and the number of women having risk of osteopenia and with normal BTMD made 2.0%.

The third group included 83 women from 50 to 60, which made 42.6% of observed women (among them the postmenopausal women made 84.3%, and those having OP-risk: 4.3%, osteopenia: 54.3%). The 41.4% of women had normal BTMD.

The fourth group consisted of 27 women above 60 (in postmenopause), 7.4% of which had the OP-risk, 63% with osteopenia, in 29.6% the BTMD-level was normal.

Conclusion: The results showed that in total number of observed women in postmenopause the OP-risk was 4.9%, osteopenia: 56.4%, in 38.6% normal BTMD-level was observed.

THE EFFICACY OF TEBANTIN COMBINATION IN THE TREATMENT SCHEME OF ONCOLOGIC NEUROPATHIC PAIN SYNDROME

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Introduction: The oncologic pain is one of the worse controllable pain syndromes, which can be nociceptive, neuropathic and mixed (nociceptive with neuropathic). The treatment of oncologic nociceptive pain syndrome is performed by non-steroid anti-inflammatory drugs (NSAIDs) and opioids. Application of the mentioned medications for treatment of neuropathic and mixed pain syndromes is effective and/or less effective, which is related to the peculiarities of the pathophysiologic mechanisms of neuropathic pain syndrome.

Purpose: The goal was to reveal the efficacy of Tebantin use in the complex treatment of the oncologic pain syndrome in the presence of neuropathic component.

Material and Methods: Overall 46 patients were observed suffering of breast and digestive tract cancers.

Patients were divided into 2 groups:

- ⊙ Group I (n=23) was treated with NSAIDs, morphine 10-20 mg q day *im* and Tramadol 200-300 mg q day *iv*,
- ⊙ Group II (n=23) was treated with NSAIDs and 600-1500 mg q day Tebantine.

The intensity of pain syndrome was evaluated by VAS scale. Neuropathic component was revealed by QN^o 4 scale and compiled 6 ± 1.3 points.

Results: Before treatment the intensity of pain in patients of Group I was 7.7 ± 1.5 points, and 7.35 ± 1.5 ($p=0.2$) points in the patients of Group II. After 4 days the VAS compiled 5.8 ± 1.02 and 4.0 ± 1.2 points ($p=0.001$), after 10 days it was 4.1 ± 0.9 points and 2.4 ± 0.7 ($p=0.001$) points in patients of Groups I and II, respectively. In 15 days the VAS compiled 3.6 ± 0.5 and 1.7 ± 0.5 ($p<0.001$), respectively.

The VAS values decreased by 24.7% after 4 days, by 46.7% after 10 days and 53% after 15 days of treatment in the patients of Group I and by 45.5%, 67.3% and 76.9% in patients of Group II, respectively.

Conclusion: Obtained data indicate the high efficacy of antiepileptic drugs and Tebantin application, in particular for treatment of oncologic chronic pain syndrome with neuropathic component.

The decrease of pain intensity by almost 80% with the improvement of the life quality carries both therapeutic and humane values.

TREATMENT RESULTS OF TUBERCULOSIS CO-INFECTED WITH AIDS

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Purpose: The aim was to study the course of tuberculosis (TB) co-infected with Acquired Immune Deficiency Syndrome (AIDS) and its treatment.

Methods: TB patients (n=177) were studied, among which 80.8% were males, 17.5% made females and 1.7% children. Patients with TB/AIDS associated pathology were on Directly observed treatment short-course (DOTS) anti-TB treatment program, 72 patients simultaneously with anti-TB treatment were administered antiretroviral (ARV) treatment according to the schemes, including efavirenz.

Results: TB pulmonary forms prevailed in TB patients (62.1%), extrapulmonary localizations were revealed in 13.6%, and 24.3% of patients had polyorgan TB. Infiltrative TB was the most frequent form of pulmonary TB (93.5%). TB of intrathoracic lymph nodes (44.7%), central nervous system TB (31.3%) and polyserosites (29.5%) prevailed among extra-pulmonary TB forms. Lethal issue occurred in 43.5% of cases, including 49% of patients with extra-pulmonary TB. CD4 cell count prior to ARV treatment made 100 *cell/mm*³.

Among the patients on ARV treatment 84.7% showed a significant clinical-X-ray dynamics; sputum negative, CD4 cell count increased up to 332 *cell/mm*³, viral load level decreased. The patients who did not receive ARV treatment showed positive shifts of the same indices in 78.6%.

Conclusion: TB extra-pulmonary forms are especially severe in TB/AIDS patients. DOTS and ARV treatment administration significantly increase treatment efficacy in such patients.

THE POTENTIAL ROLE OF THE INITIAL DIAGNOSTIC ECG IN DETERMINING THE TIMING AND MODE OF THERAPY IN ACUTE MYOCARDIAL INFARCTION

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Introduction: Emergency physicians and their consultants frequently use time-based criteria when they decide how to treat acute myocardial infarction (STEMI). Frequently asked questions are 1) when did the chest pain start? 2) how long would it take to inject the clot-dissolving drug after diagnosis? and 3) how long would it take to bring the patient to a coronary balloon angioplasty laboratory to open the clogged artery?

Most studies are designed based on these time-sensitive criteria. The answer to the first question is subjective and often inconsistent depending on symptom severity. The other two are organizational questions, which can be estimated. In an effort to overcome geographical and logistic barriers, clinicians have tried hard to stretch the acceptable time limits for intervention.

Purpose: These shortcomings can be solved by interpreting the initial ECG with more scrutiny. As a widely available, reliable and affordable diagnostic tool, the ECG can tell us more about the therapeutic window of opportunity than what “the onset of pain” does. The initial ECG not only confirms that myocardial “injury” has begun but it also tells us about the status of “permanent damage” in progress. In our opinion, some additional parameters cumulatively provide more useful information than time-based criteria alone regarding the status of the AMI and the preferred mode of therapy. Those parameters, which must be derived from the initial ECG are a) is ST elevation subtle or grossly detectable? b) is R-wave amplitude in injury-defining leads still preserved or is it on the decline?, c) have Q-waves appeared in those leads or not ?

The solution is a) organizing visual training workshops for all frontline cardiac practitioners to recognize the early ECG changes in STEMI comfortably, b) utilizing these initial ECG parameters to make more sense of time-based criteria and c) utilizing ECG not only as a diagnostic tool but also to determine timing and mode of therapy.

Conclusion: The golden minutes in the ECG diagnosis of STEMI may help to better define the “golden hours” of its therapy.

PERICARDIAL EFFUSION IN A PATIENT WITH FAMILIAL MEDITERRANEAN FEVER

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Introduction: Pericardial effusion is not a characteristic feature of Familial Mediterranean fever (FMF), but during our research we met cases of pericardial effusion in FMF patients.

Case: Under our supervision there was a patient with FMF, who had pericardial effusion. The patient (born in 1990) was admitted to the Cardiosurgery Department of the Medical Center (MC) in August 2003 with complaints: expressed dyspnea, high temperature, chest pain, which increased at body position changing.

Objective data: weight: 50 *kg*; height: 168 *cm*; saturation without oxygen: 95%.

Heart auscultation revealed muffled heart sounds. ECG: sinus rhythm, normal position of an electric axis of heart.

Echocardiography: large pericardial effusion, a collapse of the right part of heart, *vena cava inferior* was wide and was not fallen down. No structural pathology of heart was revealed. Blood analysis: Hb: 126.0 *g/L*; red cells: 3.8×10^{12} ; platelets: 278.0×10^6 ; leukocytes: 10.0×10^6 ; lymphocytes: 15%, monocytes: 9%, blood-sedimentation test result: 50 *mm/h*.

Based on clinical data, objective research (EchoCG and a chest X-ray) urgent pericardiocentesis was indicated. Fluid (1.3 *L*) was removed during pericardiocentesis. Cytological examination of pericardial effusion (PE) was without pathological changes. Blood and PE fluid culture was negative. Repeated EchoCG (November 30, 2003): ventricular contractility was normal, PE was not present. *Vena cava inferior* was not congested. The patient was discharged from Department of Cardiosurgery under the supervision of the pediatric cardiologist. After discharge PE reappeared. Repeated blood analysis: Hb: 125.0 *g/L*; red cells: 3.8×10^{12} ; platelets: 278.0×10^6 ; leukocytes: 4.4×10^6 ; lymphocytes: 15%; monocytes: 8%; blood-sedimentation test: 25 *mm/h*. In 2005 the genetic analysis of MEFV gene mutations was done and E 148Q/N mutation heterozygote condition was found. The patient was hospitalized in Department of General Pediatrics of the MC and the diagnosis of FMF mixed form was established. Later FMF diagnosis was repeatedly confirmed. Colchicine (1.0 *mg* twice a day) was prescribed to the patient. The patient has been on a follow-up in the Children's Republican Center of FMF since 2005 and now is under the colchicinotherapy in the MC Polyclinic. No repeated cases of PE are observed.

CHANGES OF PHOSPHOLIPIDS LEVEL IN THE ERYTHROCYTE MEMBRANES IN PATIENTS WITH HEMORRHAGIC VACULITIS USING MEMBRANOUS PLASMAPHERESIS

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Background: Hemorrhagic vasculitis (HV) is a disease with the preference affection of capillary vessels of skin, joints, gastrointestinal tract, and kidneys. One of the important pathogenetic factors among hemorheological disorders at HV is the ratio distortion of lipids, which depends on essential influence of homeostasis system and on components of humoral immunity.

Purpose: The aim was to study the influence of membranous plasmapheresis on the changes of phospholipids level in the erythrocyte membranes in the patients with HV.

Material and Methods: Two groups of patients with skin – joint type HV were investigated. The first group (n=20) was treated using both medication therapy and membranous plasmapheresis on “Haemophoenix” instrument. The second group (n=15) was treated only with medication use. Control data was obtained from 20 practically healthy persons. Studies on phospholipids level were performed by a method of a one-dimensional chromatography.

Results: HV is characterized by the changes of important biochemical characteristics in erythrocyte membranes of. In patients with skin –joint type diseases the percentage of phosphatidilcholines was decreased 1.7 times, phosphatidilethanolamine: 2 times and phosphatidiltriglycerides: 1.6 times. The given changes were accompanied by statistically confidently increased level of lisophosphatidilcholines. The oxidation destruction phosphatidilcholines and phosphatidilethanolamine associated with more unsaturated fatty acid structure of these fractions, reduce the activity of antiradical systems of a membrane and depression membrane-associate enzymes. Also there was an increase of phosphatidilserines which influenced the system of hemostasis and components of humoral immunity by its ability to activate proteases of serine same as compliment. Level normalization was observed for all fractions of phospholipids in erythrocyte membranes of HV patients after treatment with the use of membranous plasmapheresis. In patients treated only with medication changes of level of phospholipids in erythrocyte membranes were observed, but they did not achieve the normal level.

Conclusion: Treatment of HV patients with the use of membranous plasmapheresis leads to improvement of a rheological and hemodynamic condition of blood, especially normalizes the level of phospholipids in erythrocyte membranes. It is a safe and effective method of treatment for patients with HV and is recommended on the first stages of illness.

HUMORAL MARKERS IMBALANCE AND THEIR RELATIONSHIPS TO MYOCARDIAL REMODELING IN PATIENTS WITH CONGESTIVE HEART FAILURE

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Introduction: The role of humoral abnormalities in the pathogenesis and progression of congestive heart failure remains obscure.

Purpose: We aimed to determine the activation of several humoral factors and cytokines in patients with chronic heart failure (CHF) due to ischemic heart disease and dilated cardiomyopathy and their relationships with cardiac structural remodeling parameters, which are involved in the progression of heart failure.

Material and Methods: Patients (n=41) with stable CHF class 2-3 by NYHA and 23 healthy subjects were assessed clinically and by echocardiography for disease severity (NYHA class, six minute walk test, EF, EDD, mitral regurgitation degree, pulmonary hypertension degree). These parameters were compared with plasma concentrations of potentially important humoral markers, which have cardiovascular effects: endothelin 1, NO, TNF alpha, PNP- P1NP procollagen.

Results: The degree of humoral activation was elevated compared with control subjects and related to clinical state of disease. We found mild to moderate independent correlation using Pearson correlation analysis between the following parameters: EDD and endothelin 1 ($r = 0.42$; $p < 0.05$); EDD and NO ($r = 0.33$; $p < 0.05$); Six minute walk test and PNP-P1NP procollagen ($r = -0.35$; $p < 0.05$); Endothelin and EF ($r = -0.5$; $p < 0.05$). TNF alpha was not correlated with both clinical and remodeling parameters.

Conclusions: Endothelin 1 and NO are overactivated in patients with CHF and have correlated with remodeling parameters. These findings might indicate that mentioned markers may contribute to the progression of structural remodeling in CHF. Endothelin 1 may be used as a reliable marker for assessment of CHF severity compared to TNF alpha, the level of which is predominantly increased at the end-stage of CHF proceeding with cachexia .

THE STUDY OF BONE MORROW HEMOPOIESIS AT FAMILIAL MEDITERRANEAN FEVER

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Introduction: The study of Familial Mediterranean fever (FMF) is of interest, because of its high frequency in the Armenian population and the rise in cases of diagnostics of the disease atypical forms.

Purpose: This work was aimed at investigation of changes in composition of the bone marrow cells at atypical forms of FMF.

Material and Methods: Ten patients under study have atypical FMF with expressed joint syndrome. Five of them possess a homozygous mutation M694V at the MEFV gene and other five patients have various mutations in heterozygous compound state.

The patients were punctured and their myelogram was developed using standard May-Grunvald staining of bone marrow cell preparations and microscopic analysis.

Results: The substantial increment in the myeloid cell number was observed in all patients. The leuko/erythroid cells' relation was 4:1 instead of normal 3:1. The erythroid cell maturation index was low. The number of leukocytes was high in all the patients. The basophilic erythronormoblasts predominated over polychromatic and oxiphilic ones. At the same time an acceleration in the maturation of granulocytic cells and a delay in the maturation of neutrophils were revealed. The eosinophilic cells and monocytes were shown not to be changed. In all patients the expressed thrombocytosis and megakaryocytosis accompanied with active platelet formation were described. These changes were very pronounced and in one case we performed immuno-histochemical analysis of the bone marrow cells to exclude the diagnosis of acute megacaryoblastic leukemia (FAB M₇). Typical peculiarity of myelogram in all patients was high plasmocytic reaction with the increase of lymphocyte quantity.

Conclusion: All described changes in the composition of bone marrow cells are not specific and, probably, reflect the protective-adaptive and immunological shifts induced by atypical FMF.

SURGERY

MODERN ASPECTS OF CAROTID CHEMODECTOMA TREATMENT

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Introduction: Carotid chemodectoma (CCH) is a tumor of the carotid bifurcation paraganglion. Though usually benign, the tumors often reach great sizes and cause pressure on the vascular fascicle, vagal nerve, and larynx dislocation. Key features of the tumor are slow growth, massive vascularisation, and rare metastasis.

Material and Methods: Since 1999 to 2009 we examined and surgically treated 12 patients with CCH. Their average age was 46.3 years old. Nine patients complained about some tumorous formation on the neck, 3 patients had swallowing difficulties, increased irritability was diagnosed in 5 patients, arterial hypertension was noted in 8 cases. All patients underwent arteriography, triplex scanning of brachiocephalic arteries and a transcranial Doppler sonography with Matas test. Ten patients had average and high cerebral tolerance to ischemia, 2 patients had to undergo presurgical "testing" cross-clamping of common carotid artery and a complex medicamentary therapy.

Since 2006 we use the combined treatment of CCH: the first stage is endovascular embolization of an afferent vessel, the second: radical excision of a tumor in 3-5 days. Out of 7 patients that were operated this way, the presurgical embolization was effective in 6 patients, and in 1 patient the significant decrease of blood flow in a tumor was not reached.

The surgical treatment in all cases was essential excision of a tumor. In cases with the intimal adherence of a tumor to the carotid arteries there were performed different interventions: external carotid arteries ligation in 7 cases, internal carotid arteries prosthesis in 1 case, simultaneous ECA ligation and ICA prosthesis.

Results: We succeeded to radically remove tumors in all patients. Tumors did not relapse over the whole monitoring period (1-4 years). Five patients had temporary tongue deviation. In one case there occurred an acute cerebral circulation failure in the *a. cerebri media* pool with unblocked common carotid arteries and internal carotid arteries. Endovascular embolization allowed decreasing the blood loss by 300 +/- 100 mL and decreasing the surgery duration by 35 minutes on the average.

Conclusion: The combined double-stage approach to carotid chemodectoma treatment is the most favorable method of treatment for this category of patients.

LAPAROSCOPIC TREATMENT OF PERFORATED PEPTIC ULCER

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Introduction: Perforation is the dangerous complication of peptic ulcer disease with high morbidity and mortality. Many operations are suggested for repair of perforated ulcer, the new one of them is laparoscopic method. Laparoscopic repair is less traumatic and more reliable in experienced hands.

Goal: Improvement of laparoscopic repair of perforated peptic ulcer.

Material and Methods: Laparoscopic repair of perforated duodenal peptic ulcer for 8 patients was performed by the authors in a period of April 2010 to August 2010. All patients were male, the mean age was 35.4 years (age range: 28-56 years). Two patients had not previous symptoms of peptic ulcer disease ("silent" ulcer). Six patients had history with a mean period of 8.2 years (in the range of 3-20 years). All patients underwent laparoscopy while six hours after onset of perforation. Laparoscopy evaluates the possibility of closure of perforation with this method. In seven patients laparoscopy was performed without conversion to laparotomy. In one case we needed conversion to laparotomy. Conversion was required because of technical difficulties of the repair. In all cases we performed the tamponade of ulcer with omental patch, meticulous cleaning of abdominal cavity and drainage. All patients received famotidin and omeprazol.

Results: Six patients were treated without any complications. The mean postoperative stay in patients completed laparoscopically was 10.5 days (in the range of 8-20 days). Average times to passage of flatus and first bowel movement were 2 days and 3 days. We had no incidence of injury of organs upon entering the abdomen and during operation. There were no mortalities. We had one case of leakage; the patient was treated conservatively. The mean procedural time for complete laparoscopic repair was 95.5 minutes (ranging 86-135 minutes).

Conclusions: Laparoscopic repair of perforated peptic ulcer is effective and less traumatic method of treatment. At early stages of using this method, the selection of patients is important. The best results are reached in cases with history of perforation not more than 6 hours.

DISADVANTAGES AND COMPLICATIONS OF THE HEMORRHOIDECTOMY USING THE ELECTRO LIGATION METHOD

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We have treated 185 chronic hemorrhoids patients at the 3rd and 4th stages. In the main group 82 patients were operated on by the generator «LigaSure», and 102 patients were operated on according to Milligan-Morgan in the control group.

The marked pain syndrome has been found more often in the control group. Studying anaesthetization needs it has been found out that 1.06 ± 0.5 mL of 2% omnopon solution has been used for one patient in the main group, and in the control group it has been 1.96 ± 0.5 .

There were 3 cases of anal canal stenosis (3.6%) in the main group. All the cases of anal canal stenosis were observed at hemorrhoids of the 4th stage and connected with excessive node traction mucous tunic and submucosal layer of rectum fall in forceps, and during the electro ligation the coagulation surface widens. Thereby the deficiency of the mucous layer occurs which leads to stricture. The relapse happened in the main group in 2 (2.4%) cases and occurred at economical approach in hemorrhoidectomy without the traction of hemorrhoidal bolus, at that the visibility of the node has become worse, and the part of the cavernous body has been left. There were no cases of relapse and stenosis in the control group.

The research has shown that the hemorrhoidectomy carried out with the “LigaSure” generator allows to diminish the pain syndrome 1.8 times. At the same time the breach of operative technique leads to the anal canal stenosis (3.6%) and relapse (2.4%).

RECOVERY OF THE ESOPHAGUS PATENCY IN DISPHAGIA BY MEANS OF BOUGIEUVAGE

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Treatment of the esophageal obstructions in achalasia (cardiospasm) and in cicatricial stenoses, developed as a result of the chemical burn, reflux-esophagitis and the surgical interventions still remains a complex problem.

With the purpose of stretching the esophagus out the bougies made of metal, rubber and other materials of excessive rigidity were used, or *vice versa*, excessive flexibility of the bougies used led to traumas of esophagus.

In result of the performed toxicological and clinical trials it was found that the most eligible for the bougies are the X-ray-contrast polymeric compositions made on the base of Bismuth with adding of latex that significantly reduces the value of the superficial friction of material, when contrast to the esophageal wall.

Elaboration and updating of the bougienage methods gave us opportunity to extend the strictures of esophagus also in cases previously curable surgically. Sometimes there is a necessity of if recurrent bougieurage (re-bougieurage) until the disease relapse.

In the term of 1-5 years, span 76% of the patients got good distant results, 27.7% had the satisfactory ones, and 4.4% had bad outcomes, which required re-bougienage.

Choosing the treatment tactics of the patients it is necessary to remember that in case of correct bougienage treatment it is possible to get good or satisfactory potency of food through the esophagus in overwhelming majority of patients, which stay practically healthy and able to work instead of being disabled after multiple surgical operations pursuing making of the artificial esophagus.

LAPAROSCOPIC ADRENALECTOMY IN TREATMENT OF ADRENAL TUMORS

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Introduction: With rapid development of high technologies in the field of medicine the number of tumor detections in retroperitoneal space has increased. Thus the search of optimal diagnostic methods and surgical treatments of adrenal tumors continues.

Purpose: Improvement of diagnosis and treatment of adrenal tumors, decreasing of postoperative complications.

Material and Methods: Clinical research was based on analysis of surgical treatment of 75 patients with adrenal neoplasms (in a period of 1994-2010). All patients with adrenal tumor (adenoma, aldosteroma, pheochromocytoma, cortex hyperplasia, adrenal cysts) underwent surgical treatment in the volume of adrenalectomy, which was made by laparoscopy. Laparoscopic adrenalectomies were made with direct abdominal and lateral abdominal operative approaches, preference was given to lateral abdominal approach (49 operations); direct abdominal approach was used in 26 cases. Patients were operated if adrenal neoplasms reached the size of 23-52 mm in diameter. Adrenalectomies were made by the following indications: hormone and clinically-inactive neoplasms (incidentalomas), hormone-active adrenal neoplasms.

Results: Addominal lateral approach provides technically successful and safe performance of laparoscopic adrenalectomy. The obtained results confirm minimal traumativeness of laparoscopic adrenalectomies and demonstrate lessening of frequency of complications at postoperative period.

Conclusion: Laparoscopic adrenalectomy is methodologically grounded and is effective for surgical treatment of adrenal tumors. Endovideosurgical operative technologies provide high level of clinical effectiveness of laparoscopic adrenalectomy.

THE RESULTS OF MESH ALLOTRANSPLANTS APPLICATION IN EMERGENCY SURGERY

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Within the framework of the scientific-research activities of the MSUMD the Chair of Faculty Surgery No. 2 the latest results of the emergency operative interventions with the usage of the polypropylene implants for abdomen hernioplasty were analyzed.

Purpose: Within the limits of research work of the Chair to analyze the nearest results of emergency operative interventions, at which the plasticity of a forward belly wall by polypropylene endoprotheses was applied.

Material and Methods: Since 2006 111 emergency operative interventions with the use of polypropylene allotransplants were executed in patients with the restrained hernias of a forward belly wall and sharp intestinal impassability in a combination with ventral hernias of big sizes.

The age of patients was in the range from 24 to 93 years; among them there were 46 women and 65 men.

The character of performed operative interventions was as follows:

- ⊙ herniolaparotomy, a section of solderings: 14;
- ⊙ herniosection with a plasticity across Liechtenstein: 60;
- ⊙ herniosection at umbilical and ventral hernias with a plasticity of a forward belly wall by allotransplant: 34;
- ⊙ herniolaparotomy, right-hand hemicolecotomy, alloplastics of a forward belly wall: 1;
- ⊙ herniolaparotomy, a resection of a small intestine with alloplastics: 2.

Results: Among postoperative complications the seromas of postoperative wound cured in punctural way under Ultrasound-guided were observed in 7 patients. The suppuration of a postoperative wound was noted in one case. The removal of allotransplant was not required in one case against treatment.

From 111 patients 3 died of sharp myocardial insufficiency against a heavy accompanying somatic pathology.

Among the surveyed patients from 6 months till 3 years after operative intervention the relapse was revealed at 1 patient, ligatural fistulas were not revealed.

Conclusion: Thus, the small amount of complications in the postoperative period and the low interest of relapses gives the grounds to wider application of mesh allotransplants in conditions of emergency surgeries.

At the moment a number of scientific activities are performed at the Board of the Faculty Surgery No. 2 aimed at determining the exact criteria of the safe usage of mesh implants in emergency surgery.

OUR EXPERIENCE OF FLOWMETRY DURING FEMORAL-DISTAL RECONSTRUCTIVE OPERATIONS

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Purpose: The study was aimed to examine the possibility of forecasting the results of femoro-distal reconstructions with distal perfusion flowmetry (DPD).

Material and Methods: Since 2005 to 2009 we observed 50 men with atherosclerotic occlusion of femoral-popliteal segment. Thirty-one (62%) patients had chronic ischemia 2B degree, 7 (14%) 3rd degree, 12 (24%) 4th degree in A.V. Pokrovsky classification. According to the ultrasound and aorto-arteriography hemodynamically significant lesions of the aorto-iliac segment was not detected. All the leg artery functioned in 19 (38%) patients, two in 25 (50%), one of the tibial arteries in 6 (12%). When femoral-popliteal bypass surgery was performed according to our own DPD method. Using a catheter with a diameter 1.6 mm during one minute the retrograde blood flow from the popliteal artery was determined. Then amount of fluid was measured, the perceived distally per one minute, with a bottle of liquid at a height of 2.7 m.

Perfusion ability (PA) of the distal channel was estimated as high ($> 65 \text{ mL/min}$), satisfactory (40-65 mL/min) and low ($<40 \text{ mL/min}$).

Results: Within 6 months, stents were passable in 47 (94%) patients. In 3 (6%) shunt thrombosis was recorded in the period from 2 weeks to 1.5 months after surgery (one of them PA was satisfactory, the two: low). After 1 year we observed 38 (76%) patients; in 30 of them (78.9%), autogenous vein bypass was passed (at a high and satisfactory PA in 27 patients). After 2 years there were 26 (52%) patients, of which shunt was passable in 17 (65.3%), while initially high and satisfactory PA was observed in 24 patients. After 3 years of intervention, we observed 19 (38%) patients, in 10 (52.6%) of whom autogenous vein shunt continued to function (high and satisfactory PA was noted in all).

Conclusion: Our experience suggests that implementation of femoro-distal reconstructions is useful at high and satisfactory PA according to DPD.

OUR EXPERIENCE OF SURGICAL TREATMENT OF SPONDYLOLISTHESIS

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Treatment of spondylolisthesis is one of the current problems in vertebral surgery. Improvement of diagnostics and application of modern methods of examination allows defining quite specific features of spondylolisthesis.

The main objective of surgical interventions in the system of spondylolisthesis treatment is to halt the progressing of the spinal column deformity, achieve its maximal correction and elimination of conditions causing neurological disturbances of lower extremities.

In the selection of methods of treatment we considered the fact that at spondylolisthesis not the whole vertebra is displaced with all its elements, but only the body with the bases of vertebral arches, while its posterior part, namely: the arches with inferior articular processes and spinous process are not displaced (spondylolisthesis with spondylolysis). Besides, the pathological placement of articular processes is of big importance in the pathogenesis of spondylolisthesis. Therefore, spondylolisthesis is possible only if the integrity of the 5th lumbar vertebra is disturbed. In rare cases displacement of the 4th lumbar vertebra over the 5th takes place at assimilation sacrum of the intermediate vertebra (in case of 6 vertebra sacrum). We observed 5 patients with spondylolisthesis of 3rd-4th grade. All patients underwent trans-pedicular fixation of the upper and lower placed vertebrae with simultaneous correction of displacement with postero-lateral and inter-body spondylodesis. At two patients the above intervention was accompanied with introduction of inter-body cage from posterior foramen access.

Criteria for the assessment of the outcome of surgical intervention was the presence or absence of pain syndrome, regression of neurological disturbances as well as radiology (X-ray) evaluation of the degree of correction and stability of the spinal fixation.

Late (long-term) results after 1-3 years showed significant clinical-radiological improvement.

Thus, the proposed approach to surgical treatment of patients with spondylolisthesis of lumbar segment of vertebral column provides for safe and effective creation of spondylodesis on the damaged level, and restores the sagittal profile of vertebra thereby eliminating the pathological symptoms.

CLINICAL EXPERIENCES OF OF REPEREN MESH USAGE IN INGUINAL HERNIAS TREATMENT

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The success of modern herniology is mainly determined by introduction of non-tension hernioplasty methods with application of mesh endoprosthesis (lavsan, mercylen, proflax, etc.).

These endoprostheses are designed for anterior hernioplasty and produced as uniform block from an elastic polymeric material, so-called Reperen.

These are made by wave polymerisation of acetyl-polypropylene which allows to reduce the things, which can arise in usage of other synthetic meshes: mesh rejection, allergic reaction, toxicity. This is bound to unique technology of Reperen obtaining which result in creation of a comparative pure material (monomer which has not negative properties of polymers).

Reperen can be easily modeled under the form of hernia defect. It is elastic and perfectly keeps the form. The prosthesis repeats the form of the inguinal space and has a hole for spermatic cord which allows to choose corresponding endoprosthesis depending on height of inguinal space. This also protects from squeezing and sclerosis or necrosis of spermatic cord.

We operated 12 patients with inguinal hernias with use of Reperen and draining the area above the mesh by Redon.

The life quality of patients, which are operated due to inguinal and inguinal-scrotal hernias, differs from other group patients which are operated with Lihtejshtejn method, with polypropylene mesh.

Subjective sensations (discomfort, presence of foreign body, pain) in the postoperative wound area are less in these patients. The syndrome of chronic pain and sensation of foreign body were more than 30% in group of patients, which were operated with polypropylene mesh. This indicator does not exceed 20% in group of patients, which were operated with Reperen.

The expressed inertness of the material allows to avoid introduction of drainage in inguinal region and antibiotics usage in postoperative period.

The preliminary experience of Reperen mesh application allows further study and application of that material for inguinal hernias treatment.

A METHOD FOR ESTIMATING INTESTINAL VIABILITY

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In abdominal surgery the estimation of intestines viability and their certain parts during the operation is of vital importance. The well-known classical method for estimating intestinal viability is that performed by estimating the colour, brightness and peristalsis of the intestinal loop and the pulsation of the mesentery vessels. However, the classical method for estimating intestinal viability has its shortcomings too: it is mainly subjective and allows to determine only apparent, rough changes. Therefore, the resection of the intestine may cause the "short bowel syndrome" and the applied economical method may cause insufficiency of anastomosis sutures. That is why there is a necessity for developing a new more objective and reliable method for the estimation of intestinal viability.

To achieve the mentioned goal, two notions were taken into account:

1. it is common knowledge that serrate or pulsating low voltage current influences the microcirculation eliminating vasospasm and vasoparalysis;
2. oxygen saturation in the tissue measured with the help of a saturometer indicates the percentage activity of arterioles which is in direct proportion to the tissue viability.

Putting this two notions together, the electrostimulation pulsoximetric method was suggested which is quite effective especially during mesentric thrombosis when the ischemic zone occupies most of the intestinal loops; during incarcerated hernia, when the question of applying resection is not clear yet; and it can also be applied during peritonitis for forming primary intestinal anastomosis.

Thus, in the course of surgical operations of the intestine this method allows to estimate the viability of the affected loop more objectively. This latter will help to avoid the unreasonable resection of the intestine and insufficiency of anastomosis sutures and to prevent the development of the "short bowel syndrome".

PROGNOSTIC SIGNIFICANCE OF ADMISSION BASE DEFICIT FOR BLOOD TRANSFUSION RATE IN CRITICALLY ILL ADULT PATIENTS

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Background: In intensive care medicine the clinical decision to transfuse red blood cells (RBC) is usually based on hematocrit or hemoglobin levels. However, these values at the admission to intensive care unit (ICU) cannot predict the necessity in blood transfusion in critically ill patients during their stay in ICU. Certain laboratory variables, particularly base deficit (BD) have been shown to be a valuable indicator of shock, fluid requirements, efficacy of resuscitation and to be predictive of mortality and blood transfusion after trauma.

Purpose: The goal of this study was to investigate whether BD taken on admission could be used to predict the frequency of blood transfusion in critically ill patients with anemia during their stay in ICU.

Material and Methods: A retrospective review of medical records of 96 patients admitted to the multiprofile ICU of tertiary care hospital from September 2008 to April 2010 was done.

Patients who had an arterial blood gas obtained within 1 hour of admission and with history of RBC transfusion during intensive therapy were included.

The patients were subdivided into 3 categories depending on the BD level on admission:

- ⊙ Category 1: $BD \geq -2$, 17 patients (17.71%);
- ⊙ Category 2: $-3 \geq BD \geq -6$, 28 patients (29.17%);
- ⊙ Category 3: $BD \leq -7$, 51 patients (53.13%).

Statistical analysis was performed by chi-square test.

Results: Transfusion requirements increased with BD level worsening. Twelve patients (70.59%) in Category 1 had one history of transfusion and 5 patients (29.1%) had more than one transfusion. In Category 2, 18 (64.29%) had one and 10 patients (35.71%) had more than one transfusion. The same values for Category 3 were as follows: 21 patients (41.17%) required one and 30 patients (58.82%) more than one transfusion. ($p < 0.001$, $\chi^2 = 14.86$).

Conclusions: Admission BD identifies patients likely to require frequent transfusions. In a group with severe BD level ≤ -7 at the time of admission critically ill patients required frequent transfusions of RBCs during their stay in ICU. These data show that the BD is an early available important indicator to identify patients with high transfusion requirements.

EARLY DIAGNOSIS AND SURGICAL TREATMENT OF POSTOPERATIVE INTRAPERITONEAL COMPLICATIONS

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Introduction: Early postoperative intraperitoneal complications represent one of the most actual and difficult problems in abdominal surgery. This is due to the frequency of pathology, were observed in 0.3-8.6% of patients operated on abdominal organs, not handled by the downward trend, and the continuing high mortality rate, reaching up to 83.7%.

Purpose: The purpose of the study was to develop principles of timely diagnosis and surgical treatment of early postoperative intraperitoneal complications.

Material and Methods: Seven patients aged from 16 to 72 years were urgently operated for acute abdominal pathologies. Before suturing the abdominal cavity carried out the location of the silicone port-drainage in problem areas, through which a dynamic video monitoring of the abdominal cavity multipurpose fiberscope connected to a video monitor. Video monitoring data was maintained on electronic media, with the possibility of a chronological view.

Results: These video surveillance with the ability to zoom in up to 19 times, allowed to make an assessment of the macroscopic state of tissues. In 1 patient, after resection of small intestine on the mesenteric vascular thrombosis on the second day after surgery, the next time video monitoring has been identified macroscopic picture of mesenteric vessels re-thrombosis, with characteristic changes. Re-laparotomy was performed, repeated resection of the small intestine with a favorable outcome. The rest of the observed patients with pathologies requiring surgical intervention have been identified.

Conclusion: The findings suggest that high performance dynamic video monitoring of the abdominal cavity make possible early visual diagnosis of postoperative complications outside the operating room.

LAPAROSCOPIC ADHESIOLYSIS IN TREATMENT OF SMALL BOWEL OBSTRUCTION

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Introduction: Adhesions are the most common causes of small bowel obstruction. Another results of adhesive abdominal disease are abdominal and pelvic pain, infertility. Laparoscopy decreases the incidence, extent and severity of intraabdominal adhesions, recurrence rate of adhesive small bowel obstruction.

Purpose: Improvement of results of laparoscopic treatment of adhesive bowel obstruction.

Material and Methods: Laparoscopic surgery for 38 patients with adhesive small bowel obstruction was performed by the authors between March 2009 and July 2010. Mean age was 44.9 years (range: 15-76 years) and 60.5% (23/15) were woman. All patients had previous abdominal surgery that ranged between 1 and 5 operations. In all cases patients underwent attempted therapeutic laparoscopy for evaluation of possibility of solution of obstruction with this method. Twenty-eight patients (73.7%) were successfully exposed to laparoscopy without conversion to laparotomy. In ten cases we needed conversion to laparotomy. Conversion was required because of dense adhesions and/or lack of working space.

Results: The mean postoperative stay in patients completed laparoscopically was 7.8 days (range: 3-16 days). Average time to passage of flatus and first bowel movement were 2 days and 2.5 days. There was no significant difference between postoperative stay of patients completed laparoscopically and those converted to open (8.2 days). We had no incidence of bowel injury upon entering the abdomen. There were no in-hospital mortalities. The mean procedural time for diagnostic laparoscopy before conversion was 25.6 minutes (range: 10-40 minutes), for complete laparoscopic adhesiolysis 72.96 minutes (range: 25-120 minutes).

Conclusion: Our examinations show that laparoscopic approach for adhesive small bowel obstruction in selected patients is effective.

AN ACCESSORY METHOD OF DIAGNOSTICS AND MONITORING IN CASE OF OBSTRUCTIVE CANCER OF THE LARGE INTESTINE

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We have treated 85 patients with acute large intestine obstruction.

Intra-abdominal pressure was taken by measuring pressure in the urinary bladder, the stomach and the rectum. In 70 (82.3%) cases intra-abdominal pressure exceeded 10 *mm* Hg. Intra-abdominal pressure of 43 (50.6%) patients was less 15 *mm* Hg. These patients were operated no later than 24 hours from an admission time. Intra-abdominal pressure of 26 (30.6%) patients was 16-25 *mm* Hg. These patients were operated no later than 12 hours from an admission time in the cases of their ineffectiveness. Laser recanalization of the large intestine was made to 8 (9.4%) patients and probe decompression was made to 8 (9.4%) patients before the operation, whereupon intra-abdominal pressure of 12 (14.1%) patients was reduced by 4.5 ± 0.48 *mm* Hg within 6 hours. Intra-abdominal pressure of 16 (18.8%) patients was more 25 *mm* Hg. These patients were operated no later than 2 hours after a preoperative preparation. Mini-laparotomy with colostomy was performed in 14 (16.5%) cases, laparotomy with colostomy in 19 (22.4%), obstructive resection of the large intestine in 11 (12.9%) and resection with formation of anastomosis in 41 (48.2%) patients. Two patients showed increase of intra-abdominal pressure which proved the failure of anastomosis sutures.

The control of intra-abdominal pressure helps to estimate severity of acute large intestine obstruction, the effectiveness of conservative therapy, to establish indications to an emergency operation in case of critical figures of intra-abdominal pressure, to diagnose complications in the post operational period.

HIGH-DOSE INTRAARTERIAL INFUSION OF VERAPAMIL THROUGH AN INDWELLING MICROCATHETER FOR SEVERE VASOSPASM: ANESTHETIC OBSERVATIONS. A CASE REPORT

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It is well-known that severe cerebral vasospasm delayed anesthetic recovery and extubation.

Case report: A 39-year-old man was admitted to the Department of Neurosurgery complaining of severe headaches during the last 30 days. Two days before worsening of headaches was noticed with accompanying nausea and vomiting. Neurological examination was unremarkable, except for altered consciousness (GCS-13), severe meningeal signs (Hunt and Hess grade - III). CT and CTA revealed acute recurrent SAH, ruptured aneurysm of anterior communicating artery and hydrocephalus. In ICU, the patient's vital signs included a blood pressure (BP) of 190/110 mm Hg and pulse rate (PR) 123 *beats/min*. Nimotop infusion (1 mg/h IV) was performed.

The original anaesthetics consisted of thiopental, midazolam, fentanyl and atracurium administered intravenously for induction. This was followed by administration of isoflurane, fentanyl and atracurium for maintenance of anaesthesia. External ventricular drain was placed in the frontal horn of the right lateral ventricle and ICP monitoring was performed. The aneurysm was secured by endovascular coil-embolization and HHH therapy was initiated immediately. Verapamil solution (30 mg) was then locally infused through the microcatheter over 30 minutes for refractory severe vasospasm of all main branches of the circle of Willis. Consequent angiograms revealed significant radiographical improvement of vasospasm. Significant changes in the BP, PR, electrocardiogram and ICP were not observed after verapamil infusion.

After intervention standard extubation was performed immediately without complications. The patient's vital signs were as follows: BP: 160/95 mm Hg, regular sinus rhythm of PR: 91 *beats/min* and normal peripheral oxygen saturation. EVD was removed on the 7th day.

Discussion: High-dose intraarterial infusion of verapamil through an indwelling microcatheter may be safely used for patients with refractory severe cerebral vasospasm and influence early extubation.

PAEDIATRICS

TONSILLECTOMY IN FAMILIAL MEDITERRANEAN FEVER IN CHILDREN: CLINICAL AND GENETIC FINDINGS

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The aim of this study was to investigate the frequency of tonsillectomy (TE) and its connection with the genotype and severity of Familial Mediterranean fever (FMF) course in children.

Methods: We examined 715 children with FMF the average 8.64 ± 0.17 years. The FMF diagnosis was based on the clinical criteria and molecular-genetic study of MEFV mutation; the degree of severity was assessed by Tel-Hashomer scale.

Results: Tonsillectomy appeared to be the second by the frequency of surgical intervention (7.2%) after appendectomy among FMF children. It was performed usually in the early childhood in the first 2-3 years after FMF manifestation. As a ground for TE conduction served the recurrent episodes of fever, combined with cervical lymphadenitis, hyperemic and sore throat, abdominal pains, arthritis, aphthous stomatitis. The latter in a part of patients mentioned symptoms reoccurred soon after TE, which may be an early manifestation of FMF. Analyzing the connection between TE frequency and genotype ($\chi^2 = 0.54$; $p = 0.76$) and the severity of FMF course ($\chi^2 = 1.69$; $p = 0.79$) significant dependence was not found. Nevertheless, among the children subjected to TE prevailed carriers of M694V mutation, mainly homozygotes.

The catarrhal factor or "supercooling" according to the anamnesis of the studied FMF children supposed to be the cause for manifestation or paroxysms of FMF in 43.4% and 51.3% of cases correspondingly, where in 1/3 M694V/M694V genotype was detected. These data, possibly indirectly, point to the expediency of more detailed study on the influence of the catarrhal factor in FMF, having as known a definite role in development of a number of periodic fevers. It is interesting to note that observed recurring peripheral lymphadenopathy was detected in 10 FMF children, in 4: repeated aphthous stomatitis during paroxysms.

Conclusions: We suppose, in children with the above mentioned symptoms it is advisable to conduct genetic screening of MEFV gene mutation, which will help to improve the early detection of FMF and other autoinflammatory periodic syndromes. It is necessary to investigate the frequency and peculiarities of the course of recurring tonsillitis in FMF children for its possible early manifestation in childhood.

THE METHOD OF TREATMENT OF NEWBORNS' RUPTURED PERITONITIS

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Peritonitis of newborns is considered to be the most serious illness with high lethality. The children of this age have peritonitis developed mostly in the result of perforation of intestinal wall. The cause of perforation of intestine is ulcerous necrotic process in the wall by septic enterocolitis. It is possible to diagnose free gas radiologically in abdominal cavity which is an absolute evidence of surgical intervention. Until recently, the following tactics of surgery treatment have been used more often. During the first hours of diagnosis setting the operative treatment is immediately initiated.

The preparation for the surgery intervention takes no more than 2-4 hours according to the health condition of a newborn the aim of which is to normalize the hemodynamic and eliminate metabolic disturbances. However, it was impossible to cope with such complicated diseases as SKY because of high internal abdominal pressure.

Since January 2009 in the Clinic of Children's Surgery of UHC No.1 we have operated 3 patients with newborn peritonitis and have satisfactory results.

We consider that the reason of favourable results is the use of operation of abdominal cavity drainage for 4-6 hours before the radical operation which allows to lower the internal abdominal pressure and to fight with SKY and respiratory insufficiency. It brings to desired result more effectively.

In spite of the small number of operated patients we think that the method if used in clinic can give in future appreciable and good results in medical treatment of children with such diseases.

IMPROVED METHOD OF PRIMARY CRANIOPLASTY USING AUTOLOGOUS BONE CRUMBS

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Introduction: Surgical procedures performed due to craniocerebral trauma (CCT) often result in skull defects, which afterwards cause functional-morphological changes of CNS and pose risk for unprotected brain. The advantages of primary and early cranioplasty are permanently stated in the literature. For primary plastic of skull defect the autologous bone crumbs are used in the “Surb Astvatsamayr” Medical Center for approximately 25 years.

The objective of this study was to increase the effectiveness of the method.

Material and Methods. During 2005-2009 the primary cranioplasty was performed in 126 children at the ages from 1 month to 17 years. There were 26 closed and 71 depressed skull fractures, from which 31 injuries were penetrating. Mild brain contusion was in 30 cases, moderate in 29 cases and severe in 7. In 39 cases fractures were located in two or more bones of the skull (more often temporal, parietal and occipital bones), in the rest cases injury was located in the right parietal region. Intracranial acute hemorrhages were diagnosed in 29 patients (26 epidural and 3 subdural hemorrhages).

Results and discussion: Since 2005 brain computed tomography (CT) has been used as an additional diagnostic method of CCT, which allows describing precisely the nature, volume and locations of intracranial changes, thus making planning and performance of the surgical procedure more effective. Having initial information about the location of fractures and hematoma made possible to perform intracranial procedures (removal of contusion and hematoma) using bone plastic or two separate bone resection entries (windows) by leaving 1 cm width bone bridge between them. It allowed keeping natural vault of skull curvature and at the same time to overcome some small skull defects using autoplasmic method. This modification was used among 9 patients in our Clinic. In all cases the complete regeneration of bone defect and better plastic results were achieved.

Conclusion: Having pre-surgical CT results of brain injury gives opportunity to use improved method of cranioplasty more widely and improve treatment outcomes.

NEOPLASMS OF THE MAXILLO-FACIAL REGION IN CHILDREN OF VARIOUS AGE GROUPS

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Introduction: Tumors in children and particularly neoplasms of the maxillo-facial region remain in the center of interest of specialists. According to certain statistical data children make 25.5% among patients with neoplasms of maxillo-facial region; 95% of neoplasms in children are considered to be benign tumors, and 5% - malignant.

Purpose: The objective of this study is to distinguish the incidence and character of tumors of the maxillo-facial region in children of various age groups according to statistical data.

Material and Method: A survey of the medical histories of 118 children with neoplasms treated in the Department of Maxillo-facial Surgery of "Sourb Astvatsamayr" Medical Centre in 2002-2009 and the first quarter of 2010 was done. We have to note that children with neoplasms made 14.45% of total number (800) of the patients treated in that period of time in the Department. The contingent of the patients with neoplasms of maxillo-facial region was divided into 6 age groups: 0-1, 1-3, 3-7, 7-10, 10-15, >15 years old. Affection of soft and hard tissues was also taken into account.

Results and Discussion: The results of the survey show that soft tissues of the maxillofacial region are affected by neoplasms more frequently (89%) than the hard tissues (11%). In the youngest age group (0-1) 33.9% (40) cases were revealed. The highest incidence had congenital cysts and fistulas of the neck (29 cases or 24.6%) and hemangiomas (28 cases or 23.8%). Among 13 neoplasms of hard tissues 6 were of odontogenic origin.

APPROACHES TO TREATMENT OF HYDROCEPHALUS IN EARLY CHILDHOOD

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The choice of adequate treatment of infants with hydrocephalus (H) is still debatable.

The study objective was to examine the main factors affecting the choice of method and effectiveness of treatment.

Material and Methods: Medical histories of 192 patients (premature newborns: 10, newborns: 32 and early infants: 150), treated in 2004-2009 were analyzed.

Results and Discussion: Infections such as toxoplasmosis (11 cases), cytomegalovirus (9 cases), herpes virus (2 cases), sepsis (2 cases) and unknown infections (137 cases) were revealed. Congenital craniovertebral and CSF flow anomalies were in 13 cases; intraventricular and parenchymatous hemorrhages (mainly in premature newborns) were registered in 8 cases. In majority of patients hydrocephalus was accompanied by pneumonia, sepsis, etc. In patients with dilatation of the third ventricle the course of somatic pathology was more severe.

The treatment approach in each case was individual. In not complete obstruction of CSF circulation the conservative treatment and dynamic follow-up were performed. Recurrent lumbar and ventricular punctures were not always effective treatment as they caused impairment of CSF flow, stimulated plexes, and thus resulted in excess CSF production. As hydrocephalus was accompanied by intracranial hypertensive of general or local compression syndromes the surgical treatment was indicated. In cases of intraventricular hemorrhages initially hypertensive hydrocephalus often transformed into the substitutional (vicarious) hydrocephalus, when surgical treatment was not indicated. However, neurosurgical intervention could be discussed, if internal hydrocephalus is gradually progressing or episodes of increase of intracranial pressure are registered occasionally.

Conclusion: Hydrocephalus is a multicausal and multiform disorder, the adequate treatment of which depends upon several factors and mostly upon etiology of a disease, type of the impairment of normal CSF flow, disease stage and age of a patient.

STUDY OF LIVER FUNCTION IN CHILDREN WITH ACUTE AND CHRONIC PULMONARY DISEASES

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Introduction: The study of functional disorders of the liver in various respiratory diseases and chronic injury of lungs is of great interest, as well as the subsequent evaluation of the effect of agents modifying the membrane and activating the metabolic processes of the state of hepatocytes in various forms of homeostasis.

Aim: To study the biochemical characteristics of liver function in children with acute and chronic respiratory diseases.

Material and Methods: We observed 65 patients at the age from 4 months to 16 years old with established diagnosis of acute pneumonia (AP) and cystic fibrosis (CF). The control group comprised 14 healthy children of corresponding age. Laboratory diagnosis included: total protein and fractions, total bilirubin and fractions, serum activity of aspartat aminotransferase (AST), alanin aminotransferase (ALT), ornitincarbamoiltransferase (OCT), alkaline phosphatase (AP), γ -glutamyl transpeptidase (γ GT), glucose, ammonia, etc.

Results and Discussion: The prevalence of hepatocellular injury among CF children was found to be high (100%), while in AP children had evidence of 94% ($p < 0.0001$). During the period of study, 12 AP patients vs. 4 CF experienced at least one episode of hypoglycemia. During the period of study, 24 patients with AP showed increase in serum ammonia with marked elevation of OCT and AST. In children with CF hyperammonemia is characterized by high activity of OCT and mild cholestatic changes. We carried out a correlation analysis of LPO indicators and cytokines (TNF- α , IL-6, IL-8) with the main clinical and diagnostic characteristics of liver damage. Significant correlations were found with the following parameters: LPO indicators with the level of ammonia ($r = +0.42$), the activity of OCT ($r = +0.68$).

Conclusions: Our data indicate impairment of liver functional state in respiratory diseases, and CF is characterised by the hepatocellular injury. We have also found that OCT serum level is a more sensitive criterion of cytolysis than aminotransferases in these patients. Therefore, it is necessary to differentiate patients with decreased liver function for early recognition of hepatocytolysis and prevention of the complication to minimize the effect of the exo- and endotoxins on liver function.

THE STRUCTURE OF CHILDREN'S DISABILITY IN "MURATSAN" UNIVERSITY OUT- PATIENT CLINIC

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Introduction: Childhood disability affects millions of children around the world. The reasons and outcome vary from one country to another due to different socioeconomic situations and federal regulations on social security.

The authenticity of data on children's disability is possible only after official documentation on disability. Therefore, the actual number of disabled children is higher than in official reports. Lack of information on disability due to related legislation or/and parental refusal to register child as disabled one are the reasons of gaps between the actual and documented number of disabled children.

Purpose: The aim of this survey was to assess the structure of childhood disability, identify reasons and activities for its prevention.

Methods: Data for this survey were collected from medical reports covering the period of 2003-2009.

Results: The overall number of disabled children was 0.8% (4-10% in the world, respectively), 2/3 of which were boys. A total of 47% of these children were teenagers.

The structure of disability was as follows:

- ⊙ Neuropsychiatric disorders: 64%,
- ⊙ Vision related disorders: 6.2%,
- ⊙ ENT: 8.6%,
- ⊙ Cancer: 2,5%,
- ⊙ Surgical disorders:3.7%,
- ⊙ Other: 15%.

Overall, there was an increasing tendency of neurologic (from 58.4% to 64.0%), ENT (from 3.0% to 8.6%) and vision related (from 3.0% to 6.2%) disabilities.

The following distribution of neuropsychiatric disorders was revealed:

- ⊙ neuropsychiatric disorders: 74% (mental retardation-65%, structural disorders of CNS-12%, Gilles de la Tourette syndrome-7%, others-16%),
- ⊙ neurologic disorders (cerebral palsy: 40%, epilepsy: 13%, trauma: 13%, other: 34%).

Conclusion: Summarising, it is necessary to note that the prevention of disability and its consequences, as well as rehabilitation measures are an important versatile task and the multidisciplinary team approach with involvement of family physician, neurologist, physiotherapist, ergotherapist, speech therapist, psychologist, special teacher is mandatory to solve this problem.

CHANGES OF GLYCOZAMINOGLYCAN / HYDROXYPROLINE RATIO INDEX, P1NP BLOOD AND URINE CONTENT IN TEENAGERS WITH HEART CONNECTIVE TISSUE DISPLASIA AND JOINT HYPERMOBILITY SYNDROME

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Introduction: There is a correlation between age-related patterns of collagen synthesis, metabolism of collagen and connective tissue (CT) structural components that characterizes evolutionally determined functional features of these tissues. In connective tissue disorders, in particular, joint hypermobility there is an alteration of this dynamic process caused by disturbances in metabolism of collagen and components, participating in its synthesis. Within the mineral components collagen is the main factor determining mechanical functions of the bones. Bone tissue collagen contains rather more hydroxyproline than collagen of tendons and cartilages. Total Procollagen Type 1 N-Pro Peptide (P1NP) is a bone formation marker (N-terminal peptide of the type-I collagen). Total P1NP serum concentration reflects changes in synthesis of *de novo* type-I collagen. The rest of the proline and lysine are hydrolyzing partially to hydroxylysine and hydroxyproline accordingly.

Purpose: The main aim of work was to find out relations and pattern of changes between content of CT biopolymers Glycozaminoglycan (GAG), collagen oxyproline (OPR) and microelements such as Ca, P, Mg in blood and urine.

Methods: The ratio of hexosamine/collagen - GAG/OPR was determined in teenagers with mitral valve prolapse, joint hypermobility diagnosed at early age (30 girls and 18 boys). The Control group consisted of 28 healthy teenagers (18 girls and 10 boys). Contents of P1NP (Elecsys 2010, Roche), Ca, P, Mg were detected on the automatic analyzer Cobas Integra 400+ (Roche), GAG and OPR were determined by colorimetric assay.

Results: There was a moderate increase in urine P1NP among investigated patients. The P1NP blood concentration was 17.7 with reference level 15.1-58.6 *ng/mL*. Ratio index of GAG/OPR in blood and urine was 0.4 and 0.015, accordingly. Overall, hypocalcemia, hypophosphatemia, and hypomagnemia combined with marked urine excretion of GAG, OPR, Ca, P, Mg were shown in all investigated patients.

Conclusion: Pattern of CT components changes has large quantitative-biochemical dynamics. P1NP blood content maintains within the normal ranges to support physiological metabolic processes in CT. Children with Heart Connective Tissue Dysplasia must be under supervision because excretion of P1NP with urine even in small quantities may be the early evidence of CT synthetic function abnormalities.

THE USE OF LASER THERAPY IN THE TREATMENT OF ICHTHYOSIS DERMATOSIS IN NEWBORNS

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Ichthyosis dermatosis is a group of heterogenic congenital diseases characterized by skin peeling. Congenital forms are met more often, but the secondary forms are also possible to other diseases. There are many forms of ichthyosis and a number of rare syndromes including ichthyosis as a symptom.

The problem of ichthyosis is very serious in our country. As a rule, newborns with congenital ichthyosis died from the opportunistic infection or intoxication, in spite of all the efforts to save the life.

The treatment of newborns with congenital ichthyosis includes complex measures of local type. The facilitation of acquired ichthyosis course is achieved by treatment of the main diseases. The degree of skin dryness and peeling decreases due to use of local medicines, which contain glycolic acid, lactacid, urea, and glycerin. External use of tretionin (retinol-A) is very effective, but is carried with difficulty due to irritating effects. The system use of retinoids (isobretionin, erytinat and acetritin) is very effective, but prescribing of these medicines is limited because of teratogenic effects and hyperstasis effects. Blisters are due to bacterial infection, and they need to be cultivated for future antibiotic identification.

For the last 5 years we used intracutaneal laser therapy in complex treatment of 10 newborns. The analgesics, antiodemic and antispastic effects of laser therapy stimulate the metabolism and reparative processes and increase immunity, and bring to regeneration of exphlorated skin spots.

Increasing of cell mitotic activity and achievement of bactericide effects of laser therapy brings to scale falling and regeneration of skin coverings.

Hence, from our experience of using laser therapy we think that complex treatment of congenital ichthyosis helps to achieve best clinical results.

SOME ASPECTS OF STUDIES ON CONNECTIVE TISSUE DYSPLASIA SYNDROME IN CHILDREN

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Connective tissue dysplasia syndrome is a system disease of a connective tissue, genetically heterogeneous and clinically polymorphic condition, which draws attention of clinical physicians to studying its manifestations deeper and better.

Proceeding from the above stated we surveyed 95 children with the syndrome of hypermobility of joints. In 22 patients MASS syndrome was detected, in 73: small anomalies of development of heart (SADH).

In the group of children with MASS syndrome mitral valve prolaps (MVP) was diagnosed in 20 patients, and aortic valve prolaps in 2 was diagnosed.

In children with SADH additional trabeculas are diagnosed in 10, an abnormal arrangement of chord (AACH) in a combination with MVP in 21 cases and AACH in 42 patients. Two children were diagnosed for infectious endocarditis with localization on additional chord and trabecula.

At carrying out an ECG research the most frequent phenomena in patients are the early repolarization syndrome (42%), CLC syndrome (21%) and extrasystolic arrhythmia (17.7%).

The correlation of swabs from nasopharynx (in all patients chronic tonsillitis was diagnosed) staphylococci was diagnosed in 75%, streptococci in 15% and in 7% of children swabs were negative.

At ultrasound study of the abdominal cavity in 30% of cases changes in gallbladder were detected in a form of phrygian cap.

Patients with connective tissue dysplasia should be involved in a comprehensive survey and monitoring to detect violations of multiorgan.

ROLES OF CONGENITAL DEVELOPMENTAL ANOMALIES IN STRUCTURE OF EARLY CHILDREN'S DEATH RATE IN ARMENIA FOR THE LAST 20 YEARS

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For last decades the problem of congenital developmental anomalies (CDA) has got a serious socio-medical importance because of growth in the relative density of CDA in structure of pre-natal and neonatal diseases and death rates. Their contribution in structure of infant mortality rate reaches 20%. Frequency and structure of CDA indicators are the reflexion of an ecological condition and the criterion estimating genetic structure of population. Stillbirths and sudden death of newborns are quite often also caused by CDA. Social, economic and environmental problems in Armenia caused the growth of pre-natal and early children's death rate (twice higher than in Europe according Ministry of Health of the Republic of Armenia).

To study relative density of CDA in the general structure of pre-natal and early children's death rate from 1991 to 2009, European register CDA - EUROCAT was used. In the general structure of children's death rate till 1991 CDA occupied one of the last places. In the last decade their quantity has considerably increased. Since 2001, CDA took the second place in the general structure of children's death rate. Among the revealed reasons stillbirth (deadborn) occupies the first place of CDA (25.5%). Multiple CDA make 39.1%, anomaly of CNS: 34.7%. On the third place were defects of cardiovascular system. Among the death rate reasons in early neonatal period intra-uterine infections (40.7%) were on the first place, on the second: pneumonia (30.9 %), on the third: CDA (12.4%). In 2009 CDA were on the second place, conceding only to infections. We developed and presented to Ministry of Health a program to study CDA in Armenia and introduce screening, monitoring in regions of Armenia, to define CDA structure, to reveal new teratogenous factors, to account CDA, both among newborns, and among deadborns, and also embryos with CDA, revealed by ultrasound screening.

Thus, high contribution of CDA to such crisis indicators, as children's disease, physical inability and death rate determine the necessity to study the frequency, structure and prevalence of CDA for planning optimum volume diagnostic, medical, rehabilitation and, undoubtedly, preventive actions.

SOME ASPECTS OF HYDROCEPHALY IN CHILDREN IN THE REPUBLIC OF ARMENIA

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Topical issues: For decades, the problem of diagnostics and treatment of hydrocephaly attracted the attention of neurologists, neurosurgeons, pediatricians.

The research objective is to study certain socio-hygienic and medico-geographic aspects of hydrocephaly in the Republic of Armenia. A comprehensive study of hydrocephaly in children according to computer tomography (CT), its dynamics and structure took into account the age groups, their sex, and some medico-geographic zones of Armenia.

Material and Methods: We studied the case reports, as well as the disease histories and data of 206 patients suffering from hydrocephaly, who were observed and received treatment at the Medical Center «St. Astvatsamayr» in a period from 1993 to 2010. We used the socio-sanitary, statistical, clinical, instrumental and other methods, as well as computer analysis, which provide obtaining of objective and trustworthy data in our studies.

Results of Investigation: Data was obtained on consulting a doctor concerning hydrocephaly, its dynamics and structure depending on age.

Compared with the age group of 0-1 years, in a group of children aged 1-3 years we revealed a tendency of the intensive index reducing. In the other groups this decreasing had a trustworthy character. The peak of decreasing was observed in children aged 3-6 years, and then there is a tendency of growth.

It is established that in the Republic of Armenia this pathology occurs most frequently in children of the age groups: 0-1, 1-3 and elder than 10 years, besides in boys more frequent than in girls, and mostly in the Central medical-geographical zone. Changes in the intensity index of frequency of consulting to a doctor in respect to the mentioned parameters have both a trustworthy character and character of tendency. According to the authors' opinion, the revealed phenomena can be conditioned by etiopathogenetic mechanisms of hydrocephaly development, as well as by deep underlying processes, which take place both against the background of urbanization and the changes, which occur in conduct of the agriculture.

RADIOLOGICAL EXAMINATION OF NEONATES AND INFANTS THYMUS

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Objective: Neonates and infants chest first-line radiological examination is X-ray. In selected cases CT-scan, MRI or pneumomediastigraphy can be provided. Chest ultrasound is unusual radiological examination especially for thymus pathology. To estimate its efficacy in diagnosing thymus disorders was the goal of this study.

Material and Methods: During 2009 in two departments of the Medical Center "Sourb Asvatsamayr" 1736 neonates and infants underwent X-ray examination of the chest. Thymomegaly by J. Gewolb was estimated in 20.8% including: the 1st stage in 14.9%, the 2nd stage in 4.5% and the 3rd stage in 1.4%. All 25 patients in the last group passed ultrasound examinations.

Results: Thymomegaly in the 3rd stage estimated by X-ray was confirmed by ultrasound examinations. The middle size of the enlarged thymus was: length: 38.8 cm, width: 20.3 cm, height: 33.2 cm. Ultrasound scan helped in differentiation of thymus structures including its echogenesity, echostructure, vascularity, lobulation.

Follow-up during one year showed that thymus size regression was found in 28% of patients.

Conclusion: Neonates and infants thymus ultrasound examination in the 3rd stage thymomegaly group is as adequate radiological examination as X-ray. It is superior in thymus structure definitions and long-term follow-up.

The main advantages of the thymus ultrasound examination are absence of radiation and higher effectiveness.

SPECIFICS OF TREATMENT OF OPEN SPINAL CORD HERNIAS IN NEWBORNS

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There is a tendency of more frequent occurrence of spinal cord hernias during the recent years. Moreover, cases demanding immediate surgical intervention aiming to prevent liquorrhea or infectious complications occur more frequently.

The study objective is to evaluate our experience of open spinal cord hernias treatment and to develop the most advantageous treatment tactics.

Material and Methods: Newborns (n=118; 65 males and 53 females) with spinal hernia were treated during 2005-2009 in our Medical Center. The hernias were mainly located in the lumbosacral area (95 cases, 80.5%). Thoracic and cervical localization of the spinal hernias were registered approximately with the same frequency. In 87 cases of lumbosacral spinal hernia (77.3%) absence of cutaneous covering, rupture or pronounced thinning of hernial sacs were registered; mobility and functional pelvic disturbances were detected in all children of this group. Internal hydrocephaly was revealed in 1/4 of all cases.

Results and Discussion: Ninety-two patients with lumbosacral spinal hernia were operated within 24 hours of admission. The infection process due to erosion of hernial sac was registered in three newborns. In these cases, beforehand an external drain of the lateral ventricles was placed before the following hernioplasty. Neural tissues from the hernial sac were removed and placed in the spine canal, as well as removal of hernial canal and tube using musculofascial flap or only cutaneous covering was performed. Deterioration of neurological symptoms associated with operational trauma and inflammation was observed in 7 cases in post-surgical period. Fifty-five children developed hydrocephaly with further shunting in 20 cases. In majority of cases liquorrhea from wound was in progress; local drain from ventricles occurred and after the wound healing, the children developed hydrocephaly.

Conclusion: In case of the open hernias it is recommended to perform surgery within 24 hours after birth, which minimizes the possibility of further complications. In case of infected hernias, external ventricular drain is indicated in order to stimulate healing of wound tissues in the area of the hernia sac, which makes further surgical removal more efficient.

THE ANALYSIS OF PRECEDING PATHOLOGIES IN CHILDREN WITH SECONDARY ACETONEMIC SYNDROME

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Introduction: Acetonemic syndrome (AC, non-diabetic cetoacidosis, acetonemic vomit) in children is a complex syndrome induced by a specific disorder of carbohydrate and lipid metabolism. It has a tendency to recurrence and is frequent in 1-8 year-old children, generally at acute diseases.

Purpose of this report is the analysis of preceding pathologies in children with secondary AC.

Material and Methods: Thirty-six children at the age of 1-6 with secondary AC were examined. The diagnosis of AC was confirmed by clinical and laboratory investigations. Twenty-eight patients being in heavy state were treated at the Intensive therapy clinics, 8 at the Pediatric clinics. In all cases AC was developed during acute infectious diseases (toxic acute respiratory virus infection, pneumonia, gastroenteritis, etc.). After normalization of acute conditions, the detailed clinical, laboratory and instrumental investigations of the patients were performed to reveal any preceding pathology.

Results: Eight patients had the secondary syndrome of mal-digestion; 2 patients had reactive pancreatitis; 3 patients had lambliosis; 4 patients had ascariidosis; 8 patients had dyskinesia of gastrointestinal tract and constipation; 6 patients had Fe-deficient anemia. The majority of patients have disbiosis of intestine; 6 patients had the signs of polyhypovitaminosis; 4 patients had indications of allergy. No preceding pathology was revealed in 5 children, but four of them had long-term toxicosis induced by the main disease.

Conclusion: It is reasonable to consider each case of AC as a signal suggesting a tension and/or disorder of metabolic processes induced by deficiency in energy and shortage in glucose, in other words, long starvation of the organism. All children recovered after AC should be thoroughly investigated to be treated for the pathologies revealed. It allows both preventing the AC recurrence and promote normal development of a child.

ADOLESCENT HEALTH IN ARMENIA: FROM PRACTICE TO RESEARCH AND FROM RESEARCH TO PRACTICE

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Introduction: In 1990s, adolescent health (AH) was not recognized as a priority for the public health system of Armenia; the main focus was on child mortality and infectious diseases. Nowadays adolescents face many behavioral and lifestyle issues: lack of physical activities, unhealthy eating practices, mental health issues, *etc.* Raising problems indicate a need for developing rational and evidence-based strategies. Based on feedback from the practice and data from other countries, AH was put on agenda of the public health system. However, no any scientifically sound data were available to develop comprehensive strategies to address actual needs. Therefore, ICAH under support of UNICEF initiated the pilot Health Behavior in School-age Children (HBSC) study.

Aim and Methods: Investigating AH status by conducting country-wide survey among Armenian schoolchildren using a special Questionnaire.

Results: The HBSC pilot survey provided valuable, sometimes unexpected data on such behavioral problems as large prevalence of unhealthy eating habits, low physical activity, prevalence of smoking, feeling stressed by schoolwork, *etc.* Data of survey were largely used in developing the National Strategy on Child and Adolescent Health (approved by the Republic of Armenia Government in 2009) and initiating concrete programs. Different pilot models of adolescent-friendly services were approved. Armenia joined the European HBSC Network, and currently ICAH is performing the second, full-scale study, which will enable to assess the progress and, if necessary, to modify policies and practices.

Conclusion: The experience of working in AH area of Armenia once more show that addressing public health needs largely depends on availability of research data, as well as concrete effective mechanisms for translation of the research into practice.

SURGICAL CORRECTION OF SPINAL DEFORMATIONS

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Multiple methods of treatment of patients with scoliosis show that the solution of the problem is still to be found.

The **objective** of the study was improvement of outcomes in patients with spinal deformations using differentiated approach to the selection of surgical correction method.

Material and Methods: Sixty-four patients with scoliosis (thoracic scoliosis in 46 cases; scoliosis of combined localization in 18 cases), aged 14-32 years were operated on in the period 1997-2010. Eighteen patients had the 3rd grade deformation and 46 patients the 4th grade. At 37 patients single-stage correction of vertebral column deformation was performed with posterior spondylodesis, while 27 patients with 80 and more degrees of deformity underwent two-stage surgical intervention, which at rough kyphoscoliotic deformities allowed to achieve high level of stable correction with reduction of risk of neurological complications.

Intervention was performed on the anterior part of the spine: discotomy, discectomy with wedge-shape resection of bodies: corporodesis through the first stage. By the second stage after halo-femoral traction an endocorrector was placed with additional correction of deformity and posterior spondylodesis.

At severe deformities we used the method of correction with application of three bars. The bar was placed from the concave side after its initial modeling along the curvature. A correction of the deformity and de-rotation of the spine were achieved after fixation with hooks and screws through straitening of the curve of the bar. Rigid severe deformities in some instances were initially corrected through Harrington distracter and then the main construction was placed.

Results: After the single-stage correction the angle of spine deformity improved from 46 to 80 degrees, 67.1 degrees on average. After the two-stage treatment the angle was 90-160 degrees, 128 degrees on average (56% of initial deformity).

Conclusion: A differentiated approach to selection of treatment methods for scoliotic deformities leads to a high proportion of positive outcomes at long-term follow-up, while the application of modern constructions with trans-pedicular fixation creates a safely fixed lower lumbar base providing for a better three-dimensional correction of the main deformity of thoracic segment of the spine.

SPECTRUM OF GLOMERULAR LESIONS IN PAEDIATRIC PATIENTS IN ARMENIA

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Objective: To analyze all native kidney biopsies performed in Armenia from 1993 to 2009 in 229 patients aged 1-18 years.

Patients and Methods: Half of patients were nephrotic (111): Steroid resistant (30), dependant (4), combination with haematuria, hypertension and/or renal insufficiency (26), extrarenal symptoms (7), and Familial Mediterranean fever (FMF, 44). Of 118 non-nephrotic patients, 32 were nephritic, 10 had rapidly progressive glomerulonephritis (GN), 14 renal failure and 62 isolated urinary abnormalities.

Biopsy samples were evaluated by light microscopy in Yerevan and Zurich and by electron microscopy (except for amyloidosis) and immunohistochemistry (last 58) in Zurich.

Results: The most common histological lesion was renal amyloidosis (25%) followed by minimal change disease (MC) and focal segmental glomerulosclerosis (FSGS, 10% each), hereditary nephritis and (8%), *lupus nephritis* and IgA-nephropathy/HS purpura (7% each), membrano-proliferative GN type I (6%), membranous nephropathy (MN, 5%), acute postinfectious GN (APGN, 4%), systemic vasculitis / HUS (3%), dense deposit disease (DDD, 2%).

The miscellaneous group included, apart from interstitial nephritis (0.4%), unclassified or inadequate biopsies and specimens with mostly sclerosed glomeruli (14%).

The majority of patients with amyloidosis of FMF, FSGS/MC and MN were nephrotic, but 15% of patients with amyloidosis had non-nephrotic proteinuria.

Conclusions: Several glomerular lesions were considerably more frequent than in other studies, particularly amyloidosis of FMF, MN and *lupus nephritis*, and to lesser extent membrano-proliferative GN type 1 and DDD. APGN is underrepresented because less than 1% of all patients (>700) had a biopsy.

This study was possible due to international collaboration.

CHARACTERISTICS OF WHEEZING DISORDERS IN YOUNG CHILDREN IN ARMENIA

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Introduction and Aim: Though pneumonia is considered to be the major threat in developing countries, the prevalence of wheezing disorders is rising. The aim of the study was to analyze some clinical and epidemiological patterns of wheezing in young children.

Methods: 52 case histories of children with obstructive bronchitis and 37 cases of pneumonias admitted to Arabkir Joint Medical Centre – Institute of Child and Adolescent Health were enrolled. Analysis was done using a special form including comprehensive anamnesis data, clinical characteristics, laboratory data, X-ray presence and clinical outcome variables. Statistical analysis was done using SPSS 17 for Windows.

Results: Analysis of wheezing cases showed significant prevalence of males (2:1), which, however, is the same as in all ARI group. No remarkable data and differences were found in regard to breastfeeding of those children. In comparison to pneumonias, manifestation of obstructive bronchitis is most expressed, with rapid onset. The sign of “fast breathing” higher than age cut-offs was met only in 30% patients with pneumonia confirmed by the X-ray compared to 52% of children with wheezing having this symptoms. Overall, respiratory failures signs were more expressed in the group of children with wheezing disorders. Among cases of pneumonias, respiratory failure was met more often in those, where wheezing as a sign was met as well.

Conclusions: Wheezing is one of most common reasons of hospitalization in Armenian children. Compared to wheezing, pneumonias have more ambiguous clinical findings and course and require comprehensive assessment of clinical symptoms and X-ray diagnostics.

EXPERIENCES OF USING LOW-LEVEL LASER IN PEDIATRIC SURGERY

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Background: Effective management of peritonitis in children is still one of major challenges for the pediatric surgery. Rational antibacterial therapy in combination with adequate detoxication in some cases does not provide expected results; it reflects on duration of treatment and hospitalization. It's proved that low level laser therapy (LLLT) is an effective method with antibacterial, anti-inflammatory and stimulating effect. Therefore, we included LLLT in management of post-operative period of patients with peritonitis.

Aim of the study: to evaluate effectiveness of using LLLT in combined management of peritonitis.

Methods: LLLT was used in 68 patients with severe appendicular peritonitis. Among them in randomly selected 35 cases, LLLT was used since the 2nd or 3rd day after surgical intervention. Thirty-three children were managed using traditional methods only. Outcomes of treatment were measured by the clinical findings (wound inspection, temperature, general condition), lab data (CBC); the other criterion for assessment of therapy effectiveness was the number of post-operative complications.

Results: LLLT led to significant ($p < 0.05$) shortening of recovery time in the target group as compared to the control group. However, in 6 patients (17%) with peritonitis, positive outcomes of LLLT were not registered, e.g. laser therapy failed. Possible explanations for that are inadequate exposure and/or some individual peculiarities (not known yet).

Conclusion: Overall, laser therapy is an effective method for improving results of treatment of appendicular peritonitis in children. However, further studies are needed to clarify, calculate LLLT adequate exposures considering individual factors.

TUBERCULOSIS: PECULIARITIES AMONG ADOLESCENT POPULATION (15-18 YEAR-OLD TEENAGERS)

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Tuberculosis morbidity among adolescent population in Armenia makes 32, whereas prevalence achieves 80.6 per 10⁵ adolescent population, and the proportion among the firstly revealed cases makes 3.3%.

The research was aimed to study the course of tuberculosis in teenage population.

Patients (n=120) were examined, among them females made 30.1%, males: 69.9%. Elimination of bacilli was revealed in 25.3% cases, 4.3% of which were resistant to tuberculosis drugs, and 44% were revealed to be MDR.

In 70% of all the studied cases tuberculosis was revealed on presenting to general medical facilities, and the teenagers were from tuberculosis contact families in 46.3%.

On presenting to medical facilities tuberculosis was revealed within 2-6 months after routine X-ray examination of contact persons.

Risk factors for developing tuberculosis were vaccination defects in 76% (absence of post-vaccination scar), bad living conditions in 27%.

According to the study results infiltrative tuberculosis (35.0%) was most often revealed in teenagers among pulmonary forms, and pleuritis (15.5%) and tuberculosis of intrathoracic lymph nodes (15.0%): among non-pulmonary ones.

Conclusion: Tuberculosis in teenagers is most often revealed on presenting to general medical facilities, the course of tuberculosis is severe with affection of pulmonary tissue and elimination of bacilli.

CHRONOBIOLOGICAL ASPECTS OF FAMILIAL MEDITERRANEAN FEVER (FMF)

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Objectives: Familial Mediterranean fever (FMF) is an autosomal recessive periodic inflammatory disease occurring in Mediterranean and Middle Eastern populations. FMF is characterized by recurrent fever, peritonitis, arthritis, pleuritis and pericarditis attacks.

Purpose: The aim of our study is to determine FMF attack rate among FMF children depending on the season of the year, and to find out some clinical peculiarities typical for each season.

Material and Methods: FMF patients (n=234): 133 male, 101 female at the age varying from 6 months up to 18 years were investigated in Republican FMF Children Centre. For each seasonal quarter FMF attack frequencies were calculated. The connection between clinical symptoms and seasonal quarters were determined. All statistical data are exact.

Results: Clinical observations illustrate that FMF attacks are especially often during autumn (21 %), and are accompanied by severe clinical symptoms such as early manifestation, abdominal pain, arthropathy, and aseptic pleuritis. Above mentioned symptoms are also typical for spring with one particular quality of lower number of aseptic pleuritis cases than in autumn (14.4 %). Late manifestation and aseptic pericarditis are dominant during summer (6.1 %). No specific clinical peculiarities were observed during winter (10.1%). FMF attacks of other patients were of no seasonal nature (48.4 %). All statistical data are exact.

Endogene and exogenous biorhythm vibrations are the primary causes of frequent FMF attacks during autumn and spring months. Breach of Melatonin synthesis also can activate pathogenetic mechanism of FMF seasonal variation development.

Conclusion: The study of the chronobiological aspects of FMF can provide new ways for FMF attack prevention, doses of colchicine therapy, and new efficient methods for patient follow-up procedures.

RETROSPECTIVE STUDY OF PENTAVALENT VACCINE ADMINISTRATION IN CHILDREN

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Vaccination is the administration of antigenic material to produce immunity to a disease. The material (a vaccine) administered can either be live but weakened forms of pathogens, killed or inactivated forms of these pathogens.

Adverse events following live attenuated vaccines are similar to a mild form of the natural illness. The most common adverse events following inactivated vaccines are local at the side of injection, such as pain, swelling, and redness; mild systemic symptoms can also occur.

These adverse events are becoming the object for the discussion among healthcare workers and community. Concerns about immunization safety could lead to the refusal of recommended vaccines administration.

According to World Health Organization recommendations, continued high levels of vaccine coverage are necessary to prevent resurgence of diseases, which have been nearly eliminated.

In our out-patient clinic the retrospective study was conducted on types and quantity of the adverse events following the vaccination of children with Pentavalent vaccine. The observation period was from September 1, 2009 to August 1, 2010.

The materials were collected from the special forms: "Child development card", "Vaccination card" and "State report form". During the observational period 1252 vaccinations with "Zilbrix" and "Tritanrix" combined vaccines (against diphtheria, tetanus, pertussis, hepatitis "B" and haemophilus influenza type B) were performed.

The following adverse events have been reported:

- ⊙ 1 undesirable side effect: persistent, uncontrolled crying, afebrile seizures (0.07% of all cases),
- ⊙ 20 cases of fever (37.5°-40°) and anxiety (1.6%),
- ⊙ 3 cases of local swelling and redness (0.2%),
- ⊙ 8 cases of parental refusal of immunization of children (0.6%).

It is obvious that the main reason of parental refusals of immunization is the lack of awareness about vaccinations safety and effectiveness. When faced with parents who refuse immunization we need to educate parents regarding the benefits of immunization. We need to inform them that vaccination is generally considered to be the most effective and cost effective method of preventing the infections disease.

The implementation of National Immunization Program is necessary. Therefore, we need vaccination service and consumer information "hot-line" to answer the questions about vaccine safety and regulation.

CHALLENGES OF PEDIATRIC RESPIRATORY MEDICINE IN ARMENIA

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Aim: Reviewing the current situation, priorities and challenges of the pediatric respiratory medicine in Armenia.

Method: Desk Review.

Results: Respiratory diseases constitute a large portion of the child mortality and morbidity in Armenia as in many post-Soviet countries. In 1991, the year of establishing independence of Armenia, acute respiratory infections (ARI), including pneumonia were on the second place among causes of infant mortality with rate of 4.5 per 1000 live births (25% of all causes). The Republic of Armenia Ministry of Health in collaboration with WHO/UNICEF launched the National Program for ARI in Children in 1994. Its introduction led to remarkable results and decreased the rate to 2.4 in 2001 (16% of all causes). However, last years, the mortality rate does not change (1.7 in 2008) and is far higher than that in the Western and Central European countries. Country-wide surveys showed weaknesses of case management including lack of diagnosis and follow-up, maltreatment, late referrals, still over-use of antibacterial drugs. Therefore, further improving the case management of ARI at different levels of health care is needed. It includes introduction of rational etiologic diagnosis and epidemiologic surveillance, optimization of diagnosis and treatment guidelines, continuous staff training, and family education. In regard to chronic respiratory diseases, special attention should be paid to wheezing disorders, which are now on rise and are the most frequent reasons for hospitalization in pre-school children.

Conclusion: Further promotion of pediatric respiratory medicine and introduction of new approaches is a high priority for Armenia and other countries of the region.

ABOUT THE MORBIDITY OF CHILDREN ATTENDING KINDERGARTEN

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The problem of health condition of children, particularly children of day-nursery age and preschoolers, is actual. The morbidity of children in preschool institutions stays high year after year. According to available data, about 20-70% of children are classified in a category of frequently and continuously sick children. Approximately 50-60% of diseases of children up to 7year old pertain to these children. In all age groups diseases of respiratory system (80%) are on the first place.

The aim of our research work was to identify frequently sick children by questioning parents of children attending kindergarten. We questioned the parents of 67 children of all age groups attending kindergarten No. 54 in Avan, Yerevan. Questioning was done with the help of Questionnaires specially prepared for parents and including 27 questions reflecting the condition of different organ-systems, and questions about allergic and hematological status of a child. All received data is expressed in percents.

Complaints were noted among 55 (82.1%) of questioned parents of children, and absence of complaints was noted among 12 of them.

Analyzing the data of Questionnaires reference to frequency of ARD was established among 36 children (65%). Among the other 19 children, 12 had disorders of GIT, 2 children had disorders of urinary system and 4 children had disorders of CNS. Only one child had complaints indicating disorders of CVS. Manifestations of allergy were noted by parents among 44% of children. However, symptoms of ARD were more often accompanied with existing allergy: in 17 children (47%). Higher morbidity by ARD was noted among the children from 3 to 5 years old (76%, 75%).

Thus, it is obvious that every second child can be classified into the group of frequently sick children. High percent of complaints, typical for ARD, allergy and their combinations was established, which dictates the necessity of defining the number of frequently sick children in future, namely defining the diseases of RS. It requires revealing the causes of those diseases, analyzing data of clinical, laboratory, immunological, instrumental methods of examination and finding measures for making healthier children attending kindergartens.

MODERN EMOLLINETS IN THE TREATMENT OF ATOPIC DERMATITIS IN CHILDREN

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Introduction; Atopic dermatitis (AD) is an allergic, chronically relapsing disease that usually starts in early infancy in persons with genetic predisposition to atopy. Atopic dermatitis is characterised by age-related patterns and distribution of skin changes, pruritus and due to abnormal reaction to allergens and specific irritants.

Symptoms of AD are usually presented as red, inflamed, itchy rash, xerosis and lichenification.

Defective skin epidermal barrier function in the *stratum corneum*, increased transepidermal water loss, and abnormal ceramide production are found in AD that contribute to xerosis, increasing itching and scaling.

Taking into consideration above mentioned the complex treatment of the AD should also be directed at repairing the skin by moistening and increasing a skin barrier function.

Purpose; The aim of this study was to evaluate the role of modern emulsifying oils (emollients) in the secondary prophylaxis of flare-ups of AD

Methods; Patients (n=27) aged from 1 to 15 years with relapse of the disease were included in the study. Clinical condition of patients was assessed by SCORAD index. All children were prescribed antihistamines, topical steroids, and application of moisturizer on one side and *Locobeis Repea* on the other side of body, respectively. After 30 days of therapy and discontinuation of antihistamines and topical corticosteroids parents were advised to continue *Locobeis Repea* and moisturizer applications.

Results: After 2 months of follow-up and use of *Locobeis Repea* none of patients enrolled in the study showed relapse of the atopic dermatitis and there was a complete skin restoration.

Conclusions:

1. The use of modern emollient L in the complex and ongoing treatment of AD leads to well controlled course and stops recurring of the disease.
2. The emulsifying oil L comprises lipids (63%), ceramide III, cholesterol and free fatty acids that are essential for healing of dry skin in AD.
3. Reparation the skin epidermal barrier leads to advanced clinical efficacy and prolonged remission.

PSYCHOMOTOR DEVELOPMENT OF CHILDREN WITH CONGENITAL HYPOTHYROIDISM DETECTED BY NEONATAL SCREENING: PRELIMINARY RESULTS

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Introduction: Congenital hypothyroidism (CH) has a worldwide prevalence of 1 in 3000 to 4000 newborns. It results from insufficient production of thyroid hormones that are essential for normal maturation of the central nervous system. The National Screening Program for CH started in July 2005 at Arabkir Joint Medical Centre under an agreement between the Ministry of Health of Armenia and the Partnership Program with the Children's Hospital of Zurich (Switzerland).

Purpose: Assessment of the psychomotor development of children with CH detected by neonatal screening to determine the effect of early onset of thyroid hormone replacement therapy in Armenian patients.

Material and Methods: A prospective study of psychomotor development has been carried out in children with CH at 1 year (n =17) and 2 years (n=11) by the Bayley Scales of Infant Development (BSID), which measure the mental and motor development of infants from one to 42 months of age.

Results: Between July 2005 and July 2010 we screened 102.000 newborns and identified 33 cases with CH. All except two were put on thyroxin substitution with Levothyroxin soon after birth. Therapy was checked by TSH monitoring at 3 monthly intervals.

The mental development of all children who reached the age of one or two years was within the normal range. In two boys we recognized a slight delay in speech, accompanied in one of them by a slight retardation of the motor development. However, both delays are still within the normal variability for this age. The next development assessment is planned at 6 years.

Conclusion: The incidence of CH in Armenia is ~ 1 in 3100 newborns and is thus comparable with that in other countries. This preliminary study shows normal psychomotor development of children with CH as detected by neonatal screening and with early onset of replacement therapy. This highly successful neonatal screening program will be further improved by covering the whole country and will be expanded to comprise further treatable disorders: phenylketonuria was started in Yerevan in April 2008.

GYNECOLOGY

HORMONAL CORRECTION OF POLYCYSTIC OVARIAN DISEASE BY THE COMBINED ORAL CONTRACEPTIVES

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Introduction: Conservative methods of polycystic ovarian disease (PCOD) treatment, in particular for correction of menstrual function and hirsutism, involve a variety of hormonal preparations. The combined oral contraceptives (COCs) are among the most widespread means.

Subjects and Methods: Thirty-eight patients with PCOD aged 18-36 years were prescribed COCs (for 6-8 months) under the standard scheme with the minimal content of Estrogens (Ethinylestradiol 0.03 mg or Estradiol valerate 0.03 mg) and Progesteron derivatives (Gestoden, Norgestimate, Drospirenone, Cyproterone acetate).

The estimation criteria were clinical data, indicators of hormonal examination, characteristics of protein and carbohydrate metabolisms.

The mechanism of COCs action is based on suppression of LH synthesis, and also on rising of SSBG level that reduces concentration of free androgens.

Results: Positive clinical dynamics was observed in 64.3% cases. Already in the first year of COCs intake after withholding clinically regular menstrual cycle was maintained in 85.7% cases. Within the next 1-2 years there was pregnancy onset in 46.4% of cases (among those suffering sterility) on the background of restored menstrual cycle. In every second patient the pathological growth of hair considerably decreased.

In the first year of treatment the hormonal indices have already been characterized by a sharp change to normalization, especially a decrease in Testosterone and Androstendion.

The studies of protein and lipid metabolisms show that normalization of proteometabolism was recorded in 64% of patients within the first year, which was displayed as total blood protein content increase on the average by 26.5% and that of albumins by 39.6%. The index of albumins/total protein was elevated. Lipid disbolism has already been restored for the first year of treatment (in 72.6% of patients), which was testified not only by the reduction of the absolute quantity of key parameters of lipid metabolism, but also by statistically authentic increase in the ratio of components.

Conclusion: Application of COCs in 2/3 cases promotes not only the positive clinical dynamics, but also the improvement of protein and lipid metabolisms.

EFFECTIVENESS OF ANTIOXIDANTS IN PREVENTION OF HYPERTENSIVE DISORDERS AMONG PREGNANT AND IN CASE OF COMPLEX TREATMENT

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Introduction: The diagnostics, treatment and prevention of hypertensive disorders during pregnancy is one of the main problems in obstetrics conditioned by wide prevalence of the disease and the heavy consequences it can cause to mother and child health.

Purpose: The present work is devoted to examination of antioxidant status among women suffering hypertensive disorders and increasing the treatment effectiveness by correction of hemostasis.

Materials and Methods: A complex examination of 206 pregnant women with hypertensive disorders was conducted. Alongside with general clinical examinations, the oxide recovery balance in thiosulfid and ascorbic acid systems, as well as the stability of lipoprotein complexes were explored. Evaluation of clinical process of hypertensive disorders and under thiosulfid, ascorbic acid, oxide-recovery system, lipoprotein complex conditions and examination of their interrelations were done.

Results: A direct dependence between changes in ferment and non-ferment elements of antioxidant system and extent of hypertensive disorders severity among pregnant women was revealed.

For the first time the pathological role of the functional condition of ferment and non-ferment elements of antioxidant system and free radicals oxidation processes was determined in case of hypertensive disorders during pregnancy. Besides, complex data on functional condition of antioxidant system in obstetrics was found and the dependence between free radical oxidation processes and gravity of hypertensive disorders. The necessity of using medications with antioxidant activity in the complex treatment of hypertensive disorders during pregnancy was proved.

Conclusion: Research results show the expedience for combined use of unitiol and ascorbic acid in the complex treatment of hypertensive disorders, thus allowing to increase the treatment efficacy from 76.7% to 96.0%, to achieve 2-fold decrease of premature and late deliveries, as well as decrease of obstetrical deliveries (1.5 times) and surgical deliveries (2.4 times).

ENDOSCOPIC RECONSTRUCTIVE-PLASTIC OPERATIONS

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Introduction: Uterine myomas are related to the most frequent benign tumors of female genital tract and are of high importance in reproductive system pathologies. At the age above 35, 25-30% women have uterine myomas, while in premenopausal age the level is 30-35%.

Every second patient of the Department of Operative Gynecology at the Institute of Perinatology, Obstetrics and Gynecology is operated because of uterine myomas.

Purpose: The trial was aimed to study the ability of preserving reproductive function in women of fertility (child-bearing) age with uterine myomas by endoscopic reconstructive-plastic operations.

Material and Methods: In a period since July 2008 to August 2009 more than 95 organ-sparing laparoscopic operations were performed in patients with symptomatic uterine myomas in our Department of Operative Gynecology. The average age of patients exposed to endoscopic operation was 34 years (18-44); symptoms were menorrhagia, pelvic pain and/or discomfort. Preprocedural assessment included an accurate transvaginal ultrasound evaluation. In 75 cases multiple myomas were discovered. A single nodule was revealed in 20 cases. The mean diameter of the dominant fibroid was 4-8 cm. In 7 cases submucose fibroid was found and operated on: resectoscopy, myomectomy were performed. Laparoscopic myomectomy with endosuturing of the wound was performed in 65 cases with the diameter of intramural and subserous fibroids making 7-8 cm.

Results: No intraoperative or postoperative complications occurred during procedures.

All patients were discharged from the hospital on the 2nd or 3rd postoperative days.

Conclusion: The following advantages of plastic-reconstructive procedures with laparoscopic approach are evident:

- ⊙ childbearing potential is maintained;
- ⊙ blood loss is minimal;
- ⊙ post-operation recovery period is short.

OPTIMIZATION OF FOREKNOWLEDGE, DIAGNOSIS, AND TREATMENT OF SUBINVOLUTION OF UTERUS

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Introduction: Alongside with the evident achievements in diagnosis, treatment and prevention of postpartum inflammatory diseases, many actual issues regarding pre-clinical early diagnosis and especially foreknowledge of that pathology remain unsolved.

Goal: Our goal was to optimize up-to-date methods of utilization regarding the foreknowledge, diagnosis and treatment of postpartum inflammatory diseases.

Material and Methods: According to a previously developed Questionnaire a detailed clinical-laboratory examination of postpartum inflammatory diseases was implemented in the Institute of Perinatology, Obstetrics and Gynecology involving high risk group (n=221) and control group pregnant and women in birth (n=308). Special importance was given to the comparison of detailed examination of corporal and obstetrical-gynecological anamnesis, pregnancy and post-partum period, and laboratory-instrumental examination data.

Results: For the first time an evaluation of risk factors for postpartum inflammatory diseases was conducted. Based on the results of the examination an algorithm of complications prediction was developed. Due to the developed algorithm, which includes complex use of rational antibiotic treatment, uterotonic means, immunomodulators, conservative and surgical treatment methods of endometritis (lavage, vacuum aspiration of uterine cavity, physiotherapeutic intervention), it became possible to decrease the risk of postpartum inflammatory diseases from 61.6% to 4.8% and decrease the cases of postpartum endometritis from 5.8% to 4.8%.

Conclusion: For prevention of postpartum inflammatory complications the complex treatment of high risk group pregnant women should be initiated immediately after delivery.

STIMULATION AND PREPARATION TO DELIVERY BY PROSTAGLANDINS

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Introduction: The delivery stimulation and management of the uterine contractive function still remain to be the two important problems of modern obstetrics. At present, this problem is of special significance because of the increase in the rate of uterine contractive function disorders, which require active intervention in order to decrease mother and child morbidity and traumatism. The research was devoted to evaluation of the effectiveness of delivery stimulation and management of the uterine contractive function regulation by means of prostaglandins (E1 and E2) among high risk group pregnant women with labor activity disorders in case of biological unreadiness to delivery.

Goal: The large-scale clinical experimental survey with the use of prostaglandins was aimed to examine the peculiarities of the pregnancy and delivery processes, as well as the outcomes for mother and child.

Material and Methods: Pregnant women (n=666) with mature pregnancy have been examined and 278 of them comprised the main group. In the control and comparative groups there were 388 women, as well as 70 rats of Wistar line.

For the survey modern instrumental diagnostic, clinical-laboratory methods for the evaluation of contractive function of the uterus and fetus condition were used. By the examination of pregnant rats it was proved that the 25, 50, 100 *mkg/kg* intra-abdominal injections of Saitotec foster the bioelectrical activity of myometrium which especially grows in case of 100 *mkg/kg* dosage.

It was also revealed that the antioxidants (unitol and mildronat) raise the bioelectrical activity of the myometrium by 30%.

Results: As a result of the survey it was proved that various doses of Saitotec brought to vasoconstriction of the umbilical artery, which was directly proportional to dose increase.

It was also revealed that the sublingual application of Saitotec created favorable conditions for the increase of biological activity of the organism, due to which the premature and early moving of amniotic fluid and the total course of delivery were reduced by 10%.

Conclusion: Thus, the efficiency of the clinical-hysterography method for the management of the labor activity has been proved, which provides favorable outcomes for mother and child.

CONTEMPORARY APPROACHES TO IMPROVING FEMALE REPRODUCTIVE FUNCTION IN CASE OF UROGENITAL CHLAMYDIOSIS

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Intorduction: The urogenital chlamydiosis is one of the most frequently occurring and old sexually transmitted diseases. Works concerning the influence of the infection on the reproductive system of women, prevention of consequences, diagnosis, and contemporary treatment approaches are scarce. No data on epidemiology and prevalence of urogenital chlamydiosis among the Armenian population is available.

Goal: The present work was devoted to study on prevalence of urogenital chlamydiosis among the Armenian population, to develop contemporary procedures of examination of women's reproductive system during the illness, as well as diagnostics, treatment and prevention.

Material and Methods: Observation and treatment of 898 women with various reproductive diseases was carried out at the Chair of Obstetrics and Gynecology from 1995 to 2010. The main group included 490 women with variuos gestational and reproductive system diseases and revealed urogenital chlamydiosis. The control group comprised 408 women with the same disease without urogenital chlamydiosis.

A representative survey has been conducted for urogenital chlamydiosis and cervical cancer screening. Women of reproductive age (n=2670) from all the regions of Armenia and Yerevan city were involved in the survey.

Results: It was revealed that the chlamydiosis prevalence in the Armenian population made 11%. The most frequent cases (13.8%) were observed in the age group of 28-33 years old, the most rare cases (8.8%) were observed in the age group of 18-23.

As a result of the survey a new prospective direction was developed: the principles of reproductive chlamydiology. The role of urogenital chlamydiosis was revealed in the causes of malignant neoplasms of the reproductive system, in particular, in cases of infertility, cervical cancer. The contemporary approaches to correcting the reproductive function were worked out.

The observation of the influence of urogenital chlamydiosis on the entire duration of pregnancy, mother-fetus uterine system, fetus development, perinatal losses was carried out from the viewpoint of embriopathic consequences of antichlamydia treatment.

In fact, a new direction in fetal infectology was introduced: perinatal chlamydiology.

Conclusion: Due to examination, treatment and new approach it became possible to improve the examined indexes up to 40%.

MODERN ASPECTS OF ENDOMETRIAL HYPERPLASTIC PROCESSES DIAGNOSIS

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Frequency of endometrial hyperplasia in the structure of gynecological pathology fluctuates from 7 to 30%. The urgency of the problem is caused by high rates of relapse, the possibility of malignancy. Despite treatment improvements in recent years, there is a marked increase in the incidence of the endometrial hyperplasia. Along with mentioned factors, the urgency of this problem is caused by a combination of high frequency of endometrial hyperplastic processes with other proliferative changes of the reproductive system.

According to our studies a combination of endometrial hyperplastic processes and uterine fibroids was noted in 28.3% of women; endometrial hyperplastic processes and adenomyosis were observed in 7.6%; endometrial hyperplasia, uterine fibroids, adenomyosis made 11.4%.

In patients with concomitant benign diseases of the uterus burdened obstetrical and gynecological history is frequent with a large number of endured and associated gynecologic and extragenital disorders: dysfunctional uterine bleeding (60.8%), chronic inflammatory disease of the uterus and its adnexa (52.7%), instrumental intervention, repeated artificial and spontaneous abortions (84.9%), hereditary tumor diseases (41.5%), gastrointestinal tract disorders (34.1%), cardio-vascular diseases (21.2%), anemia (49.4%), polyvalent allergy (12.4%).

Clinical manifestations of associated benign diseases of the uterus are characterized by menstrual disorders (hyperpolimenorrhea: 80.1%; perimenstrual spotting: 32.4%), high frequency of pain (dysmenorrhea: 72.2%; dyspareunia: 52.5%), as well reproductive function disorders (primary infertility: 11.5%; secondary infertility: 20.7%). Clinical symptoms were more pronounced upon combination of uterine fibroids and endometrial hyperplastic processes, uterine fibroids, adenomyosis and endometrial hyperplastic processes.

Based on these data, we believe that the diagnosis of endometrial hyperplastic processes should be comprehensive, including a pelvic ultrasound as a screening method of investigation, radioisotope study of the uterus, endoscopy (laparoscopy, hysteroscopy) with mandatory histological confirmation of the diagnosis.

THE ROLE OF HAEMOSTATIC SYSTEM SCREENING DURING PREGNANCY

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Introduction: Discovery of the antiphospholipide syndrome (AFS) and some other earlier unknown genetic defects of haemostatic system made our understanding in normal and pathologic obstetrics deeper. Thrombophilia became the main risk marker of obstetric complications. Along with apparent ones, the hidden form of thrombophilia may have a fatal role.

Purpose: To assess the haemostatic system in normal and pathologic conditions and develop the algorithm of necessary laboratory tests.

Material and Methods: We observed 560 women both in normal and pathologic conditions (pre-term labor, cardiovascular disease, diabetes mellitus, gestosis). Pregnancy is such a condition that can be called an "exam" for hidden acquired AFS or genetic thrombophilia as it is associated with physiological hypercoagulation.

Results: According to our results in case of the suspicion to hidden thrombophilia the "first line" examinations are:

- 1) Exploring clinically hidden AFS that becomes progressing during pregnancy;
- 2) Exploring genetic forms of thrombophilia: factor V mutation, prothrombin mutation, MTHFR mutation (Methylenetetrahydrofolate reductase);
- 3) Evaluation of AT III, protein C, protein S levels in case of complicated individual and family thrombotic history;
- 4) The real markers of thrombophilia are thrombin-antithrombin (TAT) complex and D-dimer, as well as global test evaluating the protein C system;

Unlike the global test that evaluates the protein C system, other global evaluating tests like activated partial thromboplastin time (APTT), prothrombin time (PT) and thrombin time (TT) are less informative and in majority of cases are not informative for diagnosis of thrombophilia.

Conclusion: Early diagnosis of hidden forms of thrombophilia allows managing haemostatic disorders and improving perinatal outcomes.

TREATMENT OF RETROCERVICAL ENDOMETRIOSIS

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Background: Retrocervical endometriosis is a separate nosological form. It is combined, intermittent version between genital and extragenital endometriosis.

Purpose: The aim of this study was to assess the advisability of laparoscopic surgery in patients with retrocervical endometriosis.

Material and Methods: Laparoscopic surgery was performed to 52 patients with retrocervical endometriosis in the period from 2006 to 2009. The conservative surgical management was performed in 34 cases with the purpose of saving reproductive function and in 18 cases radical surgical management with laparoscopy (LS) was performed.

The conservative surgical management included the following stages:

- ⊙ ovariosalpingolysis,
- ⊙ ovarian resection;
- ⊙ excision of retrocervical endometriosis,
- ⊙ intersection of sacrouterine ligaments;
- ⊙ mobilisation of anterior wall with the removal of endometrial infiltration.

Surgical stages in case of the radical surgical management were the following:

- ⊙ adhesiolysis, mobilisation of the uterus for hysterectomy;
- ⊙ excision of retrocervical endometriosis,
- ⊙ intersection of sacrouterine ligaments;
- ⊙ hysterectomy;
- ⊙ mobilisation the anterior wall of the rectum and infiltrate extision;
- ⊙ suturing of colpotomy;
- ⊙ drainage of the pelvis.

Results: Good results were observed in 32 patients out of 34 in conservative surgery management group and in all patients of the second group. No intraoperative or postoperative complications occurred. No symptoms of retrocervical endometrioisis were observed during 2 years after operation.

Conclusion: The need of an active surgical, either conservative or radical, management in patients with retrocervical endometriosis should be emphasized irrespective of symptoms presence or absence, as well as the practicability of laparoscopic surgery involvement, especially in conservative surgical manipulations.

REPRODUCTOLOGY OF GEORGIA

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Introduction: Life and logic showed that reproductology cannot be a part of the obstetrics and gynecology, due to one simple reason that it includes andrology, i.e. men, who cannot be considered as objects of interests of the mentioned discipline. Time and logic dictate to make reproductology an independent discipline. By a Decision of Georgian Government reproductology became an independent discipline in 1997.

Purpose: To demonstrate reasonability of separation of that discipline into an independent school.

Material and Methods: The net of reproductology institutions is established, "Reproductology" journal is issued, teaching is organized, defense of thesis / dissertation, licensing and certification on reproductology take place, departments are established in universities, etc.

During the recent quarter of a century reproductologic innovations occupy the basic part of modern gynecology: contraception, planning of the family, laparoscopy, extracorporal fertilization and anti-progesterone therapy are purely reproductologic issues.

Results: While in 1987 the number of officially registered abortions in Georgia was 100 000 (likewise childbirth), in 2008 the number of miscarriages did not exceed 20 000-25 000, and use of modern contraceptives exceeded 65% (in Tbilisi 60%). Almost all gynecology and reproductology operations in all leading medical institutions of Georgia are carried out with the laparoscopic method, which makes it possible protectively preserve or rehabilitate reproductive functions of a woman. The number of children born as a result of *in vitro* impregnation methods exceeded 1000.

Conclusions: As a result, *de facto* and *de jure* separation of reproductology as an independent discipline gave impressive results within a short period of time which made the human life more protected and humane.

VILPRAFEN USE IN PREGNANCY

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Introduction: Vilprafen was recommended for treatment of toxoplasmosis in pregnant women in some European countries. Long-term experience of its use showed the absence of any unfavourable consequences for the fetus, whereas during the animal experiments no signs of Vilprafen teratogenicity were revealed.

No cases of Vilprafen embryotoxic action are described in literature, and its use for treatment of Sexually Transmitted Diseases is recommended in by the Russian Association of Obstetricians and Gynecologists.

Material and Methods: Women (n=45) with ureaplasmosis on the 19th -34th weeks of pregnancy underwent examination. Clinical and microbiological investigation was carried out. The diagnosis "ureaplasmosis" was justified by various laboratory studies including the PCR method. The mean age of the pregnant women made 27±2.5 years.

Results: All pregnant women had pregnancy complicated by the threat of abortion.

Dysuric signs, mucous discharges from the vagina were revealed in 37 (82.2%) of the observed women, hyperemia of the vaginal walls in 40 (88.9%) of them and the signs of endocervicitis and cervicitis in 28 (62.2%) of the patients.

Vilprafen was administered at dose level of 500 mg twice a day for 10 days in combination with preparations improving uteral-placental blood flow, vitamins, antimycotic preparations (Pimafucin), eubiotics.

Vilprafen has bacteriocidal effect on *Gram-positive* and *Gram-negative* bacteria, spore forming anaerobes, as well as pathogenic agents of the urogenital tract, such as *Chlamidia trachomatis*, *Neisseria gonorrhoea*, *Mycoplasma hominis*, *Staphylococcus aureus*.

On administration of the preparation 3 (6.7%) patients noted nausea, dull pains in the epigastral region which ceased on their own without any special means. In the result of Vilprafen treatment dysuric disturbances and vaginal discharges disappeared in all the patients. The examination revealed no presence of colpitis and endocervicitis. After a single course of Vilprafen treatment negative results of ureaplasmosis were obtained in 36 (80%) of patients.

Forty-five women delivered and among them 38 (84.4%) by natural delivery on the 39th -40th weeks, 7 (15.6%) by Caesarian section on the 37th -38th weeks. Forty-five alive mature babies were delivered with body mass of 2700-3200 g.

Conclusion: The results showed that Vilprafen is a highly effective for treatment of ureaplasmine infection in pregnant women.

CURRENT APPROACHES OF MANAGEMENT OF PREGNANCY AND LABOR AMONG WOMEN WITH DIABETES MELLITUS

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Objective: The review considers the role of the markers of oxidative stress in the perinatal and obstetrics outcomes in women with gestational diabetes and type 1 diabetes mellitus.

Material and Methodology: We studied lipid peroxidation and antioxidant system in erythrocytes and serum of 10 pregnant women with gestational diabetes and 24 pregnant women with type 1 diabetes mellitus. We examined morphofunctional status in placentas of 22 mothers with type 1 diabetes mellitus and 10 mothers with gestational diabetes.

Results: Pregnant women with gestational diabetes and type 1 diabetes mellitus present higher levels of serum and erythrocyte lipid peroxidation products compared to healthy control subjects. In addition to this, pregnant women with gestational diabetes had adaptational higher values of serum and erythrocyte levels of α -tocopherol and superoxide dismutase in contrast to pregnant women with type 1 diabetes mellitus. In all structural levels of the placenta of women with type 1 diabetes mellitus there were detected significant changes: distortions in blood circulation, alterations and oedema. Placentas in women with gestational diabetes show subtle morphofunctional changes.

Conclusion: We showed that pregnant women with type 1 diabetes mellitus had elevated lipid peroxidation and decreased antioxidant activity that may be used to the choice of optimal weeks to preterm delivery. To prevent antenatal deaths of fetuses, the presented facts substantiate the early confinement of pregnant women with type 1 diabetes mellitus. Pregnant women with gestational diabetes may be kept for the whole duration of gestation.

THE ROLE OF KIDNEY PATHOLOGY IN THE PROCESS OF APPEARANCE OF PREECLAMPSIA

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The aim of the present research is to examine the process of pregnancy in case of kidney pathology and to find out its role in the appearance of preeclampsia.

We have examined 79 pregnant women aged 18-38 with kidney pathology. Forty-eight of examined pregnant women (60%) are primigravidas, 31 (40%) are multigravidas. Twenty-six (33%) pregnant women had complicated obstetric anamnesis (spontaneous and artificial abortions, preterm delivery, intrauterine growth retardation), 23 (29%) complicated gynaecologic anamnesis (urinal-genital infections, hyperprolactinemia, primary or secondary infertility), 25 (31.6%) complicated somatic anamnesis (first or second degree of obesity, diabetes mellitus, varicose disease, hyperthyroidism). During examination 15 pregnant women (19%) had 21-25 weeks of gestation, 35 women (44%): 26-30 weeks of gestation and 29 women (37%): 31-35 weeks of gestation.

All women were referred to necessary clinical-laboratory tests.

There were 39 pregnant women (49.4 %) with pyelonephritis (60% had a chronic stage, 30% had a subclinical stage and 10% had an acute stage), 15 pregnant women (19%) with kidney stones, 14 pregnant women (17,6%) with urolithiasis and 11 pregnant women with cystitis. At the same time 22 women (27.8%) were diagnosed with threatened abortion, 5 women (6.3%): inevitable abortion, and 15 women (19%): threatened preterm labor.

Simultaneously, 53% of women (42 pregnant women) had preeclampsia, 38 % of which (28 pregnant women) had mild preeclampsia and 18% (14 pregnant women) preeclampsia of moderate degree. In this group 57% (24 pregnant women) were simultaneously diagnosed for pyelonephritis, 19% (8 pregnant women) for urinary stone, 14 % (6 pregnant women) urolithiasis and 9.5 % (4 pregnant women): cystitis.

All pregnant women received an appropriate conservative treatment for both main obstetric pathology and kidney diseases.

Thus, research has proved that 53% of pregnant women had preeclampsia superimposed on renal disease; pyelonephritis (57%) and urinary stone (19%) mainly take place. So, for prevention of preeclampsia development it is necessary to perform laboratory tests directed at assessing renal function and patency of the urologic tract before planning the pregnancy.

HAEMOSTATIC INHIBITORS DURING NORMAL AND PATHOLOGICAL PREGNANCY, DELIVERY AND PUERPERIUM

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Introduction: Normal reology of the blood is supported with pro- and anticoagulation systems where haemostatic inhibitors have important role. The most important role have haemostatic inhibitors like AT III (antitrombin) and protein C.

Goal: To explore the role of AT III during pregnancy in normal and pathologic conditions.

Materials and Methods: Overall 229 women were observed of which 103 were in the normal group and 126 women in the group of women with different stages of severe gestosis. In one of the groups the management of gestosis was conducted with traditional methods, and in the other group both traditional methods and heparinotherapy were applied.

Results:

1. Haemostatic inhibitors in normal and pathologic gestational processes affect the adaptive mechanisms of haemostatic system and serve as a prognostic criteria for the risk of disseminated intravenous coagulation (DIC) and thrombophylic syndrome as well as thromboembolic complications.
2. Not complicated pregnancy course in the third trimester is characterized by more intensive functioning of inhibitors compared to non-pregnant women and might be connected with the increase of procoagulant activity of blood clotting factors.
3. The decrease of AT III activity has direct correlation with the severity of the gestosis and reflects the process of clotting and decrease of adaptive mechanisms.
4. In case of gestosis management with traditional methods the stabilization of the AT III activity has been shown but in case of antithrombotic therapy the activity of AT III is normalized with the increase of 15-30% compared to the baseline.

Conclusion: Evaluation of AT III may serve as a diagnostic and prognostic criterion in the process and management of gestosis.

HORMONAL CHANGES AND HEMOSTASIS SYSTEM SHIFTS IN INFERTILE PATIENTS AS A CAUSE OF IMPLANTATION DISORDER IN THE IVF AND ET PROGRAM

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Introduction: Recently assumptions were proposed that changes in hemostasis system can be one of the causes of implantation failure and early interruption of pregnancy. Taking into account lack of information concerning data on hemostasis in patients treated by IVF and ET, the estimation of these parameters became a problem of the present research.

Purpose: The goal of the present retrospective study was to reveal hormonal and/or hemostatical changes as a cause of embryo implantation disorder in relatively homogenous group of the studied patients.

Materials and methods: In the frames of IVF program 80 patients at the age of 25-35 were implanted 2 embryos of perfect and good quality (AA / AB/ BB blastocytes) on the 5th day of development. The study presents data concerning certain parameters of hemocoagulation system, particularly time of thrombin, ATIII, time of blood coagulation, prothrombin index, fibrinogen and D-dimer level on the implantation day and their correlation with estradiol level.

The first group involved 26 patients in whom pregnancy was not registered; 54 patients with clinically confirmed uterine pregnancy made the second group.

Results: Data obtained did not reveal significant difference in the content of estradiol level on the embryo implantation day for two studied groups, as well as in time of thrombin, ATIII, time of blood coagulation, prothrombin index. D-dimer concentration increase was revealed practically in all the analyzed IVF and ET cycles on the day of ET; it is necessary to emphasize that in the cycles with clinically confirmed pregnancy it was expressed to a greater extent and verified.

Conclusion: Data obtained show that estimation of D-dimer concentration is a more informative test for prediction result in patients with stimulation cycles on the implantation day.

HORMONAL CHARACTERISTICS OF FETO-PLACENTAR COMPLEX IN THE PROCESS OF GINIPRAL TOCOLYSIS

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Threatened interruption of pregnancy remains an obstetric topical problem at the current stage of medicine. Due to the wide use of β_2 -adrenomimetics certain success has been achieved in this field. However, literature data on the influence of these preparations on fetoplacental complex are controversial.

The aim of our investigation was to study the state of fetoplacental complex in the process of tocolytic therapy using ginipral by defining the concentration of placental lactogen and estriol in the blood of pregnant women with threatened interruption of pregnancy.

Forty-five women were included in the study depending on the gestation terms.

Our investigation has brought to the following conclusion:

- ⊙ tendency to PL and E_3 level increase is noted in pregnant women with 19-20 week gestation in tocolysis. Their concentrations do not reach the lower border of norm;
- ⊙ true increase of hormone concentrations up to norm is noted in pregnant women with 23-24 and 31-32-week gestation with normal tolerance to ginipral;
- ⊙ in case of side effects caused by ginipral in pregnant women with 23-24 and 31-32-week gestation, the hormone concentrations remain lower norm in spite of the tendency to increase;
- ⊙ in pregnant women with 23-24 and 31-32 week gestations with normal tolerance to ginipral 7 days after beginning tocolytic therapy PL and E_3 levels truly increase those in pregnant women with side effects.

The abovementioned changes speak about insufficiency of compensatory-adaptating possibilities of uterine-placental complex in 19-20 week gestation term.

We consider, that the absence of true increase of hormone concentrations in subgroups with side effects, inhibits normalization of uterine-placental blood flow and prolongs the duration of threatened interruption of pregnancy.

SIMULTANEOUS PRESCRIPTION OF METFORMIN AND ORLISTAT IN TREATMENT OF INSULIN RESISTANT POLYCYSTIC OVARIAN DISEASE

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Introduction: Polycystic ovarian diseases are a serious and complex condition. Metformin as insulin sensitizer and Orlistat as lipase inhibitor can be one of the best choices of pathogenetic treatment while treating these diseases.

Purpose: The goal was to study Methformin and Orlistat simultaneous effect on correction of hormonal and metabolic markers and infertility in those women who are suffering from polycystic ovaries syndrome and infertility.

Subjects and Methods: Thirty-four women (average age: 32 ± 0.8) with resistant polycystic ovaries and infertility and body mass index of 36.4 ± 2.2 kg/m² have gone under screening. They received Metformin – Orlistat for 90 days.

Results: Weight decrease in patients ranged 2-14 kg (mean: 6.8); testosterone levels decreased. Insulin peptide and proinsulin level also dropped down. Continuing treatment with the mentioned drugs 6 patients had ovulatory menstrual cycles and became pregnant (17.6%). The rest of the 28 patients underwent induction of ovulation with Clomifen (50-100 mg/day), and 18 them became pregnant. In 3 of them the pregnancy was accelerated with Gonal F drug. The effectiveness of pregnancy and future ovulation in a simultaneous treatment with Metformin and Orlistat was 79.3 %.(27 women out of 34 became pregnant).

Conclusion: The effectiveness of treatment with Metformin and Orlistat among obese women with insulin resistant and hyperandrogenated ovaries is extremely high.

RARE DISEASES**PHENOTYPE-GENOTYPE CORRELATION OF A PATIENT WITH DE NOVO
IMBALANCED CHROMOSOME (4;14) TRANSLOCATION MISDIAGNOSED AS
PRADER WILLI SYNDROME****Cataletto M.E.¹, Angulo M.A.², Charles M.A.², Zak-Aptekar M.M.²**¹ Division of Pediatric Pulmonology,² Division of Human Genetics,

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Introduction: We report on a 17 year old female with intellectual disabilities, distinctive facies, hypotonia, short stature, initially diagnosed at another institution with Prader Willi syndrome at the age of 4 years, based on clinical picture and chromosome analysis. She had poor growth velocity associated with excessive weight gain, temper tantrums related to food and mild mental retardation.

Aim: Prader Willi syndrome (PWS) is a complex genetic condition that arises from a lack of expressed paternally-inherited genes in chromosome 15q11-q13. We provide correlation between the clinical findings of our patient and the phenotype of the PWS. Also we emphasize utilization of genetic testing accompanied by genetic counseling.

Material and Methods: At the age of 17 she was seen by us for an evaluation to consider growth hormone treatment as an adult. She was found to have features not consistent with PWS including normal secondary characteristics and normal menses. She was also able to stop eating when satisfied. Blood chromosome analysis (G-banding), fluorescent *in situ* hybridization (FISH), DNA with methylation and array-comparative genomic hybridization (aCGH) were performed by commercial genetics laboratory.

Results: Chromosome analysis revealed a *de novo* imbalanced translocation 46,XX, der (4) t(4;14)(q35.2;q32.2). The use of CGH revealed the presence of a duplication of at least 11 Mb at 14q32.2q32.33.

Conclusion: Our findings suggest that patients with partial trisomy 14q32 can be easily misdiagnosed with PWS during early childhood, however, the typical features will change during adolescence. Utilization of new genetic tools accompanied by genetic counseling is imperative in appropriate diagnosis of this syndrome and may aid in predicting associated characteristics and medical management.

THE ANALYSIS OF RESULTS OF NEWBORN SCREENING ON PHENYLKETONURIA IN ARMENIA

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Introduction: Phenylketonuria (PKU) is the most investigated and most widespread hereditary disease in group of enzymopathy, connected with inborn metabolic errors of amino acids, particularly phenylalanine (Phe) and tyrosine, as a result of deficiency of enzyme phenylalanine hydroxylase (PAH), characterised mainly by affection of nervous system.

Purpose: The main aim of this research was the analysis of results of newborn PKU screening in order to define the frequency of PKU among population of Armenia, as well as comparison of 2 methods of Phe definition used in screening.

Material and Methods: Since April 2008 till September 2009 inclusive testing was made by PKU-NEO method (Iranian manufacture). Since October 2009 to this day definition of Phe level in blood is done by colorimetric method of enzymatic inhibition PKU screening kit "ENZOLVE" (Irish manufacture).

Results: Blood samples of newborns (n= 38169) were investigated; hyperphenylalaninemia (HPA) was been revealed in 1777 children that makes about 5%. In 80 % of HPA hyperbilirubinemia, prematurity of newborns, pregnancy pathology, taking of medicine during the pregnancy, a wrong obtaining and storage of blood samples were revealed. PKU was diagnosed in 6 newborns, one of which was born in a family with risk for PKU. Considering the previously mentioned, it is possible to assume that frequency of PKU in Armenia is approximately 1:7500. For the same period in the Republic Centre of Medical Genetics 7 patients with PKU from various regions of Armenia were diagnosed. These patients were born during the period when newborn screening was in launching process in Yerevan, and PKU was diagnosed after 1 year of life; all of them had mental retardation.

Conclusion: Results of the research show that frequency of PKU in Armenia is approximately 1:7500 and newborn screening is a necessity to be carried out all over the Republic of Armenia. Newborns with HPA should be investigated for finding-out of the reasons of transient deficiency of PAH. At comparison of results of tandem mass-spectrometry and colorimetric methods, it is possible to consider changing cut-off of enzymatic inhibition method from 2 mg/dL to 3 mg/dL. Considering certain parameters, currently used method of "Enzolve" company is much more preferable.

TREATMENT OF PATIENTS WITH PHENYLKETONURIA

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Phenylketonuria (PKU) is the hereditary metabolic disease leading to progressive mental retardation and severe incapacity by 2-3 years. The disease is curable when it is diagnosed and treated in time. The basic way of PKU treatment is specific dietotherapy.

Purpose: To studying efficiency of treatment in patients revealed in the process of newborn screening and patients revealed at late terms after a birth.

Material and Methods: Treatment was carried with the amino acid mixes excluding phenylalanine: MD MIL PKU 0, PKU 1, PKU 3 in a combination with low protein foodstuff, medicamentous therapy, in some cases complex rehabilitation was done. The diet took into account daily quantity of protein, fats, carbohydrates, mineral substances, and vitamins necessary for the patient. There were 57 patients on the monitoring in the Republic Centre of Medical Genetics, and 50 of them received specific dietotherapy. Six patients were at age from 3 months to 2 years. They were revealed in the process of newborn screening, 44 patients were revealed in late terms at the age from 8 months till 7 years; all had clinical symptoms of PKU.

Results: The treatment carried out since the first weeks of life prevents development of clinical features of PKU. Growth and development, both mental and physical, of all patients correspond to their age norms. Treatment of later revealed patients with clinical signs of PKU resulted in reduction of clinical features of disease, promoted elimination of a convulsive syndrome, dermatitis, to reduction hyperkinesis, behavioral problems, to improvement of life quality, promoted integration of patients into a society.

Conclusion: Results of this research testify to necessity of carrying out a government program of newborn screening for the purpose of providing timely treatment, and also to supply treatment by the patient with PKU irrespective of age of diagnostics and expressiveness of initial clinical semiology.

THE IMPORTANCE OF DETERMINING AMMONIA LEVELS IN CHILDREN WITH PHENYLKETONURIA

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Ammonia is the final result of nitrogen metabolism in the human body. It is highly toxic to the human body and therefore a large part of it enters the ornithine cycle in the liver where it is transformed into a much less toxic substance, urea.

We demonstrate the effect of three important factors during disturbances in the metabolism of phenylalanine; structural and functional changes in the liver, disturbances in enzyme systems and the lowering of the ability to neutralize ammonia.

Patients with phenylketonuria (PKU) are treated with the enzyme phenylalanine ammonia lyase, which replaces the deficient phenylalanine hydroxylase.

Based on the information above, the subject of this study was to determine the levels of ammonia in children with PKU. Nineteen children of different age were studied and divided into 3 groups based on the time of PKU diagnosis and prescribed diet therapy. In order to determine the effectiveness of the diet therapy, levels of phenylalanine in blood of patients were also determined.

- ⊙ Group 1: 6 children diagnosed during neonatal screening and treated before 1 year of age.
- ⊙ Group 2: 4 children diagnosed and treated after 3 years of age
- ⊙ Group 3: 9 children diagnosed and treated before the age of 3.

Ammonia levels were determined in the serum using a Cobas Integra 400+ apparatus. Levels of phenylalanine were determined using inhibition method.

The study showed that all children with disturbances in phenylalanine metabolism have high levels of ammonia in the blood.

In those children who were treated before 1 year of age, the levels of ammonia were lower, but not within the normal range. This is in line with the physiological tendency of amino group metabolism in tissues.

In children diagnosed and treated at a later age, levels of phenylalanine are 7-10 times higher than the normal range and ammonia levels are increased 5-6 times. Probably, this is also the reason for irreversible changes in the protein metabolism of such patients.

At an earlier age (8 months to 3 years), in cases of successfully completed treatment, a direct correlation is seen between the levels of phenylalanine and the concentration of ammonia in the blood.

SEXOLOGY**SUPERVISION AND TREATMENT OF SEXUALLY VIOLENT PREDATORS:
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Sexually Violent Predators, by definition, are offenders that have been convicted of a sexually violent offense, have a mental disorder, and are likely to engage in future acts of sexual violence. Perspectives regarding the rehabilitation of sex offenders have advanced from “nothing works” to recent findings that support it is possible to reduce recidivism rates. Risk assessment and relapse prevention approaches have become the basis of evidence-based treatment for sex offenders. Empirically derived actuarial instruments are used to identify static and dynamic (including stable and acute) factors linked with sexual offenses. Static risk factors are historical and generally unchangeable (e.g., age at first conviction, victim characteristics), whereas dynamic factors can be changed through treatment (e.g., cognitive distortions, negative emotional states, substance use). Identification of risk factors improves individualized treatment and community reintegration planning. The relapse prevention model developed for people recovering from addictive disorders is adapted and widely used for treatment of sexual offender. Relapse prevention promotes the acquisition of self-management skills to heighten awareness of situations that increase the risk of relapse and facilitates healthy coping responses. Other treatment approaches include, but are not limited to reasoning and rehabilitation, social skills training, emotional-regulation, family-based treatment, and victim empathy. Preliminary findings support that assessment and rehabilitation of sexual offenders may have a significant impact on reducing sexually violent behavior in society.

SOME SEXUAL MANIFESTATIONS AMONG THE MALES AT THE AGE OF 18-30

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Introduction: In late 1980s and early 1990s the socio-economic situation in Armenia changed, as well as moral-ethical norms of the society. The impact of the family and its traditions of bringing up children and adolescents weakened. One consequence of these changes was the fact that dropped the age of sexual activity onset.

Purpose: The main aim of this work was to study the current status and analyze sexual manifestations in males at the age from 18 to 30 years.

Material and Methods: A study was conducted by interviewing, through a Questionnaire developed within the course "Sexuality". The survey was conducted among 1417 healthy males.

Results: At the age of 18 years 64.3% of men already have sexual activity experience, at 19-years this indicator is 67.2%, at 20: 73.2%, at 21-25 years: 86.9% and in 25-30: 93.2%.

The proportion of persons who engage in masturbation, generally in all age groups is 86.4-97.3%. Start of engaging in masturbation depending on the age has some differences, but there are also common patterns, in particular 13.3-19% of people of different age groups mention that they have begun to masturbate in 10-12 years, 45.5-52.4% begin at the age of 13-15 years, 17.0-29.7% from 16-18 years. Very few people have begun to engage in masturbation by 10 years.

Conclusion: The majority of respondents who were interviewed in our study at the age of 18 have had experience of sexual intercourse and practiced masturbation. This study allows us to identify comparative criteria for assessing sexual health in men of the Armenian population.

CORRELATION BETWEEN SEXUAL DISORDERS AND PSYCHIATRIC SYMPTOMS

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Introduction: Despite the development of multidimensional approach in diagnosing and treatment of sexual dysfunction which included bio-psycho-socio-cultural approach, the psychiatric evaluation is usually eliminated during the primary visit. This is imperative for any consideration of human sexuality. In primary sexological process of diagnoses sexual dysfunction it is obvious and common to meet patients with some psychic symptoms, which are not so dominant and usually not undergo into the psychiatric diagnoses. After the period of dynamic observation we have found out that these patients were under the psychiatric control. Therefore, we mentioned to check the prevalence of psychic signs and symptoms, which could possible lead to development of psychic end neurotic disorders.

Aim: The aim of this study was to define the subclinical signs and symptoms in primary sexological patients.

Material and Methods: Dynamic observation of 60 male patients with sexological problems was conducted. Among them were 10% sexual desire disorders, 40% sexual arousal disorders, 30% orgasmic disorders, 20% mixed conditions according to the DSM IV. Diagnoses were proved by using primary special sexological interviewing, physical examination included uro-genital tests of prostate and psychiatric evaluation. After some period of time 24% of patients were referred to psychiatrists. Among patients 8% had psychotic disorders and were hospitalized in psychiatric clinics. The others were observed in psychiatric outpatient clinics with prevalence of different neurotic and borderline disorders.

Results: Leading sexological symptoms may be conducted or combined with subclinical psychiatric signs and symptoms. Primary arousal disorders complain of insufficient erection are usually combined with neurotic sings, and desire disorders combined with subdepressive components.

Conclusion: During primary sexological examination it is necessary to draw attention to the psychic symptoms and signs.

DIAGNOSING ERECTILE DYSFUNCTION: MANAGEMENT FOR ENDOCRINE DIAGNOSIS

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Introduction: Endocrine factors represent an important and potentially treatable cause of sexual dysfunction. The availability of a correct endocrinological diagnosis allows correct identification of most cases of sexual dysfunction in which the endocrine apparatus is involved. Not only the most frequent causes of endocrine sexual dysfunction, such as hypogonadism and hyperprolactinaemia, but almost all extra-gonadal endocrinopathies (hyper- and hypothyroidism, hyper- and hypocortisolism, steroidal secreting tumours, *etc.*) may have importance to a greater or lesser extent in sexual function.

Material and Methods: In this group are included various organic causes capable of inducing alterations in sexual function through an insufficient gonadal function, such as primary hypergonadotropic hypogonadism, congenital (Klinefelter syndrome, testicular agenesis) and acquired (parotitic orchitis, chemotherapy, castration) and secondary hypogonadotropic hypogonadism, in general a consequence of hypothalamic–pituitary disorders. Testosterone (T) level determination is in general less problematic than gonadotropin; in fact. It is not possible to establish the critical T threshold for normal sexuality, as clinical observations demonstrate that some subjects maintain normal sexuality even with very low T plasma concentrations, while others are very sensitive to even modest drops in T levels. Free (i.e. not related to SHBG) testosterone concentration is subject to greater variation than seen for total testosterone but gives a more precise indication of the level of peripheral androgenization, particularly in cases where there is an alteration in plasmatic SHBG levels. High serum levels of FSH, LH and oestrogens together with reduced testosterone are indicative of primitive (testicular) hypogonadism, with Leydig's cells unable to produce testosterone and severe functional damage to seminiferous tubules. Free testosterone concentration is more variable than total testosterone, but gives a better estimation of the patient's degree of peripheral androgenization with reference to sexual function.

Conclusion: Alterations to endocrine glands represent 5–20% of cases of sexual dysfunction.

For some pathologies, such as hypogonadism and hyperprolactinaemia, a strict correlation has been demonstrated and so there must be particular diagnostic attention in the procedure with patients having sexual problems.

SEXUAL DYSPHORIA AT SCHIZOPHRENIA AND DISEASES OF THE SCHIZOPHRENIC SPECTRUM

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Introduction: Currently there are no descriptions of clinical features, options for Gender Identity Disorders (GID) at various mental disorders; it is not defined by their differential diagnostic signs. There are insufficiently developed questions of conducting and a choice of treatment, rehabilitation for patients with schizophrenia to a sexual dysphoria (SD).

Purpose: To define clinical features of schizophrenia proceeding with SD and work out the differentiated approaches to treatment and rehabilitation based on clinical-phenomenological study on features of its formation.

Material and Methods: Clinical-psychopathological, sexological, psychological and statistical methods of survey were applied on persons with schizophrenia addressed in connection with discontent with the sex, desire of hormonal and/or surgical correction of gender (n=78; 55: male; 23: female) . Middle age was 40.6 ± 0.1 years, two were at the age of 63 and 67 years.

Results: The following features are taped:

- a) the psychopathological structure is characterized with polymorphism a clinical picture with an interlacing of interpretive delirium, delirium of transformation, dysmorphophobic, depersonalize and affective disorders. According to mechanisms of development of a syndrome it is possible to allocate three variants of SD: GID as one of implications premorbid or the most endogenous process at children's age; as one of implications of endogenous disease in puberty, post puberty and later age; as implication of GID in a combination to schizophrenic process;
- b) the mechanism of SD formation is distinguished: in women the sensation of belonging or striving for corresponding to the opposite sex is bound to distortions of mental "I" at a stage of a sexual role and disturbances at a stage of psychosexual orientations; in men disturbances of physical "I" at stages of base gender identity and a sexual role prevail;
- c) at women Gender Identity is characterized by no differentiation of sex-role identity, in men: feministic sex-role identity and insufficient adoption of sexual roles.

Conclusion: SD syndrome at schizophrenia has various mechanisms of development, one of which is formation of transsexual identity, at which medical rehabilitation can be similar to that conducted in case of transsexualismus.

PECULIARITY OF TREATMENT OF VAGINISMUS CO-MORBIDITY WITH OBSSESSIVE COMPULSIVE DISORDERS

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Introduction: Scientific data state that there is an obvious relation between vaginismus and the Obsessive Compulsive Disorders (OCD). Hoover and Insel (1984) speculate that obsessive compulsive individuals are prone to marital problems, perhaps because of a lack of sexual intimacy caused by the symptoms of obsessive compulsive disorder (OCD). It is very common to meet the women with OCD suffering with vaginismus. Some data suggest that OCD should be risk factor for the women with sexual problems like vaginismus. Type and duration of treatment of vaginismus depends on the comorbid state of the patient.

Aim: Forty-five women with vaginismus were investigated. The same clinical picture is found among these 45 patients. The same treatment methods were applied to treat these patients. Twenty eight of them were treated during 7-9 visits, others continued visiting until 15-17 visits. The aim of this research is to find out what is the reason of this retardation.

Material and Methods: Forty-five female outpatients who met Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) diagnostic criteria for OCD were involved in a study. Vaginismus was proved using primary special sexological interviewing and physical examination.

Results: We have found that vaginismus can be frequently accompanied with other obsessive symptoms and there is likely actual relationship between vaginismus and OCD, which can deepen clinical symptoms of vaginismus and retard the treatment duration. Also we found that the patients with obsessions were more sexually nonsensual and avoidant than patients without any fears. The vicious circle of this relationship is the main cause of retardation of treatment.

Conclusion: Rapidly identifying co-morbidity of vaginismus with OCD helps to build the effective therapeutic alliance of cognitive behavioral therapy and medication from SSRI group against vaginismus and OCD.

LEADING DIAGNOSTIC CRITERIA OF TRANSSEXUALISM

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Transsexualism is a proof comprehension of the accessory to an opposite sex, despite correct (corresponding to a genetic floor) formation of gonads, an urogenital tract and secondary sexual signs.

Serious problem is in correct diagnostics of transsexualism.

Main features in behavior of transsexuals are: feeling of isolation, requirement to attract attention, infantilism, an egocentrism, shocking, airs and graces, impulsiveness, illusiveness of representations, asocial behavior.

During conversation between the patient and sexopathologist transsexuals are emotionally cold, unsociable, with a feeling of concern of the decision of sex problems.

Problems of transsexuals which can be met in practice of sexopathologist are:

- ⊙ Divorce cases of which one of the parties accuses another in transsexualism or recognizes similar implications at itself;
- ⊙ In case of changing sex.

Leading symptoms of transsexualism:

- ⊙ Internal conviction in belonging to opposite sex which is not given, or physically this opinion, as a rule, is formed since the childhood as remembered by the transsexual;
- ⊙ With maniacal obsession starts to search for ways of a surgical intervention, name change, keep diaries where itself the patient names in that sort to which aspires communicates with persons of that sex as which itself ranks;
- ⊙ With hatred and disgust concerns the genitals.
- ⊙ At all surveyed transsexuals we find early intellectual and sex development. The transsexuals-women wishing to undergo operation differ in hypersexuality and surpassing heterosexualists and homosexualists 2-3 times; hyposexuality at the men, aspiring to be women.
- ⊙ Important difference of transsexuals is the choice of the sex partner, it, as a rule, the person of the sex, the faultless heterosexual partner, without any homosexual implications. Homosexualists are despised by transsexuals. Even the thought on possible sexual relations does not arise in mind of the transsexual;
- ⊙ The true transsexual not only does not wish to have any sex relations with persons of an opposite sex; even any innocent touch of the last can cause anger up to aggressive actions. The transsexual never makes a family even if it can appear a good screen for a society;
- ⊙ Cross-dressing in the childhood progresses in due course: the opposite sex clothes cause feeling of tranquility, calm.

SEX EDUCATION AND THE INFLUENCE ON SEXUAL PLEASURE & WELLBEING

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Introduction: The World Association for Sexual Health has advocated that fundamental and universal human rights are the right to sexual pleasure.

Purpose: To review whether greater knowledge about sex can increase sexual pleasure and wellbeing? To review whether sexual activity is recognised and accepted as a pleasurable experience within modern society? To review the immediate and tangible benefits and longer term effects on the individual, their relationships with others of sexual wellbeing.

Material and Methods: A global survey was undertaken of 26,032 participants across 26 countries.

Results: Among people who have received formal sex education 49% say they are highly satisfied with their sex lives, compared with just 40% of those who have not. Similarly, 49% of women and 48% of men do not think that they received enough advice and information to get the best from their relationships especially about the emotional aspects. As an example, Australians wished their sex education had been more emotionally inclusive (67% female / 63% male). Among those aged 35-44, 47% say they would like more information.

People across the world who received sex education say that on average it was their greatest source of information about sex (57%), above friends (51%) and books (46%) and was usually obtained from school. However, not all nationalities agree. While 78% of the Dutch and 76% of Mexicans give formal sex education the most credit for their knowledge, only 23% of Russians do the same. There are other gaps that are preventing adults from getting the most from their sex lives with only 34% given information about HIV/AIDS and 40% about conception.

Conclusion: Romance and intimacy may bring individuals together for brief encounters or for an eternal affair. Sex education offers opportunities for individuals to receive and identify information portals. Information should be presented without abusive content or sexualisation.

THEORETICAL MEDICINE

COMPARATIVE PHARMACOKINETICS OF IODIDE ANION AFTER ADMINISTRATION OF THE IODINE PREPARATIONS

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Introduction: The pharmacokinetics of Iodoral tablets containing iodine and potassium iodide has been investigated during the period from 2000 to 2009. Since 2002 we have also investigated pharmacokinetics of the preparation containing a complex of iodine and potassium iodide with dextrin registered in many countries. Thus, there is an interest in carrying out the comparative analysis of pharmacokinetics of iodide anion after administration of the preparation containing a complex of iodine with dextrin and Iodoral tablets.

Purpose: The present research is aimed to conduct the comparative analysis of pharmacokinetics and bioavailability of iodide anion at various routes for administration of the Iodide-Dextrin complex containing preparation at its single and multiple administrations and Iodoral.

Material and Methods: Twelve healthy volunteers of both sexes were involved in the study on pharmacokinetics and bioavailability of the complex of iodine with dextrin preparations. The determination of iodide anion in blood serum was carried out using cartridges for solid-phase anion changes and iodide selective electrode.

Results: The comparative analysis of pharmacokinetic parameters revealed that after single administration of Iodoral iodide anion was absorbed in blood more slowly. No statistically significant difference of t_{max} indices was observed. After a single administration of Iodoral and capsules of Iodide-Dextrin complex it was shown that the maximal concentration and the area under the curve ($AUC_{0-\infty}$) of iodide anion in blood serum was higher after Iodoral administration. The apparent volume of the distribution of iodide anion was 3 times more than after administration of Iodoral (16.9 L and 5.4 L, accordingly). The value of its biological half-life statistically did not differ and was 2.65 ± 0.91 h and 1.923 ± 0.74 h for Iodoral and Iodide-Dextrin complex, accordingly.

Conclusion: According to the pharmacokinetic data, it is possible to assume that the presence of dextrin in study capsules promotes the complete penetration of iodine in intracellular space. The latter can formulate basis for the assumption that Iodide-Dextrin complex compared to Iodoral, apparently, might be more effective means for treatment of various organ diseases characterized by significant affinity to iodine anion, in particular those affecting thyroid and/or mammary gland.

POSSIBLE ROLE OF PROTEIN KINASE C IN REGULATION OF SOME TRANSCRIPTIONAL AND APOPTOTIC FACTORS DURING DIABETIC NEUROPATHY

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Introduction: Development of pain persistence and resistance to treatment is determined by changes of specific protein content of neurons, changes in neuroanatomical organization of nociceptive system. Therefore, prevention of transcriptional changes in neuronal cells and development of apoptotic deficit of neurons could have a beneficial effect for neuropathic pain treatment.

Purpose: The goal of this study was to explore the possible role of protein kinase C (PKC) in activation of transcriptional factors pathognomonic for diabetic neuropathy, as well as the effect on balance of pro- and antiapoptotic factors.

Material and Methods: Experimental diabetes was induced by streptozotocin injection. For experiments rats with glucose level higher than 13 *mmol/L* and with altered pain test results were selected. Transcriptional factors were measured by western blotting in spinal cord lumbar segments. Protein kinase C was blocked by chelerythrine hydrochloride (conventional and novel isoforms) and rottlerine (delta isoform). The level of *Fos* protein was measured after formalin injection, since it can be considered as a marker of pain intensity.

Results: Short-term administration of non-selective and selective PKC blocker increased the level of NFkB in spinal cord of diabetic rats, and it could be attributed to inhibitory effect on NFkB translocation.

The increase in *Fos* protein level was more profound in spinal cord of diabetic rats, but this increase was partially prevented by chelerythrine hydrochloride. Both antiapoptotic factor *bcl-xl* and proapoptotic factor *bax* were increased in a diabetes model, but the ratio between them was strongly shifted in favour of *bax*. The latter was partially prevented by rottlerine, but not by chelerythrine hydrochloride.

Conclusion: Different isoforms of protein kinase C are involved in activation of NFkB and *Fos*, as well as proapoptotic shift in balance of anti- and proapoptotic factors during diabetes.

IMPORTANCE OF A REGULATORY CONTROL OF DIETARY SUPPLEMENTS IN ARMENIA

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Introduction: The possibility of independent and long-term use of Dietary Supplements (DS) by the consumers when they have extremely insufficient information about these products and the aggressive marketing of the latter represents certain risks. The main risk factors for the DS are: overdose at non-controllable prescriptions, low quality and incorrect identification of the herb material, variability of the amounts of active ingredients, contamination with heavy metals, illegal presence of allopathic medicines, interactions with drugs, allergic reactions and toxicity typical for some herbal ingredients.

Purpose: The aim of research was detection of adulterated DS in the market and development of measures directed at improvement of the counterfeit identification.

Material and Methods: The pureness and identity of DS was investigated using liquid chromatography, mass-spectrometry, gas-chromatography, liquid chromatography-tandem mass-spectrometry in the Quality Control Laboratory of the SCDMTE (MOH RA).

Results: Three cases of DS counterfeit were found out at pharmacy inspections in Yerevan since 1997 to 2007: Antiox and Sweltform (Vision, France) in which presence of non-declared phenobarbital was found, and Yong-Gang (Feng Tai Ind, China) tested for presence of vardenafil, sildenafil, tadalafil, and testosterone. The test discovered 30-34 mg of tadalafil; this quantity 1.5 times exceeds the allowed dosage.

Conclusion: Based on the reports about counterfeiting of certain DS groups received from various countries SCDMTE (MOH RA) organized a special control on presence of non-declared ingredients to protect the local market from falsification.

The control is regularly carried out in the process of licensing for the following DS groups:

1. tonics: control on presence of non-declared ephedrine, antidepressants and thyroid hormones;
2. sedatives: control on presence of benzodiazepines;
3. sugar reducers: control on presence of non-declared oral anti-diabetic preparations;
4. body correctors: control on presence of non-declared anabolic steroids;
5. weight-loss preparations: control on presence of controlled drugs and sibutramin;
6. medicine for joint troubles: control on presence of corticosteroids, aspirin and diclofenac sodium.

ADVENTITIAL LOCALISATION OF LYMPHOMA IN POLYARTHERIOPATHY: RITUXIMAB TREATMENT

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The clinical and pharmacological findings of Rituximab treatment in a newly described B-cell lymphoma are of interest.

Purpose: To present an Observational case report of Rituximab as an interesting option of monotherapy in B-cell lymphoproliferative diseases with aggressive clinical evolution but without important tumoral localisation.

Clinical case: In June 2007 a 60-year-old man was operated for triple angioplasty of intra-ventricular middle, circumflex and bisectors arteries (IVA) needed to put an active stent with concomitant firstly diagnosed IgG γ 2 κ 2 gammopathy.

In August 2007 medullar B-cell marginal zone lymphoma, with 4000 lymphocytes/ mm^3 in peripheral blood circulation was diagnosed. Immunohistochemistry of medullar and blood lymphocytes was as follows: CD19+; CD22 low; CD79b+; CD20+strong; CD5-; CD23-; FMC7+, CD43-; CD38-. Monoclonal protein level was 5.3 g/L in the zone of gamma-globulines. No lymphadenopathy was observed; neither hepato-splenomegalia by scanner of thoraco-abdomino-pelvic regions, nor autoimmune anomalies were found.

After 2 years of abstention strategy, a number of vascular events with dramatic complications were diagnosed: from June to September 2009: celiac trunk 90% stenosis, renal artery's biostal stenosis, right (70%) and left (40%) coronary artery's stenosis; bilateral obstructive lower extremities artheriopathies, re-stenosis of left renal and bilateral lower extremities arteries. Concomitant progression of circulating lymphocytes to 6120/ mm^3 was observed.

September 2009: biopsy of right femoral artery: adventitial localisation CD20+; CD5-; CD23-; bcl1-lymphocytes. Rituximab 375 mg/m² as a monotherapy: four weekly courses continued by four monthly courses were received.

Methods: After 8 courses of Rituximab clinical and biological evaluation proceeded.

Results: The clinical situation was stabilised after this 5-month course of treatment, no other vascular event was observed during six consecutive months, except stenosis of the left renal stent, after the end of treatment. The biological evaluation shows a disappearance of circulating clonal lymphocytes, but stability on monoclonal protein, 6.1 g/L and the persistence of adventitial per vascular localisation of lymphocytes.

Conclusions: Rituximab is well tolerated and clinically effective option in patients with dramatic complications of lymphoma, the association with chemotherapy should be discussed. To the authors' knowledge, adventitial localisation of low grade B cell lymphoma has never been reported before.

SOME PROBLEMS OF ANTIBIOTICS USE IN ARMENIA

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Background: The rational use of antibiotics is one of the most important problems of current medicine because of a wide spread of resistance to antimicrobial substances. Armenia, as well as other countries, encounters specific related problems.

Purpose: An investigation was conducted to characterize the local situation on application of antibiotics.

Material and Methods: The Armenian Scientific Centre of Drug and Medical Technology carried out analyses of antibiotics prescribed in terms of principles of rational pharmacotherapy in 10 randomly sampled 10 health facilities, and the telephone survey of the answers from 321 respondents were received by the method of systematic sample.

Results: It was revealed that on the average 10 medicines were prescribed per patient, 21.8% of all prescribed means were antibacterial drugs. In 84.7% cases there was polypharmacy (more than 5 drugs per patient), in 31.3%: 3 and more antibiotics. Mistakes of antibiotic-therapy duration were found in 22% of cases. Amongst antimicrobials, 47% were prescribed as injection. In 67% cases used antibiotics did not accord to laboratory data of microbial sensitivity. There were 40.7% cases of non-rational drugs combination. The telephone survey displayed that 10.3% of respondents used antimicrobial medicines for self-medication, though they cannot be sold over the counter.

Conclusion: The above-cited mistakes of antibiotic-based therapy might lead to failure of treatment, increasing side effects and financial expenses because of extended disease duration. Therefore, it is necessary to improve education programs for physicians in the field of rational pharmacotherapy, particularly antibiotic therapy, and to inform the population about the basic principles of self-medication.

PUTRESCINE DEPENDENT MECHANISMS IN PROCESSES OF MYOCARDIUM CONTRACTILE ACTIVITY FORMATION

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Introduction: Aspects associated with the role of putrescine in mechanisms of cardiovascular system regulation, in particular, in processes of myocardium increased contractile activity formation are the challenge of a wide discussion of present-day cardiology.

Purpose: The influence of putrescine low concentrations on contractile activity of myocardium in large and small laboratory animals was studied.

Results: Single intravascular injection of putrescine to mice (10^{-8} mg/mL per 100 g body weight) was accompanied by elevation of functional indices of heart contractile functions, which were expressed as the increase of heart mechanical contractions amplitude, an increase of the apical potential in electrocardiogram. No signs of rapid or reduced heart rate were observed.

Ultra-sound tests in young puberal male pigs revealed that in a minute after putrescine injection, the contractile ability of myocardium increased, being expressed in an increase of emission fraction of the left ventricle of heart. The most positive inotropic effect of putrescine was observed in four minutes after putrescine injection. Indicated parameters were normalized reaching control values in ten minutes of the experiment. By enzyme immunoassay, it was established that in 20 minutes post putrescine injection the content of adrenalin considerably increased in heart, adrenals, and blood serum.

Conclusion: Due to the performed research, the conclusion might be drawn suggesting that the positive inotropic effect to heart under conditions of putrescine injection to experimental animals is mostly conditioned by processes of catecholamines synthesis activation in adrenals followed by their enhanced release into blood and heart.

ASYMMETRY: A FACTOR OF PLASTICITY IN THE STRUCTURAL REORGANIZATION OF THE CENTRAL NERVOUS SYSTEM

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Introduction: At present asymmetry as a basis for recovery of disturbed functions has a quite special role in studies on plasticity of nervous system.

Purpose: The following three ascending projection systems in adult cats were observed: cerebellum-thalamic, vestibular-thalamic and cerebellum-rubral in conditions of preliminary (3 months before) destroying of contralateral interpose nucleus of cerebellum or Deiters' lateral vestibular nucleus.

Material and Methods: The tract labeling method of horseradish peroxide (HRP) axonal transport by local microinjection of marker into the red nucleus or ventral lateral nucleus of thalamus in cats was used.

Results: Three months after destroying the contralateral nucleus of cerebellum or Deiters' lateral vestibular nucleus, the reorganization exclusively in contralateral cerebellum-thalamic and predominantly contralateral vestibular-thalamic system in adult cats has systemic display involving central nuclei of cerebellum and nuclei of the vestibular complex. A systemic formation of ipsilateral projections from the central nuclei of cerebellum to the red nucleus in conditions of its partial deafferentation evoked by preliminary (3 months before) destroying of contralateral interpose nucleus of cerebellum in adult animals is shown.

In above mentioned contralaterally organized systems relating to the integrative links of motor system and providing the control and direction of movement, a parallel, combined and simultaneous intersystem reorganization with contribution of each of them and with initiation of ipsilateral representation at the expense of survived structures seeking to recoup neurological deficit is observed. This may lead to appreciable "carryover" of function to the opposite hemisphere, which significantly changes the initial lateralization of the brain. The reduction of lateralization degree and, as a consequence, the change of asymmetry at the structural level was shown. According to the present interpretation, similar forced reorganization is not uniquely useful: at acute stage it is considered as reaction of the brain, sparing destroyed hemisphere, but at later stage: as a barrier to recovery of preserved normal paths.

Conclusion: Mechanisms of realization of such reorganization could be, on the one hand, the formation of collateral and/or terminal axonal sprouting, and, on the other hand, enabled bilaterality, philo- and ontogenetically filled and displayed only in case of injury.

S. A. MIRZOYAN'S PRIORITY RESEARCHES OF GABA-ERGIC MECHANISMS OF CEREBRAL BLOOD FLOW REGULATION

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Discovery of GABA, the primary inhibitory neurotransmitter in the human brain, the quantity of which exceeds the content of all neurotransmitters taken together, undoubtedly indicated that its role cannot be limited only by neurotransmitter function. **Really, increasing evidence suggests that GABA-ergic system playing a pivotal role in normal brain function and energy metabolism is involved in regulation of many physiological processes.** Meanwhile, the ability of GABA to dilate cerebral vessels has been revealed for the first time in 1964 by S.A Mirzoyan. and V.P. Hakobyan. The interest to obtained effect especially increased when authors found out a significant quantity of GABA and specific localization of enzymes of its metabolism in the tissue of walls of cerebral arteries. Under the conditions of experimental impairment of cerebral blood flow the content of GABA in brain tissue and tissues of walls of its vessels considerably was increased. During the subsequent researches aimed at revealing of endogen metabolites of GABA, the presence of γ -oxybutyric acid, γ -butyrolacton, pyrrolidone-2 in the walls of cerebral arteries was proved.

It was established that cyclic derivatives of GABA have not only an effect similar to GABA effects on neurocirculatory brain zones, but in many respects surpass its action. The role of GABA system as a regulator of functional dilatation of cerebral arteries was proved by establishment of the direct relation between quantitative shifts of GABA and products of its transformation in brain tissue and development of vasodilatation in response to fall of arterial pressure in the range of autoregulation. All above mentioned confirms consistency of the neurochemical theory of regulation of cerebral blood circulation developed by Mirzoyan S.A and based on conceptions on integration of the multiple neurochemical reactions, including providing an originality of biosynthesis and metabolic degradation of GABA system, and elimination of deficiency of brain blood supply.

THE INFLUENCE OF NICERGOLINE ON RAT ISOLATED AORTA IN CONDITION OF HYPOKINESIA

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Introduction: It is shown by the number of researchers that hypokinesia (HK) is a factor modifying sensitivity to different vasoactive substances.

Purpose: The aim of this study was to reveal the influence of movement activity restriction on sensitivity of rat aorta to nicergoline and elucidate the role of its prostaglandin (PG) and nitric oxide (NO) dependent component of action.

Material and Methods: The experiments were performed in 17 male mongrel rats weighing 170-200 g. The control group (n=9) of rats was kept in ordinary vivarium conditions and the experimental group (n=8) in the individual narrow plexiglas cages for simulation of HK during 15 days. The ability of nicergoline (10^{-7} M) to decrease the isotonic contractions' amplitude (expressed in %) of isolated aortic rings (IAR), precontracted by phenylephrine (10^{-7} M) and $\text{PGF}_{2\alpha}$ (4×10^{-6} M) has been estimated.

In parallel series of experiments the same procedure was performed with

1. cyclooxygenase (COX) inhibition by non-selective COX inhibitor diclofenac (3×10^{-6} M); and
2. NO-synthase (NOS) inhibition by non-selective NOS inhibitor 7-Nitroindazole (7-NI, 10^{-4} M) to define changes of PG- and NO-dependent component of action of nicergoline.

Results: The increase of sensitivity of IAR to nicergoline in case of phenylephrine- ($104.41 \pm 12.73\%$ of dilation against $80.25 \pm 13.19\%$ in control group ($p < 0.05$)) and $\text{PGF}_{2\alpha}$ -induced contraction ($10.60 \pm 3.55\%$ against $5.77 \pm 2.57\%$ in control group ($p < 0.05$)) was observed during early HK. At the same time in COX-inhibited series of experiments in HK in case of phenylephrine contraction no changes were registered in comparison to the corresponding index of control group, whereas there is an authentic decrease of relaxing response ($p < 0.01$) in comparison to HK group without COX inhibition. Similar picture is noted in case of $\text{PGF}_{2\alpha}$ -induced contraction. In NOS-inhibited series there is almost the same increase of dilator response of nicergoline in phenylephrine-induced contraction in HK in comparison to the corresponding index of groups without inhibition, while in case of $\text{PGF}_{2\alpha}$ -induced contraction there is no significant difference.

Conclusion: Thus, the early HK results in augmentation of sensitivity of isolated aortic rings of rats to the nicergoline. In 15-day HK PG- and NO-dependent vasodilating action of nicergoline is increased.

GABA_B RECEPTORS AS DRUG TARGETS

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The action of GABA (γ -aminobutyric acid), the major inhibitory neurotransmitter in the mammalian CNS, is mediated via 2 distinct receptor types, ionotropic (GABA_A) and metabotropic (GABA_B). Whilst the former receptor has been known since the 1960s, the latter receptor only emerged in the early 1980s, when we were attempting to model the reported ionotropic action of GABA at terminals in the spinal cord using neurones in the rat superior cervical ganglion. GABA inhibits the release of primary afferent transmitter in the cord via GABA_A receptors but GABA_B receptors also make a significant contribution. The activation of GABA_B sites reduces the membrane conductance of voltage-gated Ca⁺⁺ channels to decrease transmitter release and this is primarily associated with presynaptic terminals such as, in particular, primary afferent terminals. GABA_B site activation at postsynaptic sites is primarily mediated by an increase in neuronal K⁺ conductance through inward-rectifier channels. GABA_B receptors are G-protein coupled and are not only linked to Ca⁺⁺ and K⁺ channels but also to adenylyl cyclase. GABA_B receptors exist as heterodimers comprising subunits GABA_{B1} and GABA_{B2} with a tetrameric auxiliary protein (KCTD) attached, as recently described by Schwenk et al (2010). This tetrameric protein appears to be linked via the C terminus of the GABA_{B2} subunit and this determines the pharmacology and kinetics of GABA_B receptor activation. The GABA_{B2} subunit appears to be the locus of action of allosteric modulators which modify agonist activity, whilst the GABA_{B1} subunit provides the agonist recognition site. The clinically active GABA_B receptor agonist, baclofen, is well established as a centrally active muscle relaxant but there are other agonist effects that may be of therapeutic benefit, including suppression of drug craving and analgesia. A number of high affinity GABA_B receptor antagonists have been reported and these may provide the basis for other potential therapeutic effects such as the enhancement of cognitive behaviour, suppression of absence seizures and antidepressant activity. However, whilst a range of in vivo effects have been reported their relevance to clinical therapeutics remains to be established.

ELECTROPHYSIOLOGICAL STUDY OF THE INFLUENCE OF UNILATERAL ADRENALECTOMY IN AMYLOID BETA 25-35 INDUCED MODEL OF ALZHEIMER'S DISEASE

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Introduction: The hormonal homeostasis plays a significant role in the pathogenesis of Alzheimer's disease (AD). Previous studies indicate that long-term hormone deprivation might be another factor to influence the expression of amyloid beta precursor protein in brain. Stress-induced decrease in neurogenesis in the adult hippocampal dentate gyrus is modulated by glucocorticoid levels.

Purpose: Our study determined the effects of unilateral adrenalectomy (ADX) on synaptic plasticity in a rat model of AD.

Methods: Electrophysiological studies by extracellular recording of hippocampal single-neuronal spike activity under high-frequency (tetanic) stimulation (HFS) of entorhinal cortex (EC) were performed in three groups of animals: 1) intact rats; 2) A β 25-35 bilateral intracerebroventricular injected rats and 3) unilateral ADX + A β 25-35 injected rats after 29 weeks.

Results: In electrophysiological study variability of post-stimulus excitatory and inhibitory tetanic (TP, TD) and post-tetanic (PTP, PTD) potentiation and depression by programmed mathematical analysis were performed. In hippocampal neurons of intact rats the number of excitatory and inhibitory responses caused by EC HFS made: TP+PTP (in 28 from 161 trials: 17.4%), TD+PTP (65/161: 40.4%) and TD+PTD (68/161 - 42.2%). In A β 25-35 group the activity was dominating (69/90: 76.7%) and the responses were as follows: TD (9/90: 10%), PTP (12/90: 13.3%) and did not contain TP. In ADX+A β group the excitatory responses were 9.7 times less than inhibitory effects (32/358: 8.94% and 310/358: 86.6%, respectively); the inhibitory responses were long term. In this group the active neurons (16/358: 4.47%) were recorded 17 times less often than in A β 25-35 group. Thus, there is a disruptive effect of A β and ADX resulting in optimal distribution of electrophysiological parameters.

Conclusion: Binding of glucocorticoids to CNS receptors results in modulation of many processes, ranging from neurotransmission to subsequent stages of cell development and death. Our data show that progressing hippocampal and EC neuron's synaptic activity disorders (reducing synaptic integrity) in response to intracerebroventricular injected A β 25-35 were modulated and/or prevented in ADX + A β 25-35 group.

PHARMACOGNOSTIC RESEARCH OF BULBOUS ROOTED CHERVIL WILDLY GROWING IN ARMENIA

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Introduction: From ancient times a number of wildy growing plants have been used in Armenia, one of which is the tuber bulbous-rooted chervil *Chaerophyllum bulbosum* L.

There are 40 varieties of bulbous-rooted chervils, of which the ramsonal (*Chaerophyllum bulbosum*) and gilded (*Chaerophyllum aureum*) types are encountered in Armenia.

Purpose: The goal of this work was the pharmacognostic analysis of Armenian flora and nutritional importance of bulbous-rooted chervils as a source of biologically active substances.

Material and Methods: The overground part of bulbous-rooted chervil, the grass (*herba Chaerophylli*), served as a substance for the research, being picked up in May- June 2010 in different regions of Armenia. The microscopic and photochemical analysis of sorted raw material was carried out according to the State Pharmacopeia (SP). Total ashes and the content of essence were defined by the method of Grinsberg (SP, 1990). The amount of extracted substances was determined by the method of N.I. Grinkevich (1983). The resume of flavanoids was defined according to method of quantitative determination of flavanoids by V.P. Georgievski (1990).

Results: The results of microscopic research showed that pigment cells-idioblasts and small crystallic sand accumulations spread all over the surface of epidermis were more characteristic for the microslide of leaves of bulbous-rooted chervil stored from Ghapan region. The results of phytochemical analysis of the bulbous-rooted chervil stored from Aparan showed that the content of essence according to the obtained results reached up to 0.13%. The total ashes made 15.5%. The content of extracted substances was 30.0%, the resume of flavanoids: 0.5%.

Conclusion: Based on the results of the research we may conclude that the types of bulbous-rooted chervil growing in different places of Armenia differ in tissue peculiarities of leaves, which will give an opportunity for their later standardization by the microscopic method. As the bulbous-rooted chervil growing in Armenia is not standardized and the amount of effective substances is not defined, a quite high content of extracted substances is disputable for the purity indices of the bulbous-rooted chervil.

DIGITAL INDICES AND MICROSCOPIC ANALYSES OF WILD GROWING AND OVERGROWING OF *TEUCRIUM POLIUM* L. IN HYDROPONIC CONDITIONS

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Introduction: *Teucrium polium* L. has been used in empiric medicine for treatment of gynecological and gastro-intestinal diseases as painkiller, anti-inflammatory and antibacterial agent.

Purpose: With the purpose of obtaining ecologically clean product, *Teucrium polium* has been included into growing culture, as it has programmed chemical content and productivity.

The expediency of plant growing in hydroponics conditions is established. The microscopic analysis was carried out for standardization of a medicinal herbal substance and its digital indices established.

Material and Methods: Crumbled leaves and flowers of *Teucrium polium* L., natural and growing in hydroponic conditions, were used. Micropreparations of leaves and flowers of *Teucrium polium* L. were seen in solution of chloral hydrate. The analysis was carried out at the Scientific Research Center of YSMU after M. Heratsi.

Results: The following superficial features have been revealed: characteristic branching villi: six-, seven-, eight-cell of warty surface. Capitulate villi, flat stigmatic multicellular villi, as well as two-ended villi can be seen. The flower (corolla and calyx) is especially characterized by the presence of big simple sharp-ended villi.

Single ethereal-oil glandule can be seen on the surface, that is characterized by *Lamiaceae* (round with radial excretory cells).

The following digital indices were obtained:

- ⊙ extractive substances extracted by 70% alcohol made no less than 10%;
- ⊙ humidity no less than 8%;
- ⊙ general ashes: no less than 10%;
- ⊙ flavonoids: no less than 1.5%;
- ⊙ phenylpropanoid glycosides: no less than 3%.

Conclusion: Microscopic analysis revealed that diagnostic indices of wild growing plants and those growing in hydroponic conditions are identical.

NEUROPROTECTIVE EFFECT OF PLANT EXTRACTS CONTAINING NEUROTRANSMITTER AMINO ACIDS AND ANTHOCYANINS TO THE RETINA

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Introduction: GABA is the main inhibitory neurotransmitter of the brain. Glycine, taurine and proline are the companions of GABA, whereas aspartic and glutamic acids are companions. Biochemical, histochemical and pharmacological studies confirmed that GABA is one of the retinal neurotransmitters. It is assumed that modulators of ionotropic GABA receptors, stimulating GABA_C receptors exhibit neuroprotective activity against the protein amyloid- β . GABA_B receptors are regulators of calcium channels and are important for development of the retina, which is an ideal system for studies of GABA-mediated inhibition in the CNS.

Purpose: The aim of our study was to examine the influence of plant extracts on the rat retina in case of photoinduced damage.

Materials and Methods: Leafs, flowers and fruits of black elderberry (*Sambucus nigra*), as well as leafs and fruits of black mulberry (*Morus nigra*), which according to our data contain neurotransmitter amino acids and anthocyanins, were used as a material for study. The content of amino acids was determined by High-Pressure Liquid Chromatography with a chemical detector. The content of anthocyanins was determined by spectrophotometry and pH-differential spectroscopy. Photoinduced damage to the retina was caused by exposure of rats to white luminescent light for 48 hours. The condensed extracts were introduced to rats through the probe.

Results: Extracts of both black elderberry and black mulberry have the ability to significantly prevent the morphological and functional damage of the retina associated with its photoinduced damage. In the control group in the outer and inner nuclear layers there were visible broad areas of focal necrosis, which prevents the reception of black elderberry extract, while the protective effect of extracts of black mulberry expressed somewhat less: in some sections small foci of granulocytes, and leukocyte infiltration were revealed

Conclusions: Extracts of black elderberry and black mulberry have a clear neuroprotective effect in photodamages. The effect is more pronounced in preparations of black elderberry.

ADULTERATION OF HERBAL MEDICINAL PRODUCTS IN ARMENIA

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Introduction: The legal status and the legislative control of the herbal medicine (HM) are not developed into a structural control model and differ in various countries ranging from those being free of any regulating requirements to application of regulations similar to ordinary medicines. All these provoke a great deal of problems in regulatory assessment and further pharmacovigilance of such products.

Purpose: The aim of research was to reveal the results of monitoring of the Armenian pharmaceutical market in the area of HM.

Material and Methods: The study was carried out during authors' routine expert work.

Using modern methods and devices that are at disposal of the Drug Quality Control Laboratory of SCDMTE (liquid chromatography, mass-spectrometry, gas-chromatography, liquid chromatography-tandem mass-spectrometry) it was possible to investigate the quantity of ingredients, pureness and identity of HM and if any to discover the counterfeits.

Results: Nine falsification cases of HM were found out at pharmacy inspections in Yerevan since 1997 to 2007: 1) Sea Buckthorn Oil, 30 mL bottle, Altay Service, RF (Low strength (50%)); 2) Sea Buckthorn Oil, 30 mL bottle, Sadovod, RF (Lack of active ingredient); 3) Camphor Oil, 30 mL bottle, N/A, Armenia (Illegal manufacturing); 4) Camphor Oil, 30 mL bottle, Manufacturer N/A, Russia (Illegal manufacturing); 5) Camphor Spirit, 30 mL bottle, Manufacturer N/A, Armenia (Illegal manufacturing); 6) Peppermint Tincture, 30 mL bottle, Manufacturer N/A, Armenia (Illegal manufacturing); 7) Sage leaf, Manufacturer N/A, Armenia (Lack of active ingredient); 8) Motherwort Tincture, 30 mL bottle, Borisov, Belarus (Illegal manufacturing); 9) Valerian Tincture, 30 mL bottle, Borisov, Belarus (Illegal manufacturing).

Conclusion: The reports about counterfeiting state a strong evidence of urgent necessity for improvement in legislation field and regulatory control of HM in Armenia, which will allow protecting the local pharmaceutical market and consequently the consumers against falsified products.

SKIN BLOOD FLOW CHANGES DUE TO MORPHINE: THE ROLE OF NITRIC OXIDE

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Introduction: Due to effects of morphine on Blood Pressure (BP) and body temperature, which can change Skin Blood Flow (SBF) indirectly, an investigation was performed on the effect of morphine to SBF and the role of nitric oxide in this phenomenon.

Material and Methods: SBF was measured from the surface of the hind paw of Sprague-Dawley rats by Laser Doppler Flowmetry (LDF) technique.

Results: The results showed that injection of morphine (SC, 3 mg) increased SBF significantly in two steps and then reduced it until the end of the experiment. Recording of rectal temperature and tail blood pressure (BP) showed an increase of temperature (1.4°C) and fall in BP (18.6%). The second phase of SBF increase was associated with temperature increase, and the reduction phase of SBF was associated with a decrease of BP. L-NAME (SC, 5 mg/kg) reversed the first phase of SBF increase induced by morphine, but had no effect on the second increase and reduction phase of SBF, whereas 20 mg/kg of L-NAME blocked the two phases of SBF increase, but had no effect on reduction phase of SBF.

Conclusion: Based on the obtained results it could be concluded that morphine, in addition to its direct effect on SBF (beginning immediately after injection), has also indirect effects on SBF due to its influence on body temperature and BP.

PROTECTIVE EFFECT OF HYPOTHALAMIC PROLINE-RICH PEPTIDE ON CENTRAL VESTIBULAR NEURONS FOLLOWING UNILATERAL LABYRINTHECTOMY

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Introduction: Vestibular complex is known as an integrative structure participating in coordination and control of numerous motor acts.

Purpose: The aim of the present study was the exploration of neuroprotector facilities of hypothalamic proline rich peptides (PRP) participating in the process of vestibular compensation.

Material and Methods: In Albino rats after unilateral labyrinthectomy (UL) the activity of single neurons of the lateral vestibular nucleus of Deiters (LVN) was recorded in experiments with computer analysis of post-stimulus spike activity of the excitatory and inhibitory effects evoked by high-frequency stimulation (HFS) of paraventricular (PVN) and supraoptic nuclei (SON).

Results: After UL during dynamic progress of neurodegenerative changes (at 4, 9, 17 days after the placebo-control) to HFS of mentioned nuclei the progressing of imbalance of excitatory tetanic (TP), post-tetanic (PTP) potentiation and inhibitory depression (TD and PTD, respectively) were recorded in LVN neurons. After injection of PRP (10µg, *i/m*, on the 2nd day after UL) and HFS (50, 100 Hz) of PVN and SON the correlation of excitatory and inhibitory effects was the same. The repeatability of multiple tests was restored and the number of non-reactive neurons decreased (at mentioned days in 33 of 76, in 12 of 60 and in 3 of 64 tests). On labyrinth-ectomized side at the 4th day after UL there was prevalence of TD and PTD due to action of PRP (20 of 76), and already at the 9-th day the reactions were characterized by proportional correlation of TD (29/64) and TP (23/4), followed by PTP and PTD, as well as by their intensity correspondence to the norm.

Conclusion: Obtained results testify to neuroprotective effectiveness of PRP through modulation of inhibitory control in LVN by participation of PVN and SON of hypothalamus. On the other hand the central neuroplastic changes (particularly in PVN and SON) to be considered as a substantial pathologic-physiological component in mechanisms of neurodegenerative shifts. That is why the pathologically valid corrector of disturbances in hypothalamic-vestibular link can be hypothalamic neuro-modulators of peptide origin.

PHENOLICS AND ANTIOXIDANT ACTIVITY OF APRICOT LEAVES

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Introduction: Apricot leaves, which are usually discarded, were used in traditional medicine for a wide range of various ailments. Particularly, fresh juice of apricot leaves was applied in Chinese traditional medicine with beneficial results in skin diseases scabies, eczema, sun-burn and itching of the skin due to cold exposure. Apricot leaves were also used for clearing teeth, at toothaches and stomatitis.

Purpose: To understand the mechanism of pharmacological actions, the antioxidant potency of the apricot leaf was investigated using *in vitro*. Correlation analysis of antioxidant activity versus the total phenolics, total flavonoid and total tannin content was carried out.

Material and Methods: Leaves of apricot of native "Erevani" cultivar were collected from the apricot orchards of Kanakeravan (Armenia). The material was fixed by water vapors during 10 min and air dried at room temperature away from sun light. Total phenolics content was determined in the 70% ethanolic extract with the Folin-Denis reagent. The tannins were determined by titration with 0.02 N KMnO_4 solution. The total flavonols were evaluated with AlCl_3 by colorimetric assay. All analysis were performed in quadruple and data were reported as Means \pm SD ($p=0.05$). Results were processed using Excel Anova. Total Antioxidant Activity (TAA) was evaluated by voltammetry. Tannin solution (1%) was used as standard for water extracts, and 0.02 % rutin solution was applied for ethanolic extracts.

Results: The investigated samples demonstrated excellent antioxidant properties in comparison with the standard antioxidants. Whereas the antioxidant activity of water extracts showed only 15.22 % polynomial 4th order dependence upon the content of total tannins, the correlation was stronger ($R^2=0.7119$) in case of ethanolic extracts and was mainly due to the presence of flavonols in the plant extract ($R^2=0.8878$). Statistically insignificant correlation between polyphenolic content and antioxidant capacity in our leaf samples was possible due to the presence of some other phytochemicals, as well as the synergistic effects among them, which also contribute to the total antioxidant capacity.

Conclusion: Data suggest that extracts of dried apricot leaves possess higher potential to cope against the active oxygen, prevent oxidative damage to major biomolecules and afford significant protection against the oxidative stress.

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Conclusion: Data suggest that extracts of dried apricot leaves possess higher potential to cope against the active oxygen, prevent oxidative damage to major biomolecules and afford significant protection against the oxidative stress.

ELIMINATION OF NEUROBEHAVIORAL CONSEQUENCES OF FOCAL BRAIN ISCHEMIA BY GABA CONTAINING PLANTS

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Introduction: The elevated plus maze is a widely used behavioral assay for rodents. It has been validated to assess the anti-anxiety effects of pharmacological agents and to define brain regions and mechanisms underlying anxiety-related behavior.

Purpose: The main purpose of this research was to investigate influence of GABA containing plant such as *Morus nigra* on locomotor function and anxiety in rats with local brain ischemia.

Materials and Methods: For this investigation we used aqueous extract of leaves of *Morus nigra* (1:10) prepared by simple extraction method. Thirty-five male non-linear albino rats weighing 240-250 g were used in this experiment.

Animals were divided in 3 groups: control (n=12), ischemic (n=12), treated (given by 40 mL/kg extract of *Morus n.* 3 days after ischemia) (n=11). Ischemia was induced by occluding left middle cerebral artery (MCA) under chloral hydrate anesthesia (400 mg/kg).

Neurobehavioral consequences of focal ischemia were evaluated by registration of anxiety and locomotor activity by elevated plus maze. Data analysis were done 6 and 12 day after ischemia.

Results: It was revealed that on the 6th and 12th day ischemia causes anxiogenic-like effect (time spent in open arms, percentage of open arm entries, whole entries were decreased) and decreased locomotor activity (distance and mean speed were decreased) compared with the control group. In a group of treated animals the anxiety was decreased and locomotor activity increased statistically compared with the ischemic group.

Conclusion: Aqueous extract of leaf of *Morus n.*, which is abundant with neuroactive amino acids and antocyanes, demonstrated anti-anxiety effect and initiated (stimulated) locomotor activity in condition of brain ischemic injury.

MORPHOFUNCTIONAL STUDY OF DYNAMIC OF NEURODE- AND REGENERATIVE PROCESSES IN FLEXOR AND EXTENSOR COLLATERALS OF SCIATIC NERVE AFTER CRUSH IN CONDITION OF PARATHYROID HORMONE ACTION

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Introduction: The search of therapeutic strategy for optimal regeneration after nerve crush was intensively performed at the interdisciplinary level testing a number of physiologically active compounds. It was supposed that flexor nerve, as evolutionary late structure, will recover later and not without pharmacological intervention.

Purpose: The study was aimed to carry out comparative morphological-histochemical and electrophysiological studies of neurode- and regenerative processes in flexor (*N. Gastrocnemius*, G) and extensor (*N. Peroneus communis*, P) hind limb nerves in rats after sciatic nerve crush without- and with the use of PTH.

Material and Methods: Using morphological, histochemical and electrophysiological methods of analysis the comparative study of changes in rats sciatic nerve after the definite time interval (3-70 days) of its crush was carried out. Ca²⁺-dependent acid phosphatase (AP) was revealed in sections of nerve fibers. The systemic application of PTH was used. In electrophysiological studies the online recording and programmed mathematical analysis of single-neuronal spike activity of spinal motoneurons (MN) under high-frequency stimulation (HFS) of G and P nerves were performed.

Results: Proliferation of endoneurium cells and Schwann cells already at the 3rd day after crush of ipsilateral extensor and flexor nerve bundles, as well as at the 7th- 9th days after recovery of AP activity was revealed. Through 5-35 days after the crush of sciatic nerve the recording of pulse activity of G and P nerves was carried out. In placebo-control, in the period since the 35th to 70th days we observed only the regeneration of extensor nerve, but with changed directions of fibers. During use of PTH in periods from 1 to 9 days the early regeneration of the flexor nerve was noted. At this period in corresponding MN already at the 7th day to HFS of nerve G titanic potentiation (TP) and depression (TD) approaches to norm, whereas to HFS of nerve P at the 9th day when TP do not reach completely the norm TD increased up to its twice elevation.

Conclusion: Upon application of PTH the regeneration significantly accelerated (with more ordered fiber direction). Correlation of electrophysiological results with data of morphological histochemical analysis was shown.

PECULIARITIES OF PHARMACOLOGICAL CORRECTION OF CEREBROVASCULAR DISORDERS IN COMBINED VASCULAR PATHOLOGY OF BRAIN AND HEART

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Introduction: Cerebrovascular and cardiovascular disorders present some of the principal causes of mortality and disability of population. In clinical practice the combined vascular pathology of these important organs is a commonly encountered problem. Despite the fact that influence of pharmacological substances on pathologically changed brain is commonly studied, there is lack of data regarding studies on pharmacological correction of experimental cerebro-vascular disorders in myocardial infarction (MI), as well as pharmacological correction of combined cerebro-cardio-vascular pathology.

Purpose: The aim of our research was a comparative study on influence of known preparations: Ca²⁺ channel blocker nimodipine, selective anxiolytic afobazol, antioxidant mexidol and the new substance, GABA-docosahexaenoyl-dopamine conjugate synthesized in the Institute of Bioorganic Chemistry of the Russian Academy of Sciences.

Material and Methods:

The effect of preparations on brain blood supply was studied in the model of myocardial infarction with the ischemic brain damage and the comparison done.

Results: Nimodipine increased brain blood supply in intact animals, as well as in the model of global transient brain ischemia. However, its cerebro-vascular effect decreased in the model of experimental MI and was completely absent in combined cardio-cerebral pathology. On the contrary, afobazol increased the brain blood circulation only in animals with vascular pathology of brain and heart in comparison with intact and sham-operated animals. Cerebrovascular effects of afobazol significantly increased in combined vascular pathology of brain and heart. Antioxidant mexidol had significant cerebrovascular activity in vascular brain pathology and combined cardio-cerebro-vascular pathology. It had no substantial effect on brain blood supply of intact and sham-operated animals, as well as rats with experimental MI. GABA-docosahexaenoyldopamine conjugate in equal degree increased brain blood supply either in global transient brain ischemia, or in experimental MI, as well as in combined cardio-cerebrovascular pathology. The conjugate had no effect on brain perfusion of intact and sham-operated animals.

Conclusion: Cerebrovascular activity of each of examined substances is significantly different and depends on the type of experimental model. Data of our study testify to the significance of further development of this concept for the purpose of creating a base for rational use of drugs for patients with combined cardio-cerebro-vascular pathology.

INVOLVMENT OF CYCLIC GMP IN BLOOD COAGULATION IN RABBITS

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Introduction: Nitric oxide (NO) occupies a particular position among all biological studies at molecular, cellular and tissue levels. This free radical is involved in a wide range of physiologic and patho-physiologic processes.

Purpose: The aim of the present study was to investigate the role of NO:cGMP system on clotting factors using an animal model.

Material and Methods: Forty-eight adult, female rabbits were used in 6 groups of 8 animals each. Animals were treated subcutaneously twice a day for 2 days with either saline, L-arginine, L-NAME, D-NAME, nitroglycerine, or methylene blue. Immediately before the first injection and 12 hours after the last one, the body weight, rectal temperature, blood glucose, blood clotting time, bleeding time, prothrombin time (PT), and activated partial thromboplastin time (APTT) were measured. Results were expressed as means +/- SEM for each group. Thereafter, results of all treated groups were compared one-by-one with those of the control group using Student's unpaired t test.

Results: Except the L-arginine-treated group, other groups showed no difference in body temperature. No group showed a significant difference with controls regards blood glucose level and body weight. Administration of methylene blue increased clotting, bleeding, prothrombin and thromboplastin times. Nitroglycerine and L-arginine elevated the PT, while L-NAME enhanced the APTT. Finally, D-NAME significantly increased both PT and bleeding time.

Conclusion: From all observations, it is concluded that one of the chemicals used, i.e. methylene blue, which is an inhibitor of guanylyl cyclase (GC), affected all clotting parameters. Therefore, inhibition of the enzyme GC (the NO target molecule) may delay blood coagulation and, hence, thrombosis in vivo. In future this finding may provide a new approach for the treatment of cardiovascular disturbance, especially myocardial infarction.

ELECTROPHYSIOLOGICAL STUDY OF THE SPINAL CORD MOTONEURONS ON THE MODEL OF PARKINSON'S DISEASE INDUCED BY ROTENONE

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Introduction: Recent studies are focused on the contribution of nongenetic and environmental factors to the development of sporadic form of Parkinson's disease (PD). The action of pesticides is of interest among the pointed factors. Particularly the chronic administration of herbicide rotenone leads to PD-like pathology in rats.

Purpose: To study mechanisms of motor symptoms development on spinal level provided as synaptic potentiation and depression caused by imbalance of dopamine and acetylcholine levels and prevalence of cholinergic activity. Arguments presented in favour of the secondary nature of pathophysiology of motor complications based on a decrease of dopaminergic neurons number.

Material and Methods: Experiments were carried out in intact rats (n=4), bilaterally injected by rotenone into medial forebrain bundle per stereotaxic coordinates. The mathematical programmed analysis of single spike activity of spinal cord motoneurons (MN) under high frequency stimulation (HFS) of *substantia nigra* (SN) and sciatic nerve (S) 12 weeks ago was carried out with special software. The activity was expressed as tetanic potentiation (TP) and depression (TD) with subsequent post-tetanic potentiation and depression.

Results: TP of MN of the spinal cord evoked by HFS of SN in norm reached 3-fold increase as compared with the pre-stimulus level. TD expressed 3-fold decrease. TP on stimulation of S revealed 7-fold increase, while TD caused 4-fold decrease. In conditions of rotenone administration post-stimulus activity on HFS of SN and S ranged as TP 1.8-fold increase, TD 2.3-fold decrease and TP – 3.4 fold, TD – 4-fold, respectively. Thereby, the effects of HFS of S in norm were more significant as compared with those of SN. As regards to the excitatory effects of SN and S stimulation in pathology, there appeared almost 2 time decrease. Depressive manifestation of activity in pathology turned out approximately about to norm. There was expressed burst activation of MN, preserved after HFS.

Conclusion: We may suppose the preservation of inhibition as a protection and formation of burst activity based on release of locomotor centers of spinal cord resulted from inhibition of suprasegmentar control.

COMPARING THE ANALGESIC EFFECTS OF TOPICAL *ZINGIBER OFFICINALE* AND DICLOFENAC OINTMENT

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Introduction: Physical pain is one of the major sources of anxiety and inability. It is also the most common cause of leading patients to physicians. Relieve of pain is, therefore, an undeniable ultimate objective of medical sciences. For centuries, analgesics have been used to relieve pain, the most well known causes of which are various musculoskeletal disorders. The prevalence of these musculoskeletal complaints motivated attempts to minimize the burden of their evaluation and therapy. A few drug families such as non-steroidal anti-inflammatory drugs, opioid drugs, and corticosteroids have also been used to relieve musculoskeletal pains. The use of each results in specific complications and sometimes forces scholars to search for and introduce new drugs with fewer side effects.

Purpose: The main objective of the present study was to specify and compare the analgesic effects of topical *zingiber officinale* and Diclofenac ointment in treatment of musculoskeletal pains.

Material and Methods: The study was a clinical trial carried out in Kashan, central Iran, and the participants were all patients with musculoskeletal pains who were older than 15 y.o.. Patients were divided in two groups. The first group received Diclofenac ointment, whereas for the second group topical *zingiber officinale* (mixed with water) was prescribed over the treatment period. The analgesic effects of the two drugs were studied and compared after a week of application.

Results: The analysis of the collected data showed that the analgesic effect of Diclofenac ointment was significantly lower than that of topical Zingiberance ($p < 0.0001$). The difference between male and female participants was not found to be statistically significant in any of the treatment groups.

Conclusion: *Zingiber officinale* appears to be as efficient as Diclofenac ointment in the treatment of musculoskeletal pains and may offer safer alternative to the use of topical Diclofenac.

DEPRESSION: PATHOPHYSIOLOGY AND PSYCHOPATHOLOGY

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Introduction: Major depressive disorder has recently been characterized by abnormal resting state hyperactivity in anterior midline regions. The neurochemical mechanisms underlying resting state hyperactivity remain unclear.

Purpose: Translational investigation

Material and Methods: Since animal studies provide an opportunity to investigate subcortical regions and neurochemical mechanisms in more detail, we used a translational approach comparing a meta-analysis of human data to animal data on the functional anatomy and neurochemical modulation of resting state activity in depression.

Results: Animal and human data converged in showing resting state hyperactivity in various ventral midline regions. These were also characterized by abnormal concentrations of glutamate and γ -aminobutyric acid (GABA) as well as by NMDA receptor up-regulation and AMPA and GABA receptor down-regulation.

Conclusion: This translational investigation suggests that resting state hyperactivity in depression occurs in subcortical and cortical midline regions and is mediated by glutamate- and GABA-ergic metabolism. This provides insight into the biochemical underpinnings of resting state activity in both depressed and healthy subjects.

ANTIDEPRESSANT PROPERTIES OF ZINC

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Drug-resistance is the major problem of the therapy of depression. Therefore, search for more efficient drugs is continuously in progress. Antidepressant properties of zinc have been demonstrated in screen tests and models in rodents.

Antidepressant activity of zinc was demonstrated in the forced swim and tail suspension tests, and olfactory bulbectomy, chronic unpredictable and chronic mild stress models. In addition, this bio-metal enhances antidepressant activity of conventional antidepressants in these behavioral paradigms.

Our recent studies indicate the involvement of glutamate and serotonergic receptors in zinc antidepressant-like activity in the forced swim test in rodents. On the other hand, chronic treatment with conventional antidepressants enhances presynaptic and synaptic zinc concentration in the rat prefrontal cortex.

Our previous clinical study demonstrated enhancement of efficacy of pharmacotherapy by zinc supplementation in unipolar depression. Moreover, our recent study demonstrates that zinc supplementation augments efficacy of imipramine in treatment-resistant patients.

Data indicate to the antidepressant potential of zinc in the therapy of depression.

METABOTROPIC GLUTAMATE RECEPTOR 4 NOVEL AGONIST LSP1-2111 WITH ANXIOLYTIC, BUT NOT ANTIDEPRESSANT-LIKE ACTIVITY MEDIATED BY SEROTONERGIC AND GABAERGIC SYSTEMS

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Introduction: Our earlier studies have demonstrated that the nonsubtype-selective group III mGlu receptor agonist, (1S,3R,4S)-1-aminocyclo-pentane-1,3,4-tricarboxylic acid (ACPT-I), produced anxiolytic rather than antidepressant-like actions after its peripheral administration.

Purpose: Here, we describe the effects of LSP1-2111, a novel orthosteric, preferential agonist of the mGlu4 receptor, a member of the group III mGlu receptors family, in the stress-induced hyperthermia (SIH) and elevated plus-maze (EPM) tests in mice.

Materials and methods: To evaluate anxiolytic-like action of investigated compounds the elevated plus-maze test and the modified SIH in singly housed mice were used. To evaluate antidepressant-like action of investigated compounds the tail suspension test (TST) and the forced swim test (FST) in mice were used. In order to deplete the 5-HT, the mice were pretreated with PCPA (tryptophan hydroxylase inhibitor).

Results: In both tests an anxiolytic-like effect was clearly seen in doses of 2 and 5 mg/kg (*i.p.*). The compound did not produce antidepressant-like effects in the TST or in the FST in mice. The potential anxiolytic effect of LSP1-2111 (5 mg/kg) in the SIH test was inhibited by the benzodiazepine receptor antagonist flumazenil (given *i.p.*, 10 mg/kg), and by a 5-HT_{1A} receptor antagonist N-[2-[4-(2-methoxyphenyl)-1-piperazinyl] ethyl]-N-(2-pyridinyl) cyclohexane-carboxamide (WAY100635) (0.1 mg/kg; *s.c.*). At the same time, ritanserin (0.5 mg/kg; *i.p.*), the 5-HT_{2A/C} receptor antagonist, did not change the anxiolytic-like effects of LSP1-2111. Moreover, the compound was not effective in 5-HT depleted animals.

Conclusions: The results of these studies indicate that the GABA-ergic and serotonergic systems are involved in the potential anxiolytic action of LSP1-2111.

PRODUCTION OF PLANTING RAW MATERIAL AND MEDICINE OF “SOCCUSS KALANCHOES” IN ARMENIA

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Introduction: Recently serious changes occurred in the world pharmacy due to increased production of herbal preparations allowing the decrease of medicines allergic side effects. Any local product, which gradually decreases the imported analogues, gets a special significance for production management. This is especially hard for plant introduction.

Purpose: The aim of the experiment was cultivation of medicinal raw material of introduced tropical and perennial *Kalanchoe pinnata* Lam. Pers.

Methods and Materials: From *Kalanchoe* plant some explants were separated and *in vitro* clones received by clonal micropropagation. From May to October microplants were grown in the open-air hydroponics and soil. Jointly with the Institute of Fine Organic Chemistry (Yervan, Armenia) Permanent Pharmacopeias Article was elaborated and perspectives of locally produced medicinal preparation “Soccus *Kalanchoes*” experimentally proved.

Results: In 20-25 days healthy microplants able to propagate the whole year developed From *Kalanchoe*'s leaf explants under *in vitro* conditions. The coefficient of propagation was 1:5. As the *Kalanchoe*'s plants freeze at the temperature below 0°C they can be cultivated only as annual plants with yearly preparation of planting material in Armenia. For medicinal purposes the juice of *Kalanchoe* was obtained from young foliaceous shoots containing 0.032% tannins, 0.05% vitamin P, 1.2% polysaccharides, micro- and macroelements specifying antiseptic, antiviral and bacteriostatic features. In October hydroponics plants were 75 cm tall and in the control: 50 cm. The crop of medicinal raw material in hydroponics was 5 kg/m² which 2 times exceeded the control. The medicine “Soccus *Kalanchoes*” was produced so that its quality corresponded to State Pharmacopoeia's demands (pH: 4.17; density: 0.9950 g/cm³, refractive index: 1.3525; alcohol quantity: 17.75%; content of acids: 1.05%; shelf life: two years; self-price income: 150%). It allowed receiving a Certificate (No. 4996 dated 14.12.2004) for registration of the medicine by the Agency of Medications and Medicinal Technologies of the Health Ministry of the Republic of Armenia and the permission of its production.

Conclusion: Our cultivation technology of introduced plants of *Kalanchoe in vitro* and as hydroponics cultures allows the receipt of domestic production of raw material and medicine “Soccus *Kalanchoes*” in Armenia.

THE EFFECT OF TETANIC STIMULATION OF HYPOTHALAMIC NUCLEUS ON INFERIOR VESTIBULAR NUCLEUS NEURONS AFTER VIBRATION ACTION AND ADMINISTRATION OF NEUROPEPTIDE PRP-1

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Introduction: Vibration action (VA) causes disruption of functions of vestibular analyzer. The use of endogenous neurohumoral factors for correction of impaired functions of CNS is a burning problem.

Purpose: To aim of the study was to perform electrophysiological investigation of neurons of inferior vestibular nucleus (IVN) after prolonged VA and use of hypothalamic proline rich peptide PRP-1.

Material and Methods: Hypothalamo-vestibular connection was investigated in Albino rats recording extracellular activity due to high-frequency stimulation (HFS) of supraoptic (SON) and paraventricular (PVN) nuclei of hypothalamus.

There were 3 series of experiments: 1) intact animals, 2) animals exposed to 15-day VA (2 hours daily); 3) animals, exposed to VA and administrated PRP-1 (0.05 mg/kg; *i/m*) during the first 2 days. The programmed mathematical analysis of neuronal spiking was performed within on-line regime.

Results: In the first series of experiment analysis of right IVN neurons on HFS ipsiSON and contraPVN revealed: equal expression of tetanic potentiation (TP) per 31.9% with post-tetanic potentiation (PTP): 21.7% and 18.8% and with post-tetanic depression (PTD): 23.2% and 20.3%, accordingly. On left-side neurons IVN on HFS contraSON and ipsiPVN PTP was 23.5% and 37.2%; PTD: 31.3% and 23.5%; TD+PTP: 27.4% and 11.7%, accordingly. In the second series on HFS contraPVN on right-side IVN revealed PTD in 51.7% cells, PTP in 24.2%, but during stimulation of ipsiSON TPD occurred in 32.7%, PTP in 29.3%, TP in 12.1% cells. On the HFS ipsiPVN in the neuron of left-side IVN PTD occurred in 35.1% cells, PTP in 27.7%, TD+PTP in 14.8%, but on the HFS contraSON PTD occurred in 42.6%, PTP in 24.1% neurons. Under prolonged VA and administration of PRP-1 on HFS ipsiSON in right-side IVN TP occurred in 19.4%, TP+PTP in 22.6%, PTD in 35.5%, but on HFS contraPVN TP occurred in 9.7%, TP+PTP in 19.4%, PTD in 25.8%. On the HFS ipsiPVN in the neurons of left-side IVN 79.4% constituted neurons with PTD (37.9%) and PTD+PTP (41.5%) reaction, but on HFS contraSON 79.3%, accordingly (PTD=48.3, PTD+PTP=27.6, TD+PTP=3.4%).

Conclusion: At prolonged VA mechanisms of neurotransmitter's adaptation providing redistribution of neurotransmitter with domination of GABA through CNS depression are supposedly activated under the action of PRP-1.

MORPHOLOGICAL AND HISTOCHEMICAL STUDIES OF BRAIN CELL STRUCTURES IN CONDITION OF ACUTE AND CHRONIC ALCOHOL ADMINISTRATION IN RATS

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Introduction: Alcoholism, or alcohol dependence is a medical term with a deliberately more precise meaning than the problems that can occur, sometimes as one-offs, through an uncharacteristic binge. Mental health problems are common with alcoholism. Anxiety can be temporarily relieved by alcohol, but this may lead to repeated intake and dependence. The comparative morphofunctional investigation of the alcoholic rats indicates that chronic and acute alcoholism could be the cause of the central nervous system diseases. Chronic alcoholism is a frequent cause of low calcium and magnesium levels.

Purpose: The aim of our study was to investigate comparative morphofunctional condition of brain cellular structures during chronic and acute alcohol administration by revealing Ca^{2+} -dependent acid phosphatase activity.

Methods: Comparative studies were done in two groups of rats: 1) intracerebroventricular administration of ethanol (2.5 microl by bilateral; 86 micromol) in an acute experiment, 2) *per os* administration of ethanol (10%, 3-4 weeks) in chronic experiments. Morphological and histochemical studies were carried out by method of revealing Ca^{2+} -dependent acid phosphatase activity. Electrophysiological studies by extracellular recording of hippocampal single-neuronal spike activity under high-frequency stimulation of entorhinal cortex were performed in the chronic group of animals.

Results: Morphological and histochemical changes of brain cell structures after intracerebroventricular injection of ethanol showed cell swelling. Small petechiae occurred in different parts of the brain; their number dominated in brain cortex and hippocampus. After *per os* introduction of 10% ethanol acute increase of acid phosphatase activity was noted; the neurons were colored very intensively. The most severe damage was found in the third level of the brain cortex, hippocampus and cerebellum. It is important that in neurons of *substance nigra* and *locus coeruleus* the activity of acid phosphatase was significantly decreased. Data was also supported by electrophysiological experiments.

Conclusion: Our data revealed non-specific morphological changes in combination with the atherosclerotic and senile process. Moreover, alcohol action brings complex metabolic disturbances, which probably are bound with brain oxidative stress.

MECHANISM OF THE PARATHYROID HORMONE 1-34-FRAGMENT ACTION ON THE ISOLATED HEART CONTRACTILE ACTIVITY

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Introduction: Based on the facts obtained in our earlier studies concerning the parathyroid hormone (PTH) and its related peptide level increase in the blood of patients with heart failure, the possible cardio-protective role of hormone was assumed, which was directed to support heart function.

Purpose: The aim of the research was to study this phenomenon *in vitro* to reveal the possible mechanism of the isolated heart contractile activity regulation by PTH.

Materials and Methods: Experiments were performed in frog isolated heart using non-invasive registration of its contractile activity by means of the reflected ray photosensor and a computer software package "Origin Pro 75".

Results: 1-34-PTH ("Sigma" Co.) in concentration of 10^{-10} M in the incubation medium evoked the frequency increase and supported the amplitude of heart contractions for a long time. Both fast and slow effects of the hormone fragment were identified. In case of a combined action of 10^{-10} M 1-34-PTH and 10^{-4} M Ca-channel blocker Verapamil ("Sigma" Co.) the influence of hormone fragment on heart rate was not revealed, and the amplitude did not undergo any changes compared with the proper effect of 1-34 PTH. On the background of introducing 10^{-10} M 1-34-PTH 10^{-3} M phosphodiesterase blocker, Theophylline ("Sigma" Co.), did not cause additional action on the changes of frequency and heart contraction force. According to literature, Theophylline leads to accumulation of cAMP in the myocardium cells with subsequent activation of the calcium channels phosphorylation and metabolic modulation of calcium entry.

Conclusion: The obtained results indicate to the involvement of calcium channels in the mechanism of hormone action on heart pacemaker activity that is not peculiar to the amplitude of contractions. Comparing the received results with literature data, it can be assumed that the late effect of 1-34-PTH on contractile activity of heart is realized by cAMP-dependent metabolically modulated mechanism. Apparently, maintaining the amplitude of heart contractions by 1-34-PTH is the result of activation of calcium excretion from intracellular depot by inositol triphosphate, the amount of which increases under the action of this hormone.

DEVELOPMENT OF NEUROPROTECTORS ON BASE OF GABA-PRODUCING PLANTS OF ARMENIAN FLORA

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Introduction: Plants, which can produce the powerful inhibitory mediator of the brain, GABA, and which can increase the endogenous level of this neurotransmitter in some conditions, may start a new era for prevention and treatment of the ischemic disease.

Purpose: The aim of presented research was to investigate neuroprotective effects of GABA-containing plants of Armenian flora in a model of focal brain ischemia.

Material and Methods: Qualitative and quantitative analyses of neuroactive amino acids in plants were done by High-Pressure Liquid Chromatography. Aqueous extracts were made by simple extraction method (1:10).

Local brain ischemia was induced by occluding left middle cerebral artery (MCA).

Neurobehavioural consequences were revealed by elevated plus maze (EPM).

Coronal brain sections (5 μ m thick) were stained with luxol fast blue and hematoxylin-eosin for morphological investigation.

Twenty-five non-linear albino rats weighing 240-250 g were used in this experiment.

Results: From investigated 12 plants only leaves and fruits of *Morus nigra* and flowers, fruits and leaves of *Sumbucus nigra* were abundant in neuroactive amino acid, had an expressed antioxidant and radical scavenging activity.

It was shown that aqueous extract of leaves of *Morus nigra* at dose levels of 8 mL/kg and 40 mL/kg (given orally in 2 hours after ischemia during 3-days) statistically decreased anxiety (increased open arms entries and time spent in open arms) and stimulated locomotor function (increased total distance) 6 and 12 days after ischemia.

Morphological investigation showed decreased size of ischemia especially on ipsilateral hippocampus.

In another experiment, when the extract was introduced 15 days before ischemia, morphological investigation showed decreased size of ischemia and absence of gliosis 6 days after ischemia.

Conclusion: Our investigation revealed that *Morus nigra* obtained from Armenian flora had a neuroprotective effect on brain ischemia and can serve as a base for development of ischemic injury prevention and treatment schemes.

THE STUDY OF BIOLOGICALLY ACTIVE SUBSTANCES OF *HYPERICUM PERFORATUM* L. CULTIVATED BY *IN VITRO* CULTURE AND HYDROPONICS COMBINED METHOD

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Introduction: Medicinal plants are producers of many bioactive substances possessing pharmacological properties, which have great input for pharmacological industry. Among studied species of medicinal plants in modern medicine only 20-30% are cultivated, the demand of the rest is provided by the depletion of wild flora year by year. The increasing demand of medicinal raw material and the high demand of modern medicine for medicinal preparations make the producers apply competing new technologies for cultivation of medicinal plants with minimal handwork and the receipt of high productive qualitative medicinal raw material.

Purpose: The aim of the experiment was cultivation of *Hypericum perforatum* L. by clonal micro-propagation and hydroponics combined method and the study of main bioactive components (flavonoids, anthracene derivatives, fluoroglucins) in the extracts of obtained medicinal raw material.

Material and Methods: Microplants obtained *in vitro* were the planting material for the open-air hydroponics. Hydroponics substrates were gravel and volcanic slag and the control substrate was soil. Davtyan's nutrient solution was applied in the hydroponics. In the extracts of *Hypericum perforatum* L. the quantification of total anthracene derivatives (hypericin, pseudohypericin) and fluoroglucins (hyperforin) were determined by high-pressure liquid chromatography method; the amount of total flavonoids was defined by differentiation spectrometry.

Results: In hydroponics the plants differed with high index of growth and development. The productiveness of hydroponics plants (1872.5 g/m^2) exceeded the control 3.6 times. Biochemical analysis showed that hydroponics medicinal raw material according to the amount of flavonoids (3.3%) exceeded the control 1.3 times. HPLC analysis displayed that the content of total anthracene derivatives in the extracts of hydroponics plants and the control was almost the same: 0.943 and 0.896 mg/g , correspondingly. In the hydroponics plants the content of hyperforin was 6.95-2.23 mg/g that exceeded the control 1.5-2.7 times. The high concentration of hyperforin was determined by excessive florescence as it was mainly localized in the buds and flowers.

Conclusion: Proposed phytotechnology is promising for creation of cultivated plantations of *Hypericum perforatum* L. The cultivation method influences the increase of productivity and accumulation of bioactive substances in medicinal raw material, the quality of which corresponds to the demands of State Pharmacopoeia XI (Russia).

THE Na⁺K⁺ ATPASE ACTIVITY AS POSSIBLE MOLECULAR TARGET OF HYPERGLYCEMIC DAMAGE DURING DIABETIC CONDITIONS

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Introduction: The Na⁺K⁺ATPase is one of crucial membrane proteins maintaining the homeostasis of a cell. The activity of Na⁺K⁺ATPase is altered during different pathological states, including diabetic complications, such as nephropathy, neuropathy and, probably, immune depression related to diabetes.

Purpose: The goal of this study was to investigate the possible mechanisms of hyperglycemia induced Na⁺K⁺ATPase activity alterations. The oxidative stress and protein kinase C as the possible mediators of hyperglycemic damage were of particular interest.

Materials and Methods: The activity of Na⁺K⁺ATPase of lymphocyte membranes was measured by spectrophotometry. Lymphocytes were separated by phicoll-verographin gradient and incubated in Hank's basal medium, containing 5 mM (considered as normoglycemic) and 25 mM (considered as hyperglycemic) glucose. Vitamin E was used as oxidative stress limiting factor, and chelerythrine and rottlerine were used as protein kinase C inhibitors.

Results: Na⁺K⁺ATPase activity increased after 1 and 3 hours incubation in hyperglycemic medium, but decreased after 6 hours of incubation. Preincubation with chelerythrine hydrochloride, but not rottlerine, as well as vitamin E reduced hyperglycemia-induced Na⁺K⁺ATPase activity depression at later terms. The best effect in prevention of late depression of Na⁺K⁺ATPase activity was achieved by combination of chelerythrine hydrochloride with vitamin E.

Conclusions: High glucose level has biphasic effect on Na⁺K⁺ATPase activity of lymphocytes. According to obtained data, late depression of activity might be mediated by oxidative stress and protein kinase C activation.

THE IMBALANCE BETWEEN AMINO ACIDS AND NEUROPEPTIDES IN NEURODEGENERATIVE PROCESSES AND PHARMACOLOGICAL CORRECTION

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The balance between neurotransmitter and neuropeptide systems is one of the key points of the cell survival/death process, which involves the compound and associated cell molecular structures. It is shown that maximal release of glutamate (electric storm) leads to the mental disorders and convulsions, while the extra-maximal release brings to neurodegeneration in Alzheimer and Parkinson diseases, schizophrenia, and the super-maximal release causes the rapid catastrophic neuron death in stroke. However, more than twenty-year work on development of new preparations, ligands of glutamate NMDAR, has failed. The clinical trials of direct competitive and non-competitive antagonists of NMDA receptors are stopped. The disadvantage of standard NMDA-AMPA model of excitotoxicity is the fact that it is only neuron and only one neurotransmitter system oriented. In neurodegeneration related studies the most promising is comprehensive approach that includes considering the balance between glutamate and braking GABA systems. Scientists from the Yerevan State Medical University, especially acad. S.H. Mirzoyan and pharmacologists of his scientific school made a *considerable contribution* to the development of this conception.

It is established that GABA-A receptors are the targets for search of antihypoxics, anxiolytics, hypnotics, nootropics and anticonvulsants. The classic function of GABA-A receptors is the phasic (synaptic) inhibition through generation of hard temporary currents, but at present it is shown that GABA-A receptors participate also in tonic inhibition.

Prospect for new drugs with neuroprotective action is also carried out among blockers of vesicular and plasma membrane GABA-transporters (they move the neuromediator against a concentration gradient and eliminate synaptic GABA) in neurons and astrocytes. The basic reparative process in neurodegeneration is the activation of synthesis of neurotrophic factors (NTF) and their receptors. Currently the direct and indirect activators of NTF receptors, as well as the substances, which potentiate action of NTF on receptors and influence on expression and secretion of NTF, the modulators of NTF and systems, which purposefully carry out conveyance of NTF through hematoencephalic barrier (nanotechnologies, etc.), are being developed. New conception of molecular targets and pathophysiology of CNS diseases will provide a basis to future success in new neuropsychotropic drugs development.

PLASTICITY OF GABA EQUILIBRIUM POTENTIAL IN NEONATAL AND JUVENILE CENTRAL NEURONS: IMPLICATIONS FOR NEUROPHARMACOLOGY

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Introduction: The equilibrium potential for the GABA-ergic postsynaptic current ($E_{\text{GABA-PSC}}$) undergoes activity-mediated as well as age-related plasticity. $E_{\text{GABA-PSC}}$ is at a depolarized level in neonatal central neurons compared to that in juvenile cells with $\text{K}^+\text{-Cl}^-$ co-transporter 2 (KCC2) making it more negative and $\text{Na}^+\text{-K}^+\text{-Cl}^-$ co-transporter 1 (NKCC1), positive.

Purpose: Since metabotropic glutamate receptors (mGluRs) are present in the CA1 area of the hippocampus, their involvement in modulating $E_{\text{GABA-PSC}}$ was examined.

Material and Methods: GABA-ergic postsynaptic currents (PSCs) were monitored from 9-12 (juvenile) or 3-4 (neonatal) day old Wistar rat hippocampal CA1 pyramidal neurons, in a slice preparation superfused with a medium, in which APV ($50\mu\text{M}$, to block NMDA receptors) and DNQX ($20\mu\text{M}$, to block AMPA receptors) were present. The conditioning theta burst stimulation (TBS) was given in *stratum radiatum*. KCC2 was examined through Western blots and immunohistochemistry.

Results: Following TBS, $E_{\text{GABA-PSC}}$ shifted in a negative direction in juveniles (from $-57.4\pm 1.3\text{ mV}$ to $-65.2\pm 2.1\text{ mV}$; $n=6$; $p<0.05$) but in a positive direction in neonates (from $-53.3\pm 0.9\text{ mV}$ to $-49.0\pm 1.0\text{ mV}$; $n=5$; $p<0.05$). If (RS)- α -Methyl-4-carboxy phenylglycine (MCPG, group I and II mGluR antagonist, $500\mu\text{M}$) was present during TBS, the negative shift in juveniles was blocked (before TBS: $-59.8\pm 3.3\text{ mV}$; after TBS: $-59.0\pm 3.5\text{ mV}$; $n=6$; $p>0.05$) and the positive shift in neonates became negative (before TBS: $-49.2\pm 1.3\text{ mV}$; after TBS: $-56.2\pm 1.4\text{ mV}$; $n=5$; $p<0.05$). TBS also increased the expression of KCC2 in juveniles through mGluR activation.

Conclusion: These results indicate that, with NMDA & AMPA receptors blocked, TBS induces a negative shift in $E_{\text{GABA-PSC}}$ in juvenile, but a positive shift in neonatal, CA1 neurons. mGluRs are involved in both shifts, fostering GABA's excitatory actions on neonatal, and inhibitory actions on juvenile, neurons. Age- and activity-mediated plasticity of $E_{\text{GABA-PSC}}$ should be taken into account while designing drugs that affect GABA-ergic modulation of central neurons.

THE ROLE OF EXTRAPINEAL MELATONIN IN REGULATION OF VASCULAR PERMEABILITY OF THE HEMOMICROCIRCULATORY BED

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Introduction: It is considered established that tissue basophils (mast cells) among numerous biologically active compounds synthesize melatonin. However, the biological role of melatonin produced in tissue basophils is not studied.

Purpose: The study was aimed to investigate the vasoactive role of extrapineal melatonin in regulation of vascular permeability of hemomicrocirculatory bed in norm and under stimulation of tissue basophils by lipopolysaccharide (LPS) *E. coli*.

Material and Methods: The experiments involved 40 white rats (body weight=150-170 g) and 36 white mice (body weight =30-50 g). Animals of experimental groups were intraperitoneally administered LPS *E. coli*. (Sigma, USA) 4 times during 4 days.

The single dose made 10^{-8} mg/mL per 100 g body weight. Animals of control and experimental groups were sacrificed on the 5th day of the experiment.

Film preparations were obtained, as well as cryostat-derived sections of mesentery that were subject to immunomorphological analysis. Melatonin was determined in an indirect immunofluorescence reaction using rabbit serum against melatonin (Abg Serotec, UK) and FITC-labeled goat serum against IgG (Sigma, USA). GABA and eNOS were also determined through the indirect reaction of immunofluorescence using anti-serum to GABA and eNOS (Sigma, USA).

Results: The immunomorphological analysis demonstrated: upon administration of LPS to experimental animals melatonin levels significantly increased in tissue basophils (40.6 ± 4.8 CUF versus 21.7 ± 2.4 FCU in control) alongside with simultaneous decrease of serotonin, the only known source of melatonin synthesis, in the same cells (13.4 ± 2.5 CUF versus 28.9 ± 3.3 CUF in control). Processes of melatonin synthesis and accumulation were accompanied by tissue basophils degranulation with the subsequent penetration of melatonin into pericapillary space. Signs of increased permeability of mesentery microvessels' wall were registered at sites of melatonin granules accumulation.

The release of melatonin into pericapillary space was accompanied by a decrease of GABA content and eNOS activity in cell components of the vascular wall (endotheliocytes, smooth-muscle cells); this latter was also considered as an endogenous active factor ensuring the vasodilatation effect at all levels of the cardiovascular system structural organization.

Discussion: The new mechanism of extravascular regulation of vascular permeability is established. It is conditioned by processes of melatonin synthesis and release by tissue basophils. Due to data obtained, mechanisms of short-distant regulation of vascular permeability, in which earlier unknown melatonin-dependent loops functioning on reciprocal relations with GABA and eNOS are apparently engaged, should be considered from the qualitatively new point of view.

PUBLIC HEALTH

ORGANOCHLORINE PESTICIDES MONITORING IN ARMENIA

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Introduction: Chemical exposures may have a serious impact to public health, especially the long-term exposure to persistent organic pollutants (POPs): organochlorine pesticides, polychlorinated biphenyls, etc.

Considering the importance of water consumption in all spheres of human life and activity, it is pivotal to have a clear insight on actual pesticides content in water basins of Armenia.

Purpose: Monitoring studies were aimed to reveal pesticides related pollution of water reservoirs in Armenia.

Material and Method: Determinations of organochlorine compounds (DDT, HCH, etc.) were done in samples of surface water from selected basins.

The study embraced three types of water reservoirs of interest from the environmental point of view:

- ⊙ Sevan Lake as one of the greatest freshwater high mountain lakes of Eurasia;
- ⊙ Rivers flowing into Sevan Lake: Gavaraget, Argichi, Karchaghbyur, Masrik, Dzknaget;
- ⊙ Rivers of Armenia associated with agriculture, industry and energy production (Vorotan, Voghchi, Debed).

Determinations were done by gas-chromatography method.

Results: Findings were compared with data of 1970s, when these pesticides were widely applied in intense agricultural production of Armenia, and data of 1980s, i.e. after the official prohibition to apply DDT and some other organochlorine pesticides.

The comparative analysis allowed to state the absence or extreme, manifold decrease of DDT and other organochlorine pesticides content in the hydroecosystem of Sevan Lake.

Conclusion: Degradation of DDE and HCH occurs naturally in the abovementioned water basins. At all probability, without "fresh" application of DDT and HCH, in future no residues of these pesticides will be determined in water of Sevan Lake and rivers flowing into it (water basins of the first and second type).

This regularity is not observed in water reservoirs of the third type. The residual amounts of DDT and HCH revealed in Vorotan, Voghchi and Debed rivers signify to "fresh" application of mentioned pesticides.

The comparative analysis of available data indicates that Sevan Lake and rivers flowing into it might be considered the clean water reservoirs.

HYGIENIC EVALUATION OF HEALTH GROUPS OF STUDENTS DURING EDUCATION

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Introduction: Nowadays the issue of students health care is one of the key educational problems of preventive medicine, since any change in livelihood of the population (socioeconomic conditions, health care and educational systems) brings about the necessity to investigate the health status of its most vulnerable groups (in this case: students). At present, the necessity of such research is conditioned by the health status deterioration recorded within all age groups of population, especially among children, pupils and students, during the last years.

Purpose: The aim of the present research was to investigate students' health status during their education at higher educational establishments.

Material and Methods: The subject of investigation was a group of students studying at higher educational establishments of Yerevan, Gyumri, Ijevan and Stepanakert. Medical check-ups were conducted among the 1st and 5th year students (n=2537) distributed into 3 main health groups: healthy students (I health group), students with functional disorders (II health group) and chronically sick students (III-IV health groups). Health groups were calculated basing on results of medical examinations.

Results: Analysis of study results showed that the I health group includes 27.5% of students, the II health group includes 49.2% and the III-IV health groups account for 23.3% of students. The investigation on health groups revealed unfavorable changes of health status during education. The number of students included in the I health group decreases 1.3 times at the end of education (from 30.2% among the first-year students up to 22.4% among the students of graduating courses), the number of students with functional disorders decreases by 1.1%, while the number of students with chronic diseases, i.e. those included in III-IV health groups, increases 1.4 times (from 20.3% among the first-year students to 29.2% among the last year students).

Conclusion: Thus, the study revealed that health status of students deteriorates during education: the redistribution across the health groups mostly occurs due to decrease in the I group and increase in III-IV health groups. Hence, it indicates the necessity of periodical medical examinations, as well as working out and implementation of scientifically based measures to preserve students' health during education.

THE PREVALENCE OF HEPATITIS B AND C VIRUS INFECTION IN ONCOLOGICAL PATIENTS

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Background: Chronic hepatitis virus infections are more common in oncological patients in comparison with general population.

The aim of this study was to evaluate hepatitis B and C virus prevalence in patients with malignancies in Armenia

Material and Methods: We studied 12457 patients (11427 solid tumors and 1000 oncohematological) for 2005-2008. Prevalence testing included serological (HBsAg, AntiHCV, AntiHBc), virological (qualitative or quantitative HBV DNA, HCV RNA).

Results: Markers of hepatitis B and C viruses were found in 687 (5.5%) patients of 12427: 587 solid tumors, 100 oncohematological ones.

Hepatitis virus prevalence distribution by malignancies was as follows:

- ⊙ in solid tumor patients: HBV made 222 (1.9%), HCV achieved 359 (3.1%);
- ⊙ in oncohematological patients: HBV made 37 (3.7%), HCV reached 63 (6.3%); coinfection was in 6 (0.9%).

Among 687 patients 33% (229) were female, 67% (458)-male, the mean age was 40 (3-77). The group of solid tumors comprised 587 patients: in particular: 103 (18%) breast, 58 (9.9%) lung, 57 (9.7%) gastrointestinal, 33 (5.6%) urological, 60 (10%) gynecological, 20 (3.4%) brain, 53 (9%) soft tissue 203 (34%) other cancers. One hundred oncohematological patients involved 53 (53%) leukemia, 30 (30%) lymphoma, 17 (17%) other.

Conclusion: Hepatitis B and C virus prevalence is 3.8% and 6.1%, accordingly in oncohematological patients, which is higher, than in solid tumor patients (1.9% and 3.1%). Hepatitis B and C virus prevalence in solid tumor patients is the same, as in general population.

Hepatitis B and C virus high prevalence in oncohematological patients indicates to its association with the nozology. The possible role of hepatitis viruses in the pathogenesis of lymphoproliferative diseases and with the necessity of multiple transfusions in these patients is suggested.

CONDITION OF CARDIOVASCULAR SYSTEM: THE SARI CITY, IRAN STUDENTS IN THE DYNAMICS OF ACADEMIC YEAR LOAD

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Assessment of the health status in the 9-10th grades students of public schools and gymnasiums evidences that functional systems of students organisms are under the immense stress due to adaptation to the academic work load and maintaining the study effectiveness. Often this fact brings to functional disorders and pathology development.

The goal of this study was to evaluate hemodynamic indicators of the 10th grade (16 years old) students of Sari city (Iran) in the normal condition, as well as in the dynamics of one-day, one-week and one-year academic load. In general, 40 absolutely healthy adolescents of the 10th grade of Sari city schools for gifted children were enrolled in the study (20 male and 20 female students).

The main indicators of cardio dynamic were measured: heart rate (HR), systolic blood pressure (SBP), diastolic (DBP), pulse (PBP), average dynamics (ADBP). Registration of cardiodynamics indicators were performed in the day, week and annual time periods (before and after the lessons, in the beginning and in the end of the academic week, in the beginning, in the middle and in the end of the academic year).

The data analysis showed that in the beginning of the academic year among all students regardless their gender the level of all hemodynamic indicators was slightly elevated. There was a tendency of HR decrease in males by 5.3% ($p < 0.05$) and in females 6.9 % ($p < 0.05$). There was a tendency of decreasing BD in the same time period. This tendency was persisting till the end of the academic year. This fact can be explained by fatigue cumulating during the academic year. Decreased MBV can be explained by decreased HR in the academic year dynamics.

It is indicated to make scientifically approved regulations of intellectual activities of the students for maintaining effectiveness of the study process and prevention of adverse effects of study stress.

CHANGING THE NUMBER OF RETICULOCYTES UNDER THE INFLUENCE OF NOISE AND LIQUORICE ROOT AS A METHOD OF BONE MARROW FUNCTIONAL CONDITION ASSESSMENT

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The aim of this work is to study the quantitative and qualitative changes in peripheral blood reticulocytes of rabbits in conditions of combined effect of noise and Licorice root (*Glycyrrhiza glabra L.*). Experiments were conducted in 18 adult Chinchilla rabbits that were exposed to steady noise (frequency 1000 Hz, intensity 114 dB) for 30 days, 2 hours daily. Licorice root was added at the rate of 150 mg per 100 g of body weight daily.

Reticulocytogramm was counted on Heilmeyer. Erythroid cells undergo not only structural but also metabolic transformation. In the nuclear erythroid bone marrow cells active exchange of nucleic acids is observed; this latter explains the ability of this cell population to the proliferative reaction.

Assumptions that mono- and polysaccharides (up to 20%) contained in licorice have a compensatory value for the needs of the bone marrow in the substances that stimulated the anaerobic metabolism, hence, energy erythroid cells in bone marrow combined exposure to noise and licorice root.

The observed increase in relative and absolute number of reticulocytes in I, II and III group: on the 10th day it was 12.0%, on the 20th day: 50.3%, on the 30th: 78.0%, reflecting increased cell proliferation and maturation in the red growth of bone marrow.

INFLUENCE OF LOW-INTENSITY ELECTROMAGNETIC RADIATION IN THE ACTIVITY OF SUCCINATDEHYDROGENASE

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At present, a large amount of experimental and theoretical material is accumulated on the study of biological effects of low intensity microwave radiation in treatment of various diseases in the clinics. However, despite this, the issue of primary physical and chemical mechanisms underlying the sensitivity of biological objects to this type of electromagnetic radiation, remains open and becomes particularly relevant.

Succinatdehydrogenase (LDH) is a very sensitive characteristic of cellular respiration when changing the physiological state of the organism under the influence of different environmental factors. The aim of presented work was the experimental study of six times the impact influence of coherent electromagnetic radiation of a millimeter range to the anaerobic respiration enzyme LDH in the liver and kidneys of rabbits, by high-frequency generator Gch-141. Radiation exposure to the head of the animal lasted 60 minutes (at a distance of 30 cm, frequency of 43.3 GHz). The criterion of enzyme activity was bleaching time of methylene blue in homogenates *in vitro* in anaerobic conditions. The decoloration time is inversely proportional to activity of the enzyme. Analysis of the data showed that the 6-fold electromagnetic radiation effects in rabbits observed increased activity of LDH in the liver by 51.6% compared with baseline data. In the kidneys methylene blue bleaching was completed before placing the tubes in an incubator. These data suggest that a six times the impact influence of coherent electromagnetic radiation of millimeter range has an activating effect on the succinatdehydrogenase in the liver and kidneys of rabbits.

POLYCHLORINATED BIPHENYLS IN OILS: MONITORING STUDIES IN ARMENIA

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Introduction: Polychlorinated biphenyl, otherwise known as PCB, is a synthetic chemical that is widely used for industrial and commercial use as dielectric fluid in transformers and capacitors. PCBs pose risks to the environment and human health and are suspected human carcinogens.

Energy sector is one of the main sources of environmental pollution by persistent organic pollutants (POPs) and, in particular, by PCBs found in oils of electrical equipment: power transformers, greasing/lubricating systems; rectifiers, high voltage switches and breakers, compressors, *etc.* In Armenia the energy complex is one of the leading production sectors. Therefore, there is an urgent problem to assess and evaluate the state of the environment in concern of technical oils in electrical equipment probably containing PCBs

Purpose: To monitor residual amounts of PCBs in samples of oils taken from the equipment of the energy production and distribution sector of Armenia.

Material and Methods: Samples of oil taken from high-voltage condensers and transformers were analyzed in order to reveal the content of PCBs.

Analyzer L2000DX (DEXSIL) was used to measure PCB concentration through determination of total organic chlorine in oils. The procedure includes sample preparation, conversion to inorganic chlorine and quantification.

Results: Preliminary findings signify that in certain cases PCBs are determined at the level above 50 ppm. In accordance with the principles of the Stockholm Convention such oils are subject to environmentally sound elimination.

Conclusions: The increasing concern over health risks posed by PCBs and their undesirable environmental effects has resulted in PCBs banning for manufacture, processing, and distribution in commerce. The problem to replace and destruct PCB-containing oils and equipment is of high importance and urgency for Armenia.

THE WEAKEST LINK IN PERSONNEL SYSTEM OF PUBLIC HEALTH

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Background: Analysis of the literature suggests that nurses representing the largest group of medical personnel are the weakest link in the personnel system of Public Health.

Objective: To identify the negative factors in nursing staff activity organization at obstetric and gynecological departments.

Material: Nursing staff of obstetrics and gynecology departments - 118 midwives, 125 nurses and 30 senior nurses and midwives.

Methods: Direct observation, sociological (Questionnaire), socio-psychological testing (the study of value orientations by the method of M. Rokich), analytical, statistical.

Results: The current nursing staff work organization does not promote:

- ⊙ The professional self-actualization (the desire of professional growth is absent in 57.1% nurses and 68.1% midwives of those who have such a possibility, and for 48.0% of senior nurses and midwives the desire of professional growth is no longer valuable; the values associated with self-actualization, which include the "cognition" (10-12th rank places), "development" (12th and 14th) and "productive life" (13th and 12th) did not obtain high rank places from the respondents);
- ⊙ The development of material wealth (only 17.5% of midwives, 13.7% nurses and 26.9% of their leaders could support the material well-being in their family);
- ⊙ The occupational prestige (nursing as a professional occupation was not prestigious for 52.5% of midwives, 52.0% nurses and for 46.7% of the leaders);
- ⊙ The sense of self-worth (the value "public acceptance" of respondents obtained the 9-11th rank places);
- ⊙ **occupational continuity between generations** (only a small number of respondents did not object if a daughter will repeat their professional path, and among these reasons 15.5% midwives and 16.5% nurses allocate interesting work, as well as the humaneness of the profession – 10.3 and 11.6%, respectively).

Conclusion: Identified negative factors in the nursing staff work organization indicate the necessity to reform administrative policies in the management of nursing staff.

EDUCATING EDUCATORS – IS FACULTY DEVELOPMENT A LUXURY?

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Competence in teaching and professionalism is a requirement for doctors, and currently trainings and staff development programs had become widely available at different levels in leading universities across the world. The development of teachers requires institutional leadership, appropriate resource allocation and recognition of teaching excellence.

Staff development during times of educational or curricular reform can take on added importance. Since 2005 according to the Bologna Process requirements numerous reforms are taking place at the Yerevan State Medical University, such as implementation of Bachelors and Masters Programs, extensive curriculum development project and, including implementation of horizontally integrated curriculum. Reforms imply a great need of faculty development that has been assessed by common methods, such as written survey of 40 teachers, who are currently teaching according to the new program, interviews with teaching staff, observations of teachers 'in action'.

The results have shown that 92.5 % of teachers, who participated in the written survey, have mentioned a change in teaching methods, related to the implementation of the new curriculum. Half of them indicate a need of faculty development program at the university. Interviews with teaching staff showed a great interest in participation at such programs particularly among young teachers, who lack teaching experience and feel the need to improve teaching skills.

If we are to have teachers with the necessary competences, staff development must be an essential requirement, not a luxury. Key areas of teaching improvement must be related but not limited to the improvement of clinical teaching skills, small group facilitation, large group presentations and the use of technology in teaching and learning. Thus, a faculty development program containing these areas, must be designed and implemented at the Yerevan State Medical University for promotion of quality assurance.

ASSESSMENT OF PSYCHO-PHYSIOLOGICAL READINESS TO THE SCHOOL EDUCATION

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Introduction: Recently serious reforms took place at the school level. New programs are implemented, the entire structure is changed nowadays. More high requirements are set to children going to the first class. The problem of school maturity as readiness of the organism of a child at the age of 6 to systematical education became extremely urgent in the period of reforming the whole system of education in the country, and at present it outgrew into a medical problem.

In the contemporary conditions of education when new forms and technologies of education are widely used, the intensity of educational burden increases, and the investigation of psychophysiological status of schoolchildren and study of their functional reserves becomes exclusively important. Younger school age is one of the critical periods of development. At this age essential qualitative rearrangement in different physiological systems and cerebral structures take place, basic mechanisms of organization of all psychological functions is changed, the strain of adaptive processes grows up.

Purpose: The aim of this work was to assess the level of readiness of 5.5-6.5 years old children to school education.

Material and Methods: The research was carried out among 168 first-year schoolchildren at 2 schools in Yerevan. Kern-Irasek's test was implemented to define the school maturity and the data were processed through SPSS.

Schoolchildren were divided into 3 age groups: 5.5, 6.0, and 6.5 years old.

Test results show: the children at 5.5 (10 children) 20% have school maturity high preparation level (3-6 grade), 0% has low preparation level (7-9 grade) and 80% are not ready physiologically and psychotically (more than 10 grade). Among the 6-year-old group (76 children) 21.1% have high preparation level, 50% low preparation level and 28.9% are not ready. Among the children of 6.5-year-old group (82 children) 36.6% have high preparation level, 43.9% have low preparation level and 19.5% are not ready.

Conclusion: Data allow us to draw the conclusion that among the 5.5-year-old age group the number of children not ready for school is higher than among the children of 6 and 6.5 years old age group.

THE IN VITRO AND IN VIVO INFLUENCES OF EXTERNAL ELECTROSTATIC FIELDS ON THE MEMBRANES OF ERYTHROCYTES

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Introduction: Previously we have proposed a hypothesis, which suggests that the biological effect of the external electrostatic fields (ESF) is realized on the border of the mediums with varied conductivity. As the cell plasma membrane is exactly such kind of a system, then, most probably, it should change under the influence of field.

Binding parameters of fluorescent probes with membranes serve as good indicators for estimation of molecular rearrangements in membrane structure.

Purpose: The aim of present study is investigation of changes of erythrocyte membranes under the influence of ESF using a fluorescent probe 1-anilinonaphthalene-8-sulphonic acid (ANS).

Material and Methods: The *in vitro* and *in vivo* influences of 200 kV/m ESF on the structural state of erythrocyte membranes were investigated. The ghosts of erythrocytes of white outbred rats prepared by method of Dodge et al. were used as an object of investigation. Rats were exposed in the field during one hour for *in vivo* studies. After the cervical dislocation of animals, blood was extracted and the suspension of ghosts of erythrocytes was prepared for *in vitro* studies. Then the suspension was divided into 3 parts: one for control and the others for investigation of ANS-binding after and under the 20-minute influence of field. The rate constant (Kc) and the amount of binding sites (N) of ANS with membranes were carried out by fluorescent sounding on the spectrofluorometer MPF-4 "Hitachi".

Results: It is shown that if the probe is added after the exposition, *in vitro* influence of field does not change Kc and N. If ANS is added before the *in vitro* influence of ESF, then Kc does not change, while N decreases by 81.6%. In case of *in vivo* exposition the increase of Kc by 94%, and simultaneous decrease of N by 66.97% are observed.

Conclusion: Data obtained allow us to conclude that the influence of ESF leads to the changes of membrane structure.

THE INFLUENCE OF NIOCIDOL ON RABBIT'S BLOOD CELLS QUANTITATIVE AND QUALITATIVE PARAMETERS

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Introduction: Over the last ten years Niocidol has been largely utilized in animal husbandry as a pesticide.

Purpose: Hematological studies were performed on the rabbit's acute and chronic poisoning: ion erythrocytes, leucocytes and hemoglobin.

Material and Methods: Toxic effect of Niocidol was studied in erythrocytes. Decrease in erythrocytes number was observed in vaccinated and acute empoisoned as well as empoisoned and vaccinated groups, and then it was stabilized on the lowest limit of physiological standard. The decrease of red blood cells was observed in immunized (rabbit's hemorrhagic virus vaccine) and afterward empoisoned animals.

Results: Vaccination of animals stimulated erythropoiesis and the pesticide alone suppressed it. On the 7th day increased erythrocytes and leucocytes quantitative parameters, especially during acute poisoning and vaccination, as well as vaccination and acute poisoning. The increase of leucocytes and decrease of erythrocytes was observed during the chronic poisoning and vaccination, as well as vaccination and chronic poisoning. Changes of the erythrocytes sedimentation rates indicated their high sensitivity to the poison and the toxic effect of Niocidol on erythrocytes. Chronic poisoning caused the essential increase of hemoglobin concentration, especially in the terminal phases probably connected with the massive destruction of erythrocytes. Statistical data on erythrocytes concentration, sedimentation rate, and hemoglobin indicated their interrelation. Acute poisoning increased the number of blood white cells, but in that case leucocytosis started sooner compared to the animals vaccinated only. Such results were observed during the chronic poisoning. If the immunization was performed during chronic poisoning the number of leucocytes was balancing on the physiological standard highest limit, and then started leucopenia. Before chronic poisoning, in case of vaccination, from the 7th day a pronounced leucocytosis was observed, and during vaccination followed immediately after acute poisoning from the 14th day started the increase of leucocytes. However in the immunized and afterward empoisoned animals, the leucocytosis started from the 7th day and from the 14th day reached the maximum: 42%.

Conclusion: Obtained results show that the response of an organism to these two factors is expressed in the quantitative and qualitative changes of leucocytes and erythrocytes.

PALLIATIVE CARE IN ARMENIA: NEEDS AND PERSPECTIVES

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Although the Armenian health care system has been in the process of reform for twenty years, some changes occurred in palliative and hospice care. On the way of establishing palliative care services in Armenia there were several barriers and obstacles. The "Law of the Republic of Armenia on Medical Care and Services to the Population" does not recognize palliative care and hospice care. Palliative care has been officially recognized as type of medical care just recently. There are no specialists in palliative care and no curriculum for their training in Armenia. The most pressing problem is the unavailability of any oral opioids. Morphine is available in ampoule form only. All regulations and rules on using opioids are very restrictive and do not encourage their prescription by physicians. Fear in respect of opioids' use is strong among population and even doctors.

Nevertheless some positive changes happened during the last couple of years. Needs assessment in palliative care was done with the international support, the Ministry of Health approved a palliative care working group to prepare recommendations for consideration by the Government, key principles of palliative care were included in Draft Law "On Public Health", which under circulation within legislative bodies now.

As to current situation, the total need for palliative care has been estimated at up to 3,000 patients per day and approximately 18,000 patients per year. In addition at least twice as many family members will need support. Up to 24 palliative home care teams are needed for Yerevan only and there is an estimated need for 150 inpatient beds for stabilization and treatment of severe symptoms throughout the Republic.

Considering existing situation further steps are necessary and in particular the "National strategic plan for palliative care in Armenia" should be developed. Palliative care needs to be incorporated into current efforts to reorganize the 100 medical specialties approved in Armenia.

National standards for palliative care operation are required as well. The standards need to be further developed into licensing regulations for providers. The regulatory framework for inclusion of palliative care in the existing health care system is a necessity as well.

ENVIRONMENT AND HUMAN HEALTH STATE IN CONTEMPORARY CONDITIONS

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Currently observed population health deterioration is connected with negative effect of chemicals: industrial chemicals, plant protectants, polymers, *etc.* Even a little quantity of chemicals discharged from polymer items may cause a disease. Pesticides as environmental chemical compounds strengthened effect of other agents to humans since they are biologically active and purposely put into environment.

Though pesticides and fertilizers application is the prerequisite for good harvest, it results in loads increase on farmers and whole population. Pesticides unfavorable effect is formed from common types of pathology frequently increased in agrochemical loads conditions.

Issues of providing sustainable environment development i.e. effective water recourses management and water-supply are considered of high priority and included in Millenium Development Goals. Many diseases are closely related to long-term low-quality, polluted water usage. Water contamination in industrially developed countries is connected with intence chemicals application in agriculture.

Nowadays the environmental contamination with persistent organic pollutants (POPs), mainly organochlorine pesticides (OChP), presents a global ecological problem. The problem is in stability of these compounds, ability to persist, circulate and accumulate in environment and human organism for decades, as well as to exert adverse effect on pregnancy course and its termination, fetus development and newborns health due to ability to penetrate *via* placental barrier. Agriculture and chemicalization increase recorded in past years in Armenia, as well limitations of water-supply sources strengthen the importance and keenness of issues on human health and environment protection.

To reveal possible adverse effects on environment and human health the study of OChP existing levels in environmental media and breast milk, monitoring of possible mutagenic components, as well polymers hazard identification was conducted. Data indicate cases of different polymer items handling without toxicological-hygienic conclusion that is fraught with unfavorable outcomes for humans. OChP are determined in environmental media, agricultural produce and biomedica with high frequency. Their presence in human organism is risk factor for reproductive disorders. Micronucleus level increase in rural compared to urban habitants, as well certain relationship between mitotic activity and OChP content in surface-water, bottom sediment was observed. OChP highest levels were registered on sites located close to populated and industrial areas.

INTRODUCTION OF NEW TESTING PROTOCOL FOR ELDERLY WOMEN

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Introduction: According to evidence-based practice regular physical activity provides substantial health benefits, reducing the risk of heart disease and stroke, high blood pressure and other chronic diseases. Specific functional evaluation of cardiovascular efficiency and long-term adaptation to physical loads is required for elder adults.

Purpose: This study is aimed at investigating and assessing adaptation mechanisms and benefits of exercising in elderly persons through new testing protocol suggested by the authors.

Material and Methods: Sixty-one physically active women, who train twice a week with 1 hour duration for approximately 10 years, and 39 sedentary women participated in combined exercise testing by the following protocol: Orthostatic Tolerance Test, Bicycle Ergometer Test (PWC_{150}), Handgrip Test, and Hyperventilation Test. The age of women in both groups ranged from 35 to 78 years. Women were classified according to age groups: Group I embraced women at 65 and above, Group II: 55-64 Group III: 35-54.

Results: The testing protocol promotes the evaluation of vegetative regulation of cardiovascular system (CVS) and enables classification of hemodynamic types of CVS reactions (adequate, inadequate and atypical) in women of different age. Prevalence of adequate reactions (68.2%) was noticed in physically active elderly persons (20 years of training), prevalence of inadequate reactions (60%) was recorded in sedentary group, atypical reactions often prevailed at the age of 35-54. Heart Rate, Blood Pressure, Double Product, Diastolic Double Product, central hemodynamic, ECG and other functional parameters among physically active woman were more favorable than in sedentary counterparts.

Conclusion: The research showed that moderate physical training with selected exercises and regulated loads for elderly women provide stable functional condition of CVS, high load endurance, fast recovery and economization, as well as steadiness of vegetative regulation of CVS.

A CASE-CONTROL STUDY OF SYSTEMIC HYPERTENSION AND RISK OF OBSTRUCTIVE SLEEP APNEA SYNDROME IN YEREVAN, ARMENIA

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Introduction: Several studies suggest that obstructive sleep apnea syndrome (OSAS) increases the risk of developing hypertension (HTN) and can be as serious a risk factor as diabetes. In the Western world OSAS is a public health burden, but there have been no OSAS related epidemiological studies conducted in Armenia.

Aim: To examine the association of systemic HTN and risk of OSAS in adults in Yerevan.

Material and Methods: The study utilized a case-control design to examine the association between systemic HTN (outcome measure) and risk of OSAS in adults living in Yerevan, the capital of Armenia, considering all known confounders suggested by the literature. The control variables of interest were: age, gender, body mass index, neck circumference, waist circumference, waist-to-height ratio, smoking status, weekly alcohol consumption, coffee consumption, weekly physical activity, and presence of diabetes and/or renal diseases.

The study population (108 cases; 157 unmatched controls) came from a sample (170 hypertensives; 578 normotensives) of a population-based Hypertension Extended Study in Armenia conducted in 2004 by the Armenian Medical Association in Yerevan. Blood pressure was measured by conventional mercury sphygmomanometry and following Guidelines adopted by the European Society of Hypertension. Risk of OSAS was evaluated by the Berlin Questionnaire.

Results: In a logistic regression model adjusted for age, neck circumference and co-morbidities (diabetes and/or renal disease), the odds of HTN in people with high risk of OSAS was 2.17 times greater (95% CI=1.02- 4.63) than odds of HTN in people with low risk of OSAS.

Conclusions: This case-control study found an independent positive association between high risk of OSAS and systemic HTN. The study identified fat deposition in the neck as an influential determinant of HTN and OSAS risk. Other independent risk factors for HTN included older age, development of diabetes and/or renal disease.

We recommend to raise public awareness of OSAS and its risk factors and consider OSAS in developing national clinical guidelines, particularly for HTN management.

MENTAL HEALTH

ARE EMPATHETIC PEOPLE SATISFIED WITH THEIR BODY-IMAGE? A SELF-REPORT STUDY BETWEEN MALE AND FEMALE MEDICAL STUDENTS IN ARMENIA

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Background: Empathetic responsiveness is linked with a greater sense of well-being, psychological adjustment, peer-relations, and assertiveness. An issue that has not been explored is the relationship between empathetic responsiveness and body-image satisfaction.

Objective: The aim of the present study was twofold. The first goal was to adapt empathy and body-image self-report questionnaires into Armenian. The second goal was to extend knowledge regarding the relationship of empathy with body-image satisfaction in the Republic of Armenia.

Method: A total of N=345 students (162 men and 183 women, mean age = 18 years) from Yerevan State Medical University volunteered to participate. All participants completed the Armenian-language Interpersonal Reactivity Index (IRI) and Multidimensional Body-Self Relations Questionnaire - Appearance Scale (MBSRQ-AS) as anonymous self-report measures of empathy and body-image.

Findings: Relative to men, women reported greater empathic responsiveness, investment in appearance-related activities, and concern over bodyweight. In contrast, men reported greater satisfaction with discrete aspects of their appearance (e.g., facial features, muscle tone, height). Overweight preoccupation in men, but not women, was negatively correlated with greater empathic-responsiveness.

Conclusion: Current findings demonstrated gender differences in body-image satisfaction and empathetic responsiveness that might reflect cultural and evolutionary adaptations. The results also suggest that weight preoccupation in men may heighten empathic responsiveness. Young adult men may compensate limitations in their bodily fitness with demonstrating greater empathic responsiveness. Future research aimed at investigating the casual link between weight pre-occupation and empathetic responsiveness is warranted.

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ARMENIAN IDENTITY DURING THE LAST CENTURY

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This presentation is about various aspects of Armenian Identity.

Based on current theories of Identity we examined general and historical aspects of Armenian Identity. What makes us unique and what are the common factors between ourselves?

As an illustration of Identity we used two different materials: historic Maps of Armenia as well as churches from Western and eastern Armenia.

We tried to explain the Identity formation from various types: Ego or Personal, Social, Professional, National, Cultural, Positive / negative, Minority, Race, Gender and sexual and multicultural...

In our focus are the following subtitles:

- ⊙ Soviet era and Armenians during the last 100 years.
- ⊙ Diaspora Armenians and Armenian Identity.
- ⊙ Karabagh movement and re-established Armenian Identity and Independence.
- ⊙ How stress and trauma are influencing Identity.
- ⊙ Identity as source for conflict.
- ⊙ Disappointment in self-image,
- ⊙ Emotional reactivity. F
- ⊙ Formation of National Identity via Influential Factors:
- ⊙ Personal and Social Identity relation,
- ⊙ Ethnocentrism and economic circumstances of the nation.

In conclusion we differentiated Identity of Armenians mostly based on the following types: Assimilated, Integrated, Isolated, and Separated/solitary life.

IMPORTANCE OF PSYCHOLOGICAL PARAMETERS IN RECRUITS SELECTION PROCESS

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The purpose of our research was to study psychological criteria of the recruits survey efficiency increase and development of the operative psychodiagnostic tools of their selection.

To realize these tasks we surveyed three groups of young men of draft age out of 433 men.

The psychological assessment was done with the use of Lusher 8 Colour test and G. Aizenk's test - EPI Questionnaire.

Basing on results of the considered colours frequencies distributions and having determined average meaning of ranks, we made common group rank's line of colour preferences. The tendencies of distributions, revealed by us, characterize a provisional structure "of colour expectations" samples as a whole. The availability of the common group data allow us to make the following step, which allows to abstract from the general cultural factor: standardizing individual results and by that to define a degree of their "originality" in comparison with the common group

Thus, average rank line for our sample has the following kind: **2 4 3 5 1 7 0 6**. We have made common group rank lines of colour preferences for all groups researched: at the mentally healthy recruits average rank line looks as follows – **1 7 5 2 4 0 3 6**; in group of the mentally healthy recruits with accentuation of character – **7 2 1 5 4 3 0 6**; for the recruits of having frustration of the person it looks as follows – **2 7 1 5 4 0 3 6**; for the recruits having organic mental frustration – **1 5 2 4 7 3 0 6**; at the recruits with neurotic frustration – **2 5 4 1 7 6 3 0**.

Data of correlation analysis in all diagnostic groups allowed to allocate authentic connections between conducting individual – personal qualities in each separate group researched and in a researched population as a whole.

As a result of research we came to a conclusion: application of psychological methods, of the G. Aizenk EPI Questionnaire and Lusher's projective 8 colour test, in the structure of survey of recruits raises the efficiency of selection and enables revealing conditions of mental desadaptation, which are characterized by propensity to failure adequate reaction in conditions of an emotional pressure.

MENTAL HEALTH AND MODERN TECHNOLOGIES: COMPUTER ADDICTION

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Introduction: Last decades are marked with rapid computerization in all areas of human activity and social life. Personal computers thus become the integral part of offices, medical facilities, schools and households.

Fast development of innovative technologies and growth of computer users, rapid spread of World Wide Web (Internet) are factors that influence each and every member of our society. As a result, society faces new problems that are stipulated from computer - human relations: "computer- mentality" relations and "computer addiction" as a new and not yet very well studied issue.

Objectives: The objective of the study was to understand socio-psychological factors of etiology of computer addiction. One of the questions of interest was social characteristics of at risk population.

Methods: The online web-based quantitative study was initiated to understand urgency of the issue in Armenia. To answer this question the Questionnaire was developed. The addiction was tested according to Jichkina Addiction Scale. For frustration Boyko Personal Frustration Express Test was used. The pilot study included 213 participants 15 to 35 years old.

Results: According to preliminary analysis 53% of participants did not show any computer addiction, 35% of participants have some disposition to computer addiction and only 6% reported actual addiction, which is comparable to other international studies. Weak negative correlation was found for age and computer addiction ($r = -0.1$). Weak positive correlation was estimated for frustration rate and computer addiction ($r = 0.2$). Preliminary data shows that among people with disposition to computer addiction and those with actual addiction male participants were 66.3% and females made 33.7% of study population, which shows that gender might be one of the strong social factors that characterizes at risk population.

Conclusion: As it can be seen from preliminary pilot study, in Armenia computer addiction was found among 6% of at risk age group, which is pretty close to international data. Male participants aged 17-35 are more likely to develop computer addiction than female participants in the same age group. Personal frustration can be one of the factors that influence development of computer addiction, but this hypothesis should be tested on larger sample size.

CLINICAL PSYCHOPATHOLOGICAL STRUCTURE OF RESIDUAL SCHIZOPHREN

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The aim of this work is to study residual schizophrenia patients with defining of psychopathological structure and clinical type of residual states, as well as to compare positive and negative disorders in such cases.

The sample is 120 in-patient subjects with residual schizophrenia who are under the care of psychiatric hospital. The age range is from 32 to 61. The sample involves 64 male and 56 female patients. For assessment and clinical evaluation we used PANNS.

The results demonstrate that 50 of 120 schizophrenic patients (42% of cases) manifested non-psychotic characteristics. In 11 patients (9 % of cases) various chronic psychotic features were presented. Residual states with so-called productive and various negative symptoms are observed among 43 patients (36% of cases). During the study we couldn't find any positive or negative disorder among 16 patients (13% of cases).

In conclusion we classified types of residual schizophrenic states, considering presence and severity of symptoms, relations between positive and negative disorders, as well as defined the group without above mentioned disorders.

RESILIENCE AND POSTTRAUMATIC STRESS DISORDER AFTER THE 1988 EARTHQUAKE IN ARMENIA

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Objective: To identify factors that contributed to an individual's resilience that was protective against developing Posttraumatic Stress Disorder (PTSD) and clinical symptoms from initial exposure to a devastating earthquake and subsequent complete upheaval of society over a 20 year span of time.

Method: Twenty one of 25 individuals, who had participated in a study to determine PTSD and Depression in 1991 (Time 1) at ages 11-13, were located. Each person participated in a clinical interview and was administered the UCLA PTSD RI and the SCL 90, 17 years later in 2008 (Time 2) at ages 28-30.

Results: Ten subjects had no PTSD at Time 1 and Time 2. There was no correlation between PTSD and clinical symptoms at Time 1 and Time 2. Identifiable characteristics of those resilient individuals without PTSD or clinical symptoms at Time 1 and 2 were level of education, employment, hobbies, exercise contributing to enjoyable activities, and attending Church on a regular basis.

Conclusion: Results of the current study confirm the findings of others and identify tangible factors that are protective in the presence of severe adversity. These issues may be incorporated in a public health policy or individual treatment plan to prevent psychopathology following exposure to traumatic experiences.

“DEVELOPING COUNTRIES” - IS IT STIGMA FOR EASTERN EUROPE

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Countries of Eastern European region are included in the list of developing countries due to economic circumstances. To represent (no matter if you are NGO or just a professional) so called “developing country” means that you are separated: with less registration fee, with available grants for reforms in human rights, civil society, poverty reduction, etc...

Is it favorable?

Yes, if the country has 0.1 psychiatrist per 100 000 population, or the number of psychiatric beds is 0.5 per 10 000 population.

We have to consider that countries of EE have a different statistics and number of Psychiatrists as well as number of psychiatric beds is mostly equal to the European figures. The number of Psychiatrists is more than 10 in developing countries, with only 35% less than appropriate number in Europe, and with 25% less beds accordingly.

EE countries have huge potential human and organizational resources. Although the economic development in mentioned countries during the last 20 years is far from what is desirable.

No doubt that these countries require huge investments, which normally is not possible for most of the governments, but creation of NGO field and culture indicates that there is a potential and outcome results could be positive with inadequate sources available.

We concluded that one of the key elements is the issue of overcoming language barriers.

Availability of English professional literature in Russian language and vice versa: translation of professional literature in Russian into English are two important steps for solving problems in mentioned barrier.

Our experience of Russian version of the «Journal of World Psychiatry» shows that in this field it is possible to get good results with good will and limited input.

THE PREVALENCE OF GERONTOPSYCHIATRIC DISORDERS IN ARMENIA.

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Objective: The study presents clinical and epidemiological aspects of pre-senile and senile mental disorders in Armenia. Relevant issues in the field of gerontopsychiatry are presented and analyzed, recommendations have been made and justified at the organizational level.

Material and Methods: The study is based on an analysis of data:

- ⊙ from case histories of 224 elderly patients hospitalized at Nork Republican Center for Mental Health,
- ⊙ from out-patient cards of 289 elderly patients, who were examined and received treatment at Nor Arabkir Health Center,
- ⊙ on the results of examinations of the mental state of 45 residents at the Nork elderly home.

Cognitive functions of patients were tested through individual interviews and mini-mental state examination (MMSE).

Statistical analysis was conducted and Student's test for significance used.

Results: Among 224 patients who received in-patient treatment in 1995-2004, the majority (57.1%) were at the age of 60-65; women were predominant (59.4%) in all age-groups. In the given period, 289 patients sought out-patient treatment. The majority (57.1%) here also consisted of the 60-65-year age-group and women. Comparison of sociodemographic indicators (living conditions, marital status, education, source of income, etc.) showed that these factors were similar among in-patient and out-patient groups indicator for seeking medical attention, which was 1.3 times higher in the out-patient group, as well as the indicator for the presence of somatic disease, with such diseases detected 2.7 times more frequent in the out-patient cases than with hospitalized patients. The diagnosis of in-patient cases consisted largely of psychotic disorders and dementia, while in the out-patient cases non-psychotic disorders dominated, with the exception of senile dementia (28%).

A study on cognitive function of residents at Nork elderly home, which constitute a high risk group was also conducted. Mild cognitive disturbances were recorded in 29% of residents. Probability of dementia within the following 3-5 years was high. A "risk group" for development of dementia in elderly patients was distinguished and the need for prophylactic measures established.

Conclusion: Considering the lack of a gerontopsychiatric service in Armenia, the need was established for organization of such a service and the importance of primary care emphasized.