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CLINICAL MEDICINE

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PREVENTING PLACENTAL DYSFUNCTION FOR GRAVIDAS WITH OBESITY

It is common knowledge that a threat of interrupted pregnancy at early term concerning gravidas with obesity may give rise to further perinatal problems, therefore it requires a complex of measures, enduring not only a medicative, but a preventive load as well.

The research involved 63 gravidas with alimentary-constitutive obesity and a diagnosis of a threatened abortion during the early terms of gestation. A correction of the dietary intake in the basic group (31 patients) was carried out throughout the entire period of pregnancy and complex of drugs (Coccarboxilazy hydrochloride 0.025 g/day, riboflavin 0.002 g/day and lipoic acid 0.012 g/day, folic acid at a dose of 500-800 mg/day) was put on. Folic acid was put on in a dose of 400 mkg per diem in the control group throughout the entire period of pregnancy. The women of both groups received progesterone preparations (Dufaston, Utrogestan) up to 18-19 weeks of gestation with a gradual reduction of the dose.

The course of pregnancy both in the gravidas of basic and control groups depended on the degree of obesity and it was most often complicated by gestoses of a diverse degree of severity, but this complication in the control group occurred 1.83 times ($p < 0,05$) more often. Mild forms of this particular complication of pregnancy predominated in the

basic group, while in the control one – gestosis of a medium degree of severity. Still, more convincing data concerning the registration of the syndrome of fetal growth retardation as a consequence of placental dysfunction complication occurred 3 times more often in the control group than in the group of women with the proposed complex of treatment. Operative labors in the control group of women were more frequent by 44,4% than in the women of the basic group. As for the course of labor in the examined women, it should be noted, that there were no significant divergences in the frequency of the onset of complications in labor of the women of both groups, except a decrease of the frequency of anomalies of the labor activity in the basic group by 2 times ($p < 0,05$).

A study of the clinical efficacy of the method proposed by us has made it possible to come to the following conclusions: a positive effect of a dietary correction and a complex of drugs is traced through the course of pregnancy and labor; the method suggested by us enabled to reduce the rate of placental dysfunction in the gravidas with obesity thrice and is indicative of the angiogenic influence of this particular complex of measures, making it possible to use it for correcting gestational complications in women with obesity.

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THE ROLE OF DIFFERENT SUBPOPULATIONS OF IMMUNE CELLS IN ANTIGEN PRESENTATION AND FORMATION OF IMMUNE RESPONSE (LITERATURE REVIEW)

This review describes subpopulations of cells of the immune system and emphasizes their role in antigen presentation and induction of immune response according to modern ideas. T-cell populations, specifically, T-helper cells, are among key players in the processes occurring in the body following exposure to a foreign antigen. Present review article concerns Th-cells naïve subpopulations, central 0-subpopulations, Th-9, -22, CD4 and CD4 doublepositive T-cells. Their role and functional significance is discussed in various pathological conditions. At present time, there are

convincing data about specific arrays of membrane molecules, transcription factors, and production of specific mediators typical to either of these subpopulations. T-cell populations, specifically T-helper cells, are among key players in the processes occurring in the body following exposure to a foreign antigen.

These T-cell subtypes were characterized both phenotypically and functionally. Application of these markers in laboratory studies will certainly improve diagnostic quality when evaluating functional alterations of immune system and adequacy of prescribed immunotherapy.

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EVALUATING QUALITY OF LIFE OF FAMILIES WITH YOUNG CHILDREN WITH DOWN'S SYNDROME IN EARLY INTERVENTION PROGRAMS

The article presents the results of studying quality of life of the families raising children of an early age with Down's syndrome, which received assistance according to the early intervention programs. Investigation of the family quality of life is an innovative approach in Ukraine, as traditionally a research of the life quality of an individual patient is carried out. Parameters of family interaction, education, emotional state, physical and material well-being, as well as support connected with disability were identified using the FQOL Survey (Family Quality of Life Survey). The study involved 58 parents (32 mothers and 26 fathers), bringing up children aged from 2 months to 3.5 years with Down's syndrome. The families visited early intervention programs within a year, where they received interdisciplinary care of psychologists, speech therapists, and physical rehabilitation specialists. Early intervention programs

were focused on the child development and improvement of the child-parent interaction quality. It has been shown that the structure of parameters that determine the quality of family life does not change in the dynamics of visiting the early intervention programs. The highest values are measured by the scales of family interaction and child-rearing, and the lowest - by means of the scales of emotional well-being. However, a significant improvement of the quality of family interactions, education, emotional well-being and support, associated with disability, has been defined after visiting the early intervention programs. The significant positive correlations between the studied parameters have also been established in the study. The results demonstrate the effectiveness of early intervention programs for the families with children of an early age with Down's syndrome receiving the early intervention services.

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RESULTS OF SURGICAL TREATMENT OF CHRONIC ANAL FISSURES EFFICIENCY ASSESSMENT

The anal fissure is a widespread proctologic disease (from 8,5 to 16%). The purpose of the work is the assessment of results of surgical treatment of patients with chronic anal fissures who were diagnosed at the preoperative period with violations of the psychoemotional sphere in the form of psychic tension and depression by carrying out questioning of patients by means of a hospital HADS scale of psychic tension and depression.

The main group consisted of 57 patients (48,3%) with violations of the psychoemotional sphere. Operative therapy was executed in the form of surgical removal of a chronic anal fissure with the dosed sphincterotomy, supplemented by psychopharmacotherapy according to the developed original way of treatment of anal fissures (The patent for the invention No. 2506054 "Way

of treatment of chronic anal fissures"). 61 (51,69%) patients of control group did not receive correction of the revealed violations in the preoperative period.

Subclinically expressed psychic tension is revealed at 26 patients (45,61%) of the main group and at 30 patients (49,18%) of the control group, clinically expressed psychic tension – at 23 patients (40,35%) of the main group and 22 patients (36,07%) of the control group.

Terms of healing of a postoperative wound at patients of the main group averaged $12,5 \pm 0,1$ days, at patients of control group terms of healing of a wound averaged $13,4 \pm 0,1$ days ($p < 0,01$). Recurrence of a disease is found in 2 patients (3,28%) of control group. In the main group the data on recurrence of a disease is not revealed.

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EFFECTIVENESS OF DEXAMETHASONE IN MANAGEMENT OF PAIN & INFLAMMATION AFTER CYSTECTOMY OF MAXILLARY RADICULAR CYSTS

The aim of this study was to improve the treatment of inflammatory complications by topical injection of dexamethasone in patients after cystectomy of maxillary radicular cysts and determination of the most effective method. Patients were of the age range of 18–30 years. Twenty three patients, each of whom required cystectomy of maxillary radicular cysts under local anesthesia, were randomly divided into 3 groups. The one experimental group was given dexamethasone 4 mg submucosally, another group was given dexamethasone 8 mg submucosally and the control group had no steroid. All patients were admitted to hospital in following a standard protocol. Each patient signed a consent form to participate in the study. Allergic reactions to medications were noted in three patients. All patients were admitted in the Department of Surgical Dentistry in satisfactory condition. Thirteen patients reported pain, recurrent soft tissue swelling, redness of

the mucous membrane, slight purulent discharge, weakness and fever. Surgery was carried out after inflammation symptoms were resolved.

Patients received antibiotics, eubiotics and local submucosal injection of dexamethasone. Anti-inflammatory drugs and pain medications were prescribed only as needed. The pain and swelling in postoperative area were measured by an examiner at the 1st day of surgery, at 3rd, 7th days after operation.

Results of clinical researches objectively demonstrate that the use of dexamethasone had positive effect on the normalization of the general condition of patients. Dexamethasone given submucosally is an effective way of minimizing the pain and swelling of postoperative area after cystectomy of maxillary radicular cysts. It offers a simple, safe, painless and cost-effective treatment in moderate and severe cases.

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SOME ASPECTS OF VAGINAL MICROECENOSIS DISORDER DURING PREGNANCY

Qualitative and quantitative composition of the microflora of the vagina – the basis of women's reproductive health – is defined. Reduced immune defense and hormonal disorders that occur during pregnancy may lead to dysbiotic disorders of varying severity.

Female genital tract attack with foreign microorganisms is hampered by several factors, which generally include squamous epithelial desquamation, competition with resistant microflora, acid and rich lactate medium. Nowadays, a special place is occupied by antimicrobial peptides (AMPs), which in this case serve as a barrier to the emergence of bacterial vaginosis (BV) and produced by polymorphonuclear neutrophils and epithelial cells. AMP is a new class of natural antibiotics, which serve as the primary defense against pathogens in the innate immune system and are able to kill cells of microorganisms. The recent studies showed a reduction in the

concentration of AMP during vaginal dysbiosis.

The purpose of this study was to investigate the antimicrobial activity of vaginal fluid depending on the severity of flow of BV, vaginal fluid pH level and its dependence on glucose during pregnancy.

Predictors of infectious complications in organism of the pregnant with BV are anaerobic or mixed type of vaginal imbalance. It should be noted that the antimicrobial activity of the peptides is of great importance in the antimicrobial immune protection of sheath. The severity of the disease is directly dependent on the level of glucose and the pH of the vaginal discharge.

Prospects for further research: further research will be devoted to clarifying the efficacy of diagnosis of vaginal dysbiosis and the role of AMP with regard to labor outcomes, the development of effective measures for the prevention of complications of pregnancy, labor and perinatal diseases.

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MODERN ASPECTS OF OVARIAN STIMULATION IN OXIDATIVE STRESS CONDITIONS

Female infertility is an actual problem of our time, which makes the need for the development and improvement of assisted reproductive technology (ART). The most effective is recognized in vitro fertilization (IVF). The main and indispensable step in IVF is controlled ovarian stimulation (COS). It is important during stimulation of female gonad to ensure a high level of antioxidant defense system. In the body there are powerful levers of antioxidant effects. One of the most powerful components of the antioxidant system is melatonin.

The aim of our study is to improve the efficiency of ART by studying the activity of oxidative stress in follicular fluid during oocyte maturation during the COS, which is a step in the protocol of IVF.

Research Methods. The study involved 66 women of reproductive age with infertility without concomitant somatic pathology, who are allowed to use the techniques of assisted reproduction, and 33 healthy women, who applied for the purpose of egg donation and became the control group. 66 patients with infertility of various origins were included in the study if they had one of the criteria of “poor responders”: late reproductive age, receipt of 3 or less oocytes in previous cycles of IVF, decline in ovarian test

results (anti-Müllerian hormone (AMH) is less than 1.1 ng /ml, number of antral follicle count (NAF) is less than 5 (corresponding to the data of ultrasound).

By random division “poor responders” were divided into 2 equal groups. In group I (n=33), the average age was $36,61 \pm 4,54$ years, duration of infertility has made $8,64 \pm 4,41$ years, body mass index (BMI) = $24 \pm 3,54$. In group II (n=33), the average age was $35,30 \pm 5,13$ years, duration of infertility has made $9,97 \pm 5,16$ years, BMI = $24,26 \pm 5,34$.

Given the strong antioxidant effect of melatonin in order to reduce the harmful effects of oxidative stress on ripening oocyte, patients in this group received preventive course of hormone therapy: melatonin in tablets 3mg each. The scheme provided 3mg in the morning and 6mg in the evening for at least 4 weeks before the start of COS.

All patients according to a standard protocol had their level of functioning of hormones of the reproductive system, thyroid and adrenal glands determined. Upon receipt of oocytes during transvaginal puncture as determined by the levels of melatonin and 8-isoprostane in follicular fluid. Determination of melatonin (MLT) and 8-isoprostane was performed using Melatonin ELISA Kit, 8-isoprostane EIA Kit, IBL (Germany). The data

were statistically processed by calculating the arithmetic mean value, standard deviation. Statistical significance of differences between groups was determined using Student t-test.

Conclusions. The use of antagonists of gonadotropin releasing hormone agonists and antagonists of gonadotropin-releasing hormone for the purpose of inducing superovulation process leads to increased oxidative stress in follicular fluid which causes detrimental impact on the oocyte, thereby reducing the effec-

tiveness of IVF. 8-isoprostane is reliable indicator of oxidative stress and antioxidant system work, its content has an inverse correlation with the levels of MLT and the number of oocytes obtained after COS. Melatonin has a strong antioxidant effect, thereby increasing the number of oocytes obtained from patients with reduced ovarian reserve parameters. It may be considered appropriate to prescribe melatonin with antioxidant protective purposes in conjunction with the preparatory activities for the IVF.

PREVENTIVE MEDICINE

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SCREENING METHODS OF ASSESSMENT OF REHABILITATION MEASURES EFFECTIVENESS FOR CHILDREN IN SANATORIUM CONDITIONS

Rehabilitation therapy in sanatorium for children with the most common somatic diseases undoubtedly has significant health benefits. However, preemptive use of recreational or therapeutic programs for children entering the sanatorium remains debatable. In the case of corrective therapy urgent problem is the fullness of the complex procedures of basic therapy course with natural mud. It is important to decide which type of peloids to use: silt coastal or freshwater peat? Which course of pelotherapy would be most effective for children with disorders of the respiratory system, the digestive tract or syndrome of vegetative-vascular dystonia.

Using the screening tests in the evaluation of the initial state of the child, the

dynamics and magnitude of the changes allows applying efficacy of therapeutic measures. Especially valuable is that it is possible to determine the direction of these changes, taking into account the leading pathology and applied therapy. In the comparative analysis of diverse character of conversion frequency of somatic symptoms, laboratory parameters and computer scan were determined. Results of observations have shown that for children with disorders of the respiratory system optimally beneficial were therapy procedures with silt peloids, for children with gastrointestinal pathology – treatments with peat mud, whereas for children with syndrome of vegetative-vascular dystonia – complex basic program.

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THE ANALYSIS OF THE INCIDENCE OF NOSOCOMIAL INFECTION DISEASES IN HOSPITALS IN UKRAINE

The status of the incidence of nosocomial infection diseases in Ukraine for ten years (2003–2012) has been analyzed to determine the necessary volume and trends of disinfection procedures in hospitals. The structure of the incidence of disease was defined by the nosological forms registered in Ukraine. The disease distribution by age among adults and children was also defined. It was found that the actual incidence of the nosocomial infections significantly exceeds the official data. It indicates that the infection rate in hospitals is underestimated. So, the spread of the infectious diseases is of a high probability under these circumstances. The etiological factors of these infections are opportunistic microorganisms with increased resistance to antibiotics and disinfectants. The infections that are not registered in Ukraine were defined. Nevertheless, the threat of its spreading in hospitals is high. There is also a high risk of nosocomial spread

of both bacterial and viral infections concerned with artificial transmission mechanism during various medical manipulations. Due to the development of a network of perinatal centers during the last three years, there has been a high rate of infections of certain conditions originating in the perinatal period. Thus, it requires an improvement of disinfection procedures in hospitals to prevent the infection transmission mechanism. The goal of these measures is to prevent the spread of pathogens through the facilities of nosocomial environment. The viral infections with parenteral transmission mechanism has a high sickness rate in Ukraine. There is a high probability of this transmission mechanism in hospitals due to the invasive diagnostic and therapeutic procedures. Given the above, special attention should be paid to improve the efficiency of disinfection, pre-sterilization cleaning and sterilization of medical devices.

BIOCHEMISTRY

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AMINOACID ANALYSIS OF RAW MATERIAL OF MEDICAGO FALCATA L. SUBSP. ROMANICA (PRODAN) O. SCHWARZ & KLINK

Representative of the legume family (Fabaceae L.) is a genus *Medicago* L., which is highly polymorphic. World's flora includes 61 species. At the territory of Ukraine there are 24 species but the most widespread is alfalfa seeding (blue) – *Medicago sativa* L., alfalfa crescent (yellow) – *Medicago falcata* L. and alfalfa medium (variable) – *Medicago varia* L. Despite widespread use of these plants, pharmacognostic study on the contents of many biologically active compounds and their accumulation, the interaction between themselves and the environment was not conducted. For most species and their preparations, qualitative amino acid composition and their numbers are unknown.

Purpose and aim of the study are quantitative analysis of amino acids in

aboveground raw material of representative of genus of *Medicago* L. – *Medicago falcata* L. subsp. *romanica* (Prodan) O. Schwarz & Klink., which has a wide range in Ukraine.

The data indicate that the grass *Medicago falcata* L. subsp. *romanica* (Prodan) O. Schwarz & Klink. at flowering period contained 19 amino acids, including irreplaceable ones. The results of the experiments showed high concentrations of aspartic acid, proline, phenylalanine and glycine. Limiting amino acids for aboveground plant materials were: methionine, lysine and glutamine.

High concentrations of proline in the grass showed pronounced adaptation of plants to adverse growing conditions (water, salt and temperature stress).

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WATER HARDNESS ELIMINATION BY FLOTATION METHOD USING POTASSIUM SALTS OF FATTY ACIDS

Water is one of the most widely used solvents of medicaments in the pharmaceutical industry. Any pharmaceutical company or pharmacy cannot deal without the use of water. Water must ensure the safety of manufactured drugs. In this regard, the water quality is subjected to special requirements, which are governed by regulations of the State Pharmacopoeia of Ukraine, add.1.

It is known that to reduce the content of ions of different salts containing, for example, in wastewaters of various industrial facilities, a flotation method is used. This method is also commonly used for the enrichment of various ores.

The essence of the flotation method is that air is blown through the fluid, and particles of flotation reagent (collecting agent) adhere to the bubbles as a result of reaction with a particular ion in the fluid, which is then carried to the surface of wa-

ter. This reaction is caused by differences in wettability of the particles of the surface by water. Particles can be removed from the surface of the fluid physically.

Analysis of results shows that the ejection of magnesium cations from the tested fluids by flotation method with increasing temperature first increases and then decreases. However, such relationship does not exist when ejecting the calcium cations. At all temperatures, flotation can eject only that part of magnesium and calcium ions which during introduction of the collecting agent into fluid becomes a part of the dispersed phase of colloidal solution formed. Thus, at 20 °C using flotation reagent potassium tridecane it is possible to eject from a solution up to 90% of magnesium cations and up to 30% calcium cations, but the latter at higher temperatures. Application of this method can significantly reduce the hardness of water.

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