THE FEDERAL STATE BUDGETARY EDUCATIONAL INSTITUTION
OF HIGHER EDUCATION
«STAVROPOL STATE MEDICAL UNIVERSITY»
OF THE MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

THE INTERNATIONAL SCIENTIFIC CONFERENCE
FOR STUDENTS AND YOUNG RESEARCHERS
IN ENGLISH «TOPICAL ISSUES OF MEDICINE» DEVOTED TO THE 80-TH
ANNIVERSARY OF STAVROPOL STATE MEDICAL UNIVERSITY

Abstract Book

Stavropol – 2018

This book includes abstracts of authors from Russian and foreign educational institutions for the International Scientific Conference for Students and Young Researches devoted to the 80-th Anniversary of Stavropol State Medical University on topical issues of theoretical, practical medicine and medical biological sciences in English.

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ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ «СТАВРОПОЛЬСКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ» МИНИСТЕРСТВА ЗДРАВООХРАНЕНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ

МЕЖДУНАРОДНАЯ НАУЧНАЯ КОНФЕРЕНЦИЯ СТУДЕНТОВ И МОЛОДЫХ УЧЁНЫХ НА АНГЛИЙСКОМ ЯЗЫКЕ «АКТУАЛЬНЫЕ ВОПРОСЫ МЕДИЦИНЫ», ПОСВЯЩЁННАЯ 80-ЛЕТИЮ СТАВРОПОЛЬСКОГО ГОСУДАРСТВЕННОГО МЕДИЦИНСКОГО УНИВЕРСИТЕТА

Сборник тезисов

Ставрополь – 2018

В сборнике представлены тезисы работ авторов из российских и зарубежных учебных заведений для Международной научной конференции студентов и молодых ученых, посвященной 80-летию Ставропольского государственного медицинского университета, по актуальным вопросам теоретической, практической медицины и медико-биологических наук на английском языке.
Dear Participants of the Conference!

It’s a matter of great pride and privilege to organize the International Scientific Conference for Students and Young Researchers in English «Topical Issues of Medicine» at Stavropol State Medical University.

This year our university celebrates its 80th Anniversary, and the Conference is dedicated to this event. In addition, the Conference became a good tradition for the past ten years. It effectively contributes to the development of scientific relations, stimulates and promotes innovative projects, increases the interest of students and young scientists to research work.

The Conference brings together young people who are engaged in research work from both Russian and foreign universities. Research work of young people is one of the most important means of improving the quality of training of specialists with higher education; it is an effective method of formation and development of students’ motivation to creativity, responsibility and independence, as well as a way to realize individual approach in teaching and education of students.

Modern science is developing at a rapid pace, new scientific developments amaze with their depth of research, grandiose steps forward in this or that field of science, including medicine. Today scientific events are very popular and in demand. To learn about innovative projects, large-scale scientific developments, it is possible to be acquainted with new research of their colleagues at various forums, in particular, at scientific conferences, which are held to generalize the experience of the developers.

The main objective of the Conference is to bring the audience in the field of public health, to share information and experiences with colleagues from Russian and foreign medical institutions.

I hope it will be useful to everybody in the future career and wish fruitful work, constructive dialogue and effective cooperation to all the participants and organizers of the Conference!

Koshel Vladimir Ivanovich,
Doctor of Medical Sciences, Professor,
Rector of Stavropol State Medical University, Russia
SCIENTIFIC ABSTRACTS
OF STAVROPOL STATE MEDICAL UNIVERSITY STUDENTS
AND YOUNG RESEARCHERS,
RUSSIA
September 19, 1938 ... This date became a key milestone in the history of the Medical Institute recently founded in Voroshilovsk (it was the name of Stavropol in 1935-1943). That day, 166 first-year students of the Medical Faculty, which was the only one at that moment, crossed the threshold of high school.

Abram Timofeevich Mogilnitsky was appointed a director of the Institute. Departments of Biology, Biochemistry, Pathophysiology, Socio-economic Disciplines, as well as the students' library with a reading hall were placed in the main building. Outbuilding in the yard was first used as a hostel for teachers and then it was transferred to the Department of Pharmacology. The Medical Institute had to rent lecture halls and classrooms in some institutes and schools. The first students of the Institute represented different social groups: the workers – 37 people, farmers – 18, engineers and specialists – 36, employees – 74.

By 1940 more than 500 future doctors were studying in the Institute. During the first years the stuff of the Institute adequately overcame the temporal difficulties, created favorable conditions for the further development. It was planned to organize new departments, to develop clinical base, to organize the construction of new buildings. But the war interfered with all these projects.

On 22 of June, despite it was Sunday, some students were taking the second semester exams. And suddenly the news about the war came. On June 23 the first teachers and students went to front and, on the whole, during the war 153 people from the Institute were called up for the Red Army. In the conditions of war the considerable attention was paid to military training of future doctors.

On the 1\textsuperscript{st} of August, 1942 there was the first graduation of doctors – there were 342 students of the 4th year who received diplomas without passing the state exams. Two days later, the city was occupied by German troops. The main loss and tragedy of the Institute became destruction of 68 employees and members of their families by fascists.
On the January 29, 1943, only 8 days after the city’s liberation from the Nazis, the Institute renewed its activities.

Despite the difficulties of war-time, the Institute began to develop a scientific work: In 1944, the first plan of scientific research was developed at the Institute. In April of this year, the Institute Scientific Conference was held.

The Institute met the Victory Day by the celebratory meeting. The Institute life is gradually acquired a peaceful course.

In 1952 the Institute was headed by the Honoured Scientist of RSFSR, Doctor of Medical Sciences, Professor Vladimir G. Budylin – a graduate of the Medical Faculty of Baku State University. Under his leadership the construction of a new main building of the Institute and students’ hostels was started. In 1958 the first set of students to the newly opened Dental School was made. Its graduates, qualified dentists, replaced the dentists in the areas of our region where they have always lacked. These years were marked by increased scientific and methodological support of the Institute of practical public health authorities of the Territory and of the autonomous republics of the North Caucasus. Much work on the treatment of trachoma and glaucoma and the establishment of ophthalmology in the Stavropol region was led by the Head of the Ophthalmology Department an Honored Scientist of the RSFSR professor N.M. Pavlov.

The 1960s were a period of active development of surgery and neurosurgery for the Stavropol Medical Institute. It was a merit of the professors Yu.S. Gilevich, M.S. Makarov, N.N. Golysh and others. In 1962 the first operation of the surgeon M.S. Makarov on comprehensive treatment of kyphosis in tuberculous spondylitis was successfully made. In the second half of the 60s, Stavropol school of therapists under the guidance of Professor M.B. Rafailovich was developed.

From 1964 to 1970 the Institute was headed by the Professor Yu.B. Pervushin, a graduate of the Military Medical Academy. His main merits were the opening of the Faculty of Advanced Training of Physicians (1965) and the Dissertation Council for PhD theses (1967).

Since 1973 the Institute successfully began to train pediatricians. It later helped to solve the problem of the replacement of general medical specialist in children's hospitals. In 1976 the Faculty of Advanced Training of medical schools teachers was opened. At the end of 70s the construction of a new teaching laboratory building, two buildings of students’ hostels and students’ cafeteria in Tukhachevsky Street was started. Rector of the Institute, Associate Professor Yuri P. Mikhailichenko (1970-1980) gave attention to these and other prob-
lems. He was the first graduate of *alma mater* in the rector's post. In 70-80s the scientists of the Institute worked on the problem of establishing a scientific basis of occupational hygiene and pathology in relation to working conditions of Stavropol Territory residents. This work was conducted under the guidance of Honored Scientist of the RSFSR Professor G.A. Gudzovsky. The newly created departments of the Pediatric Faculty conducted research on the basis of the health of women, mothers and newborn children, studied age-related features of the body in health and disease. A significant contribution to the development of these areas was made by the Corresponding Member of the Russian Academy of Medical Sciences, Professor K.V. Orekhov.

From 1980 to 1987 Professor Viktor Vladimirovich Bodulin, the graduate of SSMI, headed the Institute. Under his leadership, the training facilities of the Institute, living conditions in dormitories and sports life were improved. In 1994 the Institute was given the status of the Academy. From that moment the clinical base of the Institute gets its further development. The Eye Microsurgery Clinic and the Clinic of Border States were opened. The Children’s Dental Clinic was in conducting of the Academy. Despite the crisis in the country, a new building, fitness center with volleyball courts, swimming pool and gyms turned in exploitation. In 1999, the Faculty of Higher Nursing Education was opened.

In 2007, with the opening of a new library building the problem of accommodation of the library fund, which has increased several times over 70 years of the existence of the university, was solved.

It was a credit to the team of the Institute (and then – Academy), which was guided by Professor Boris Dmitrievich Minayev, a graduate of the Medical University of Dagestan, for 21 years (from 1987 to 2008).

The new stage of development of the Academy has been connected with the activities on the post of rector of the Doctor of Medical Sciences, Professor Valentina Nikolayevna Muravyova, who has contributed to the development of the learning process, research and medical activities, revived the best traditions of public life of the collective of her *alma mater*. The Branch in Yessentuki, the Faculty of Humanities and Biomedical Education, Practical Skills Center, a Center of Scientific and Innovative Development, the Clinic of Endoscopic and Minimally Invasive Surgery, the museum complex, departments of education and social work, and other units emerged as a part of the Academy.

In 2013, the Academy has received university status by assigning the name of the University “Stavropol State Medical University.” Since 2014 rector of the University is the Doctor of Medical Sciences, Professor Vladimir Iva-
novich Koshel, who is doing everything possible to keep and increase the traditions of Stavropol State Medical University – his alma mater.

This year, Stavropol State Medical University is turning 80 years old!

UNIVERSITY TODAY

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Scientific supervisors: Professor, Doctor of Historical Sciences A.V. Kartashev, Senior teacher T.N. Finenko

Established in 1938, Stavropol State Medical University (StSMU) is recognized to be among the top medical institutions in the Russian Federation. Nowadays, after eight decades it is the largest educational, scientific and methodical center of medicine in the North Caucasus. About 6500 Russian and foreign students from 40 countries of the world are trained at its 10 faculties: General Medicine, Pediatrics, Dentistry and Faculty of Humanities and Biomedical Education, Foreign Students’ Faculty, Faculty of Pre-University Training and others.

General Medicine Faculty is the oldest in our University. Teaching of specialty General Medicine is conducted at 23 departments of StSMU.

Faculty of Pediatrics has trained and graduated about 3,500 pediatricians who work in health care establishments of the Stavropol Territory and the Russian Federation.

Bases of the Faculty of Dentistry are equipped with modern apparatus, specialized operating rooms, where all forms of modern qualified dental care are performed.

The students of the Faculty of Humanities and Biomedical Education are trained in the following training directions:

Full-time (4 years): Physical education for persons with deviations in health status (Adaptive physical education), Special (defectological) education, Biotechnology, Clinical Psychology.

Part-time (5 years): Biotechnology, Economy, Social work, Adaptive physical education, Special (defectological) education.

The faculty also trains bachelors in "Nursing". Graduates have the opportunity to be engaged in healing, teaching, and administrative activities.

The Foreign Students’ Faculty has trained about 2000 doctors, residents, interns and post-graduate students for 83 countries of Europe, Asia, Africa and
Latin America.

Besides, there is the Institute of Postgraduate and Additional Education. Post-graduate training, retraining and advanced training of doctors and paramedics for practical public health care is performed in 46 specialties in the field of post-graduate education (clinical residency and internship) and 73 specialties of additional education (vocational retraining and skills development).

Our graduates work in different places of our country and abroad, they are the trademark of the University. Many of them head scientific research institutes, laboratories, faculties and higher school departments.

The pride of the University is its highly skilled scientific and teaching staff. At 75 departments of the University there work: 113 Doctors of Sciences, 444 Candidates of Sciences, 56 Honored Physicians of the Russian Federation, 4 Honored Scientists of the Russian Federation, 63 Excellent Workers of Public Health. Many scientists of the University are well-known both in Russia and abroad due to their great contribution to practical and functional medicine.

Stavropol State Medical University is one of the few Russian medical universities recognized by the Medical Council of India. The University is listed in the World Directory of Medical Schools published by the World Health Organization (WHO) which enables our graduates to hold a job in any country of the world after taking national examinations. The activity of the University has been marked by high international awards.

Students of the University are encouraged to participate in different research projects, working within the “Students and Young Researchers Society” showing their results at annual conferences and often winning prizes in all-Russian or international fora.

Training of foreign citizens in StSMU is conducted since 1961. During this time 1471 foreign specialists were trained for 83 countries of Europe, Asia, Africa and Latin America. Among them were: 1262 physicians, 43 interns, 149 residents, 17 post-graduate students. 143 students graduated from the Preparatory Department.

The University has all conditions necessary for successful acquiring of medical knowledge. The foreign students individually perform laboratory and clinical tests and take advantage of modern learning technologies. With transition to the general practitioners’ training, they spend more time in the outpatients’ departments where they get acquainted with the work of healthcare organization, see patients, learn emergency medicine and assist in various diagnostic procedures.
Clinical rounds, patients’ follow-ups and case histories writing with subsequent analysis are of special teaching importance. All this is intended to form diagnostic, treatment and rehabilitation skills.

The post-diploma training is a fellowship program, due to which graduates can improve their theoretical and practical skills; it plays a great role in the improvement of skills of physicians.

Today, innovation is a dominant factor in the development of the University, it is based on the deep integration of educational, scientific and clinical activities. This approach opens up new horizons of training, monitoring and evaluation of students' knowledge, enhances the research capacity of the University, and contributes to the development and implementation of effective methods of prevention, diagnosis and treatment in practical health care.

ABSTRACTS

THE EFFECTS OF CLIMATE AND GEOGRAPHY ON THE OCCURRENCE OF MALARIA IN SUBSAHARA AFRICAN COUNTRIES

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assistant T.S. Nikolenko

Introduction. The World Health Organization (WHO) estimates that 438,000 people died because of malaria in 2015. The Institute of Health Metrics and Evaluation (IHME) and Global Burden of Disease (GBD) put this estimate at 720,000.

Background. It is common knowledge that malaria is caused by different species of Plasmodium and the specific vector is female Anopheles mosquito. Africa is the world region that is most affected by malaria. In 2015, the African continent held 9 out of 10 malaria victims. Sub-Saharan Africa is, geographically, the area of the continent that lies south of the Sahara.

Objective. It is to try to understand why Sub-Saharan Africa has the highest malaria cases.
**Material and method.** The lifecycle and climatic favoritism of the specific vector was observed. Cases of malaria in different regions in the world, Sub-Saharan Africa and Nigeria were analysed.

**WHO estimates of the number of malaria cases (in thousands), 2010 – WHO (2012)**

<table>
<thead>
<tr>
<th>Region</th>
<th>Estimate</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>African</td>
<td>174 000</td>
<td>110 000</td>
<td>242 000</td>
</tr>
<tr>
<td>Region of the Americas</td>
<td>1 100</td>
<td>900</td>
<td>1 300</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>10 400</td>
<td>6 400</td>
<td>16 600</td>
</tr>
<tr>
<td>European</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>32 000</td>
<td>25 900</td>
<td>41 900</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>1 700</td>
<td>1 300</td>
<td>2 100</td>
</tr>
</tbody>
</table>

**The Top 5 Countries with the Most Deaths from Malaria**

<table>
<thead>
<tr>
<th>Country</th>
<th>Reported Malaria Deaths (estimated deaths)</th>
<th>Presumed and Confirmed Malaria Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democratic Republic of Congo</td>
<td>30,918(69,000)</td>
<td>14,871,716</td>
</tr>
<tr>
<td>Tanzania</td>
<td>8,528(N/A)</td>
<td>14,650,226</td>
</tr>
<tr>
<td>Nigeria</td>
<td>7,878(180,000)</td>
<td>12,830,911</td>
</tr>
<tr>
<td>Angola</td>
<td>7,300(21,000)</td>
<td>3,144,100</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>6,294(17,000)</td>
<td>7,146,026</td>
</tr>
</tbody>
</table>

**Conclusion.** Malaria occurs more frequently in temperate and tropical regions because these places have important effects on lifecycle and survival of mosquito (specific vector), which may attempt to explain in part the high frequency in Sub-Saharan Africa occurs more.

**Keywords:** malaria, World Health Organization, Sub-Saharan Africa, Plasmodium, Female Anopheles mosquito, Africa, life cycle, temperate, tropical
AORTIC BLOOD PRESSURE AND STIFFNESS IN PREGNANT WOMEN TAKING INTO ACCOUNT BODY MASS INDEX
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Relevance: Central pressure (CP) is regarded as a more significant predictor of cardiovascular (CV) events compared with peripheral pressure. It is crucial to determine the level of CP during pregnancy, which is now estimated as a kind of diagnostic test for risk of future CV events in a woman's life.

Objective: To investigate CP in the first trimester of pregnancy taking into account body mass index (BMI).

Materials and methods. Parameters of CP and vascular stiffness were studied in 67 women (21-28 y.o) in the first trimester of pregnancy with the help of hardware-diagnostic complex BPLad Vasotens Office ("Petr Telegin", Nizhny-Novgorod). The pressure measurement results are presented as medians with 10-90 percentiles. Taking into account values of body mass index (BMI) 3 groups of patients were allocated: 1st – overweight/obese women; 2nd – normal weight women, 3rd – underweight women. Data were processed using software package "Statistica 10.0" (StatSoft Inc).

Results: Peripheral systolic and diastolic BP in the three groups were 132/87; 119/76 and 114/69 mm Hg respectively. Mean haemodynamic BP in these groups was equal to 101; 90 and 85 mm Hg respectively. Peripheral pulse pressure, in contrast, tended to decrease with increasing BMI - 36; 43; 47.5 mm Hg respectively. Indicators of vascular stiffness were also different in the selected groups. The value of propagation velocity of the reverse pulse wave was highest in the first group (11.8 m/m) compared with second (8.7 m/s) and third (of 8.45 m/s) groups. Maximum values of augmentation index (75 AiX) were in women with obesity, the lowest – in women with normal weight. As well as on the periphery such markers of CP as systolic, diastolic, mean pressure were characterized by the greatest values in women with obesity. In contrast, pulse pressure amplification (PPA) in the first group was the smallest – 137; 182; 187%, respectively.

Conclusion. A specific profile of figures – peripheral as well as central hemodynamics is associated with the body weight of pregnant women. These
data are useful to consider during antenatal management of pregnant women starting from the first trimester of pregnancy.

**Keywords**: pregnancy, obesity, vascular stiffness

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**THE IMPACT OF HUMAN AFRICAN TRYPANOSOMIASIS AND ITS REDUCTION IN SUB-SAHARAN AFRICA**

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**Introduction**: Human African trypanosomiasis (HAT) or sleeping sickness is a vector-borne parasitic disease characterized by the involvement of the central nervous system (CNS). Sleeping sickness is a fatal disease, one of the most neglected tropical diseases. Its control is hampered by the limited efficacy of diagnostic tools and the toxicity of available drugs, along with the complexity of the therapeutic management and follow-up.

**Objective**: To show the impact that HAT has had on Sub-Saharan Africa and the different strategies used in combating and reducing its effect over the years.

**Background**: African trypanosomiasis, also referred to as sleeping sickness, is an illness endemic to sub-Saharan Africa. It is caused by the flagellate protozoan *Trypanosoma brucei*, which exists in the following 2 morphologically identical subspecies:

- *T. brucei rhodesiense* (East African or Rhodesian African trypanosomiasis)
- *T. brucei gambiense* (West African or Gambian African trypanosomiasis)

Both of these parasites are transmitted to human hosts by bites of infected tsetse flies (*Glossina palpalis* for *T. brucei gambiense* and *Glossina morsitans* for *T. brucei rhodesiense*), which are found only in Africa.

**Materials and Methods**: Materials used in this study is obtained from data made available by the WHO online. The dataset consists of information on screening operations in the period 2001–2016 in regions where the WHO is fighting to eradicate the disease.
Discussions: We can see from statistical records that the fight to eradicate HAT has been slowly effective over the years and with the assistance of the WHO it is being eradicated completely.

Conclusion: Knowledge on the trypanosome itself has tremendously increased, but progress still remains to be done in HAT management. New diagnostic tests are deeply needed to ameliorate stage determination. Similar to Jamot’s postulate almost one century ago, the only possible way to eliminate the disease is to treat patients at an early stage to control the human reservoir. Therefore, transmission mechanisms have to be understood to determine where parasites hide between epidemic peaks. Sustained survey programs with both human and animal reservoir management must be implemented.

Keywords: human African trypanosomiasis, melarsoprol, meningoencephalitic stage, pentamidine isethionate, sleeping sickness, suramin, cerebrospinal fluid, eflornithine, hemolymphatic stage, trypanosoma brucei gambiense, trypanosoma brucei rhodesiense, tsetse fly.

CHRONIC HEART FAILURE AND CHRONIC KIDNEY DISEASE
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Background: Chronic heart failure and its correlation with chronic kidney disease are considered one of the most actual medical conditions in the era of modern medicine. Since cardiac diseases and their effect on other organs (especially the kidneys) is at all-time high.

Objective: To study the correlation of CHF and CKD.

Materials and methods: Examining 25 patients with CHF that developed CKD without any prior renal related diseases patients that developed chronic renal disease/failure showed worsening of their overall health and most notably a huge decrease in their expected life span in 90% of the cases to less than one year. Studying the pathophysiological development of the disease step by step showed that the same system that is supposed to protect the human body is the first reason for the high mortality rate in those patients. After examining the mi-
crocirculation in the kidneys they showed chronic adaptive changes in the blood vessels especially in the arterioles between the pyramids of the kidney which lead to CKD.

**Results:** The heart and kidneys are connected to each other through the Cardiac-Renal continuum, in addition to that they both share several etiological factors and the death risk increases exponentially when those two organs are affected together, and this is shown in the decreased estimated life span that the subjects showed.

**Conclusion:** The clear correlation between CHD and CKD is undeniable and had been documented in several cases and literature including this case. This is not only caused by the pathophysiology of both diseases but also they share some of the risk factors also.

**Keywords:** chronic heart failure, chronic kidney disease, pathophysiological, microcirculation, cardiac-renal

**Abbreviations:** CHF = chronic heart failure, CKD = chronic kidney disease

CARDIO-ANKLE VASCULAR INDEX IN FEMALE STUDENTS WHOSE MOTHERS SUFFERED FROM COMPLICATIONS DURING PREGNANCY

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**Background:** The method of determining vascular stiffness using cardio-ankle vascular index (CAVI) has unquestionable advantages in comparison with the assessment of pulse wave velocity by reason of the independence of the index from the blood pressure taken during measurement [1,2]. Data was accumulated using this index during a survey involving different groups of patients [3,4]. However, data on the application of this method in the field of maternal hemodynamics is insufficient.

**Objective:** To study the CAVI in female students born as a result of physiological and complicated pregnancies

**Material and methods:** The present study included 38 female students of the Stavropol State Medical University (between the ages of 19 and 23 y.o.) us-
ing the apparatus VaSeraVS-1500 (FUCUDA DENSHI&CO., LTD, Japan). The technology is based on phonocardiography, definition of the II heart tone and plethysmography, registered through the pulse wave on the brachial and popliteal artery on both sides and the subsequent transformative function. This approach enables the radical evaluation of a new arterial stiffness index – cardioankle vascular index CAVI - left (L) and right (R). In addition, this method allows determining the vascular age, which in turn, allows us to identify cases of premature aging of blood vessels. Two groups of observables were formed: Group 1 – girls born as a result of complicated pregnancies (16 people); Group 2 (control) – girls born as a result of physiological/normal pregnancies (22 people). The data are presented as median and percentiles (25%; 75%). Statistical processing of these data was performed using the software program "Statistica 10.0" (Stat Soft Inc, USA).

**Results:** It was found that for girls in the first group with aggravated maternal obstetric history, the R-CAVI and L-CAVI indicators were 5,9 (4,8; 6,9) and 6,2 (5,1; 7,3) respectively, while in the control group these parameters were equal to 5,4 (4,2; 6,6) and 5,6 (4,6; 7,0). But differences between the groups did not reach reliable levels. At the same time, from the 16 representatives of the first group, two cases (12,5%) of premature vascular aging were found while none of the girls in the control group showed signs of premature aging of the vascular wall.

**Conclusion:** In addition to the known risk factors affecting the elastic status of blood vessels in young people, the features of the gestational period of their lives should be added. In ascertaining the profile of cardiovascular (CV) risk factors within the framework of preventive measures among students, the specific obstetric history of their mothers should be checked. The presence of a complicated pregnancy in the mother, evidently, should be considered as an additional cardiovascular risk factor. But further studies are needed in the discussed direction.

**Keywords:** vascular index, phonocardiography, vascular aging, pregnancy, obstetric, cardio-ankle
Introduction: The technology of 3D bioprinting of biological structures is based on the principle of self-assembly of cellular structures. For this a biocompatible base is special hydrogel substrates which are able to provide stability and viability of cells is used. Clumps of living cells are superimposed on the base. Hydrogels are cross-linked polymeric meshes capable of retaining of large amounts of water. They are obtained on the basis of hydrophilic natural or synthetic polymers. The main requirements for hydrogels are high biocompatibility, adhesion, and lack of toxicity.

Objective: Development of 3D-biopressing technologies with the help of modified natural-synthetic hydrogels for the engineering design of the organs of the maxillofacial area.

Materials and methods: For the bioprinting of engineering designs of the maxillofacial area, a developed natural-synthetic hydrogel is used. It performs the function of a connective structure and a substrate consisting of chitosan and synthetics. The hydrogel with living cells is placed in cartridges (20 ml), which are inserted into the 3D printer, then the bioprinting of the engineering structure of the organ of the maxillofacial area takes place. Tissue engineering construction is placed in the bioreactor for further maturation of the organ.

Results and discussion: In this project, the frameless technology is used for bioprinting. The hydrogel is used as a base which rapidly dissolves. Then a cellular material remains from the dissolved framework. The function of the frame is taken over by the cells of an already grown organ.

Conclusion: One of the promising areas of regenerative medicine today is the research in the field of technologies of three-dimensional printing of functional organs, as well as tissue engineering structures. Polymer hydrogels are increasingly used in various fields of medicine and biotechnology due to their unique properties.

Keywords: 3D-bioprinting, natural-synthetic hydrogels.
THE STRUCTURE OF WOMEN'S INFERTILITY
ACCORDING TO DATA “DOCTOR KIT” CLINIC
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Background: The deterioration in the reproductive health of the population is reflected in the offspring and the viability of generations. As a result, the infertility becomes an important medical and social problem.

Objective: To study the structure of infertility on the basis of the "Doctor KIT" clinic. To characterize this problem from the medical-social and clinical positions.

Materials and methods: The base of research – "Doctor KIT" clinic in Stavropol. The work was carried out with archival data for 2017. A total of 50 medical records were processed.

Results and discussion: A low level of examination of the husbands of patients has been identified by doing this work which does not allow to exclude male factor of infertility, therefore it is necessary to conduct a survey of both spouses. Also, in order to reduce female infertility, the extensive informing among adolescents is needed, since the early onset of sexual activity was noted in 40% of cases.

A group of high risk is made up of patients with a history of obstetrical gynecological anamnesis. Particular attention should be paid to the presence of premature birth and miscarriage.

It is necessary to conduct a comprehensive examination, as all patients experienced extragenital pathology, which may have an adverse effect on the results of the treatment. Separately it is worth noting that the frequent cause of infertility are endocrine disorders, in particular the presence of obesity. It turned out that excess weight of the body takes place in every 4 patients.

To detect an increased risk of secondary infertility, it is necessary to take into account the presence of the following factors: the presence of endometriosis, uterine myomas, inflammatory diseases of the pelvic organs (according to ultrasound data); infections transmitted by the sex route.

Conclusion: According to the study, risk factors can also be attributed to previous gynecological operations, which were detected in more than half of the cases.
Thus, in order to maintain reproductive health, it is necessary to improve the quality of medical examinations and the qualified treatment of diseases of the reproductive system.

**Keywords:** structure of infertility, risk groups, reproduction.

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**EFFICIENCY INCREASE OF ORTHOPEDIC TREATMENT OF DENTITION DEFECTS BASED ON IMPLANTS**

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**Introduction.** Conditionally removable prostheses must be screwed to the implant or abutment with a screw, the remaining shaft must be covered with a composite material, the protocol for installing a composite seal is very difficult, due to the fact that the shaft has ceramic and metal parts.

**Objective:** To compare the characteristics of composite materials used when closing a shaft of a conditionally removable prostheses based on implants.

**Materials and methods.** To carry out the experimental part of the study, we took a metal plate with 19 perforations imitating the shafts of the screws, the metal plate was coated with a ceramic mass of Noritas, 8 holes in the plate were filled with a fluid-flow composite Diamond BriteA3, and 11 mini-filled with composite material of Prismafil third generation, 2.8-3.2 um, the composite was then applied to the dried surface of the ceramic mass, starting from the edge to the center, preliminary preparation of the ceramic mass was not carried out, the polymerization of each level took 20 seconds, after the experimental plate was placed in a Petri dish with a 2% solution of methylene blue to the level of metal-porcelain, Then the results of the study were evaluated by visualizing the infiltration of methylene blue at the junctions of the compositions and porcelain in improvised shafts, and documented by photographing, results were evaluated every 7 days for 3 months.

**Results and discussion.** The liquid-flow composite gave micro-leakage in 1 out of 8 cases, 12.5%. Methylene blue began to seep through the usual composite in 9 out of 11 cases 81.8% on the basis of the data given, we can say that the use of liquid-flow composites for sealing the shafts of the crowns implants are
more effective due to their consistency high elasticity and thixotropy with ability to spread over the surface penetrating into hard to reach areas, as the elasticity ensures the stability of the restoration.

**Conclusions.** Liquid flow composites improve the quality of treatment for patients who have conditionally removable prostheses based on implants, as they tightly seal the shaft in a denture.

**Keywords:** conditionally removable prosthesis, implant, composite

**EVALUATION OF MORPHOLOGICAL AND FUNCTIONAL CHANGES OF THE MUSCULOSKELETAL SYSTEM AFTER THE INTERDISCIPLINARY TREATMENT OF SAGITTAL ANOMALIES OF OCCLUSION**

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**Introduction.** Nowadays, a serious socio-educational problem is a sedentary and rather static lifestyle that many young people lead in a period of active growth, which determines and (or) aggravates the postural problems specific for some form of occlusion anomaly.

**Objective.** Improvement of treatment and diagnostics methods of patients with combined occlusive and postural pathology.

**Materials and methods.** In the course of the work, the following results of the study were personally received by the authors: 1) 110 patients aged 15 to 25 years were clinically and biometrically examined; 2) 110 X-rays of the spinal column and feet were analyzed; 3) fixed 110 individual records of movements of the lower jaw; 4) 110 electromyographic studies were carried out.

**Results and discussion.** During dental examination, neutral occlusion was diagnosed in 35%; distal occlusion in 12.5%; deep incisal occlusion in 20%; deep incisive disoclusion in 5.5%; cross-occlusion in 14%; mesial occlusion in 8% and vertical incisive disoclusion in 5.5% of the respondents. Scoliosis was confirmed in 100% of patients: in 76% – right-sided unfixed scoliosis, in 24% – left-sided unfixed scoliosis. Platypodia was not confirmed in only 16% of patients; in 24% – longitudinal platypodia of the right foot of the 1st degree; in 60% – longitudinal platypodia of the right foot of the 2nd degree. Graphs of mo-
tion of the condyles during the "Function analysis" test were asymmetric and asynchronous in 100% of patients. Electromyographically diagnosed volleys of spontaneous activity in the actual chewing and temporal muscles.

Conclusions. The restoration of the morpho-functional optimum and the stability of the positive clinical result were the result of an algorithm that included general orthopedic and orthodontic techniques for the effective reconstruction and retention of physiological occlusion and postures.

Keywords: occlusion anomalies, posture, radiography, electromyography, ARCUS-DIGMA, T-Scan

THE ANALYSIS OF THE RESULTS OF HETEROTOPIC IMPLANTATION OF EXTRACELLULAR COLLAGEN MATRIX

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Objective: To present the results of experiments on the free transplantation of xenogeneic membrane for guided bone regeneration. Based on the results of the research these membranes can be recommended for further study in experiments on large animals in orthotopic implantation.

Materials and methods: A widely used bioresorbable collagen membrane bioPLATE MEMBRANE Barrier (manufacturer of Cardioplant LLC) and an experimental medical product for soft tissues reconstructing - membrane "bioPLATE MEMBRANE».

The study uses a model of heterotopic implantation, widely used to evaluate the biocompatible properties of medical devices, the rate of bio-integration and biodegradation of materials, and the study of tissue response to the implant. Before the implantation, all the test samples measuring 1x1 cm were packed in gas-permeable bags and sterilized with ethylene oxide.

The research was carried out on the basis of LLC "Center for Preclinical Research", Penza. In the experiment participated 20 males of white outbred rats aged 4-5 months weighing 200-250g.

Conclusion: As evidenced by the results of the study, fibrous granulation tissue showed more effective biodegradation in comparison with the standard
collagen membrane due to directed biointegration. The findings indicate the prospects of using extracellular collagen matrix and medical products on its basis for the regeneration of soft tissues. The membrane developed on the basis of the extracellular collagen matrix can be recommended for pre-clinical studies in large animals under conditions of orthotopic implantation.

**Keywords**: soft tissue augmentation, membrane, osteogenesis, guided tissue regeneration, proliferative activity.

**MATRIX METALLOPROTEINASES-1, -9 AND TISSUE INHIBITOR OF MATRIX METALLOPROTEINASE-1 IN PATIENTS WITH CONNECTIVE TISSUE DYSPLASIA**

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**Introduction.** Connective tissue dysplasia (CTD) is characterized by impaired synthesis or disruption of extracellular matrix components of connective tissue.

Matrix metalloproteinases MMP play a key role in processes of splitting of extracellular matrix components, degradation of basal membranes and a number of cell surface proteins, the study of MMP and their inhibitors in patients with CTD can be an important to assess the risk of dysplastic manifestations and associated with dysplasia complications.

**Objective**: to determine the level of serum MMP-1 MMP-9 together with tissue inhibitor of matrix metalloproteinase TIMP-1 in patients with CTD.

**Material and methods.** Serum levels of MMP-1, MMP-9 and TIMP-1 were studied in 82 patients, 64 were males and 18 females aged between 21 and 47 years with CTD, the following syndromes and phenotypes were diagnosed in the structure of CTD, the mitral valve prolapse syndrome n=63 marfanoid appearance n=2, unclassified phenotype n=3, with increased dysplastic stigmatization n=14, this control group consisted of 15 healthy people without CTD and comparable by sex and age, Concentrations of MMP-1, MMP-9, and TIMP-1 in serum were determined by ELISA method BioChemMak from China, the data presented Me 25; 75 % or M±SD Mann-Whitney criteria where
Student's t-test were applied, differences were considered to be significant in p<0.05.

**Results and discussion.** Serum concentrations of MMP-1 (2.05 (1.18; 3.61) ng/ml) and MMP-9 (827.83±303.36 ng/ml) were significantly higher in patients with CTD than in healthy patients with (1.34 (1.18; 1.38) ng/ml and 385.87±43.34 ng/ml, respectively; p<0.05), the concentration of TIMP-1 in case of CTD was not significantly different from the control (615,45±281,35 vs 710,80±199,24 ng/ml; p>0.05). Ratios of MMP-1/TIMP-1 and MMP-9/TIMP-1 which were increased in patients with CTD compared to healthy ones with (p<0.05), this data show the imbalance in synthesis and utilization of collagen.

**Conclusion.** Serum levels of MMP-1, MMP-9, and TIMP-1 can be used as laboratory tests to assess metabolic disorders of connective tissue and taken into account in formation of risk groups for progression of dysplastic-dependent changes.

**Keywords:** connective tissue dysplasia, matrix metalloproteinases, tissue inhibitor of matrix metalloproteinase.

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**THE PRINCIPLES OF CREATING A RESORBABLE SCAFFOLD FOR RECONSTRUCTION OF THE JAW BONE BASED ON POLYMER COMPOUNDS**

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**Background:** Scaffolds are three-dimensional porous or fibrous matrices, the main function of which is to provide a mechanical framework for cells. Scaffolds should have the following properties: the presence of adhesive surface promoting cell proliferation and cell differentiation; biocompatibility and non-immunologic rejection; non-toxicity; biodegradation, the rate which corresponds to the growth of your own tissue; the optimal pore size for the spatial distribution of cells, vascularization, as well as the diffusion of nutrients and ability to remove the waste products.

**Objective:** to analyze the principles of resorbed scaffolds creation for reconstruction of jaw bones based on polymer compounds.
Materials and methods: At present, the most common polymeric compounds used in tissue engineering to create bioresorbable scaffolds are poly-caprolactone, acid, hydrogel, hyaluronic acid and chondroitinsulfate.

Results: According to the study of the resorbable scaffolds morphology based on polymer compounds using electron microscopy, it was identified the most promising application of hydrogel in combination with chondroitinsulfate and hyaluronic acid as the basis of a bioresorbable scaffold for the reconstruction of defects of the maxillofacial region. The results of the research provide the basis for the study of biocompatibility of scaffolds based on Invitro polymer compounds.

Conclusion: Restoration of the maxillofacial area bone tissue in case of its damage is a special task in medicine and tissue engineering. Complex polyesters of different structure attract attention as materials for creation of bioresorbable scaffolds, possessing high biocompatibility and biodegradation through the mechanism of macromolecular chain biodegradation.

Keywords: Resorbed scaffolds, polymer compounds.

OPPORTUNITIES OF CONE-BEAM COMPUTED TOMOGRAPHY IN THE TREATMENT OF ODONTOGENIC FOCI OF DESTRUCTION OF THE JAW BONES.
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Background: Cone-beam computed tomography is more informative in the diagnosis and evaluation of periapical lesions than two-dimensional radiography. Periapical destruction of bone tissue can be identified using the CCP in the earlier stages of the disease. Cone - beam computed tomography can be a useful in making the diagnosis of periapical odontogenic lesions in situations where clinical signs and symptoms and conventional radiographic data were inconclusive. Monitoring of the treatment results of destructive odontogenic processes of the maxillofacial region is of great importance.
Objective: The purpose of our study was to analyze the effectiveness of using of the programs KLKT to assess odontogenic foci of destruction of the jaw bone tissue of the.

Materials and methods: We analyzed more than 100 results of CLCT in patients with various forms of chronic destructive process of periapical lesions both at the stage of diagnosis and at the stage of monitoring the results of treatment. We used such methods of examination as CBCT, and sighting and survey radiographs. CBCT was performed with the apparatus PaX-i3D, FOV 10X8.5, with the data processing programs EzDent-i and EZ3D-i.

Results and discussion: The method of Cone-beam computed tomography allows to estimate the true size of destruction in all planes, to estimate the volume of destruction of the walls of the tooth cavity at all levels, to measure the density of the lesion, to carry out differential diagnosis and monitoring of treatment results.

Conclusion: Cone-beam computed tomography in dentistry is gradually becoming an integral standard in the preparation of the treatment plan and treatment itself. It is recommended for patients with destructive processes in the oral and maxillofacial region.

Keyword: Cone-beam computed tomography, lesion, maxillofacial region.

DNA DIAGNOSTICS FOR CONTROLLING THE RECESSIVE GENE-CVM IN ANIMALS

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Background: Genetic improvement of breeds of farm animals provides the international exchange of a gene pool for the purpose of use of the best world selection achievements. Design and development of systems of DNA identification of animals (carriers of mutant alleles) are necessary for the elimination of recessive hereditary anomalies in populations of farm animals. Currently, in cattle it is known and described more than 200 genetic disorders, anomalies of different systems and organs, most of which are inherited in a recessive pattern.

Complex vertebral malformation or CVM (a lethal hereditary syndrome), causing the ugliness calves: short neck, scoliosis, joint deformities, wrong head
shape. Calves have low birth weight, a lot of deformities in the spine, heart defects. CVM syndrome affects embryonic development, the cause of frequent abortions and stillbirths.

A high percentage of covert CVM carriers in livestock abroad threaten the spread of this genetic defect in Russia. There is no certainty that the animals are hidden carriers of the syndrome and currently do not continue to be imported into our country. Diagnosis based on visual examination of the calf is often not effective because of the wide variety in the expression of anomalies, the diagnosis requires DNA analysis.

**Objective:** development of a technique of DNA amplification with subsequent typing of experimental animals CVM gene.

**Materials and methods:** DNA samples isolated from blood of cows. The selection of the biomaterial was carried out individually for each animal from the jugular vein with vacuum system VACUUM. DNA diagnosis was carried out in the PCR-office. From the blood samples DNA was isolated using a set of reagents DIArom DNA Prep and, with the subsequent typing of the gene and detection of the results by electrophoresis.

**Result and discussion:** As a result of screening, the absence of genetic anomalies in the gene locus-CVM in the studied animals was found.

**Conclusion:** The use of DNA diagnostics to control and reduce the spread of hereditary genetic defects of the CVM gene in livestock breeding populations testifies to the effectiveness of this method.

**Keywords:** DNA diagnostics, anomaly of development, CVM gene.

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**THE EFFECT OF STRESS ON BLOOD PRESSURE, HEART RATE AND RESPIRATORY RATE IN STUDENTS**

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**Background:** Most frequently blood pressure, respiratory rate and heart rate change occur in a stressful situation. This is due to the stress hormones – adrenalin and cortisone, which are released into the blood stream, and sympathetic response leading to increase blood flow to brain and heart for alertness.
**Objective:** To evaluate the changes of blood pressure, heart rate and respiratory rate in students on the day of examination and a week after the examination.

**Materials and Methods:** We measured blood pressure, respiratory rate and heart rate in 18 second and fourth year students of Stavropol State Medical University on the day of their exam and a week after it. Physiological questions were also given to them to understand their motivation for studying.

To measure the blood pressure, we used professional sphygmomanometer, the measurement of the heart rate was done on the radial artery, measuring the number of beats per minute using a stopwatch and the respiratory rate was measured by the number of ups and downs of the chest per minute using a stopwatch.

**Results and discussion:** Out of 18 students examined 16 students (88.89%) had an increase in their blood pressure on the day of examination. 2 students who did not have any increase were the 4th-year students. It was the most probable due to the fact that they have been adopted to the system better. 94% of students had an increase in their heart rate on the day of exam and 18 students (100%) had an increase in respiratory rate on the examination day. In all students who had an increase, the parameters returned back to normal when it was measured again a week later.

According to the given physiological questionnaire, the 2nd-year students aimed to achieve teachers respect in their study unlike the 4th-year students. 83.3% of students study to become highly skilled specialists, 77.78% study to get a diploma. These were the major factors that influenced the increase in the parameters measured.

**Conclusion:** Based on this survey, it was discovered that there is a notable increase in the parameters of blood pressure, heart rate, respiratory rate when students are subjected to stressful situations like examination; the revealed increase depended on the motivation to study.

**Keywords:** blood pressure, heart rate, respiratory rate, motivation.
ANEMIC SYNDROME IN PATIENTS WITH ISCHEMIC HEART DISEASE
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Background. Anemic syndrome is a frequent companion of coronary heart disease (CHD). The essential importance of anemia as a risk factor for unfavorable prognosis in patients with IHD with the presence of chronic heart failure (CHF) is established.

Objective: The purpose of the study is to study the prevalence and causes of anemic syndrome in patients with IHD, depending on sex, age, and the presence of CHF.

Materials and methods: The study included 106 IHD patients (25 women and 81 men, mean age 60 ± 6.3 years). Anemia was diagnosed according to WHO recommendations. All examined women were in menopause. The functional class (FC) of CHF was determined according to the recommendations of GVNO and OSSN (2009). In addition to standard analyses, all patients underwent electrocardiography, chest X-ray, echocardiography, 24-hour ECG monitoring, coronary angiography; gastroscopy, ultrasound examination of the abdominal cavity organs, kidneys, pelvic organs. The consultations of narrow specialists were performed according to indications. For statistical processing of the material, a computer program of statistical analysis "SPSS" was used.

Results: The group of examined patients included 63 patients (59%) with unstable angina (NS) and 43 patients (41%) with acute myocardial infarction (AMI). The mean value of hemoglobin (Hb) of the examined patients was 140.5 ± 17.3 g/l. Anemic syndrome was revealed in 14 patients with IHD (13.2%). In 12 patients (85.7%), anemia of mild degree was diagnosed (Hb 90-119 g/l), in 14.3% of cases - anemia of moderate severity (Hb 70-89 g/l). More often anemia was established in women – in 20% of cases, in men anemia was established in 11.1% of cases (p <0.05). The vast majority of patients with anemic syndrome had concomitant arterial hypertension (78.6%), 100% of CHD patients with anemia had chronic heart failure. Hyperchromic (B12-deficiency anemia) was diagnosed in 14.3% of patients with IHD, iron deficiency anemia in 28.5%, iron-redistributive anemia (anemia of chronic diseases) was significantly more frequent in the majority of patients (42.8%), in
14.3% patients with genesis of anemia have not been established. There were no significant differences in the incidence of anemia in patients with IHD with UA and MI (p > 0.05). In patients elder than 60 years, anemia was significantly more frequent. Patients with IHD with FC III CHF had significantly lower values of hemoglobin in comparison with patients with CHF FCI and FCII.

**Conclusion:** Anemic syndrome often accompanies ischemic heart disease, prevalent in females and in the elder age group, most often anemia in patients with IHD is iron-redistributive.

**Keywords:** anemic syndrome, ischemic heart disease, chronic heart failure, unstable angina, acute myocardial infarction.

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**MODERN TREATMENTS OF BURNS**  
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**Background:** During the past years significant advances have been made in the treatment of burns. Modern concepts of therapy are based on a more thorough understanding of the physiological derangements that occur after burning. Also the complications arising from burn is one of the major issue we are facing due to lack of awareness and knowledge.

**Objective:** In this research we are going to draw out the modern ways of approach to burns treatment, so as to reduce the mortality and morbidity. In addition we are going to discuss about the steps to be taken to prevent the emergence of complications in burn patients.

**Results:** The choice of treatment depends upon the magnitude of injury. Also on the injury extend basis we categorise patients into three groups: first degree, second degree and third degree. Determination of the extend of burn by calculating the surface area involved has a major role in choosing the treatment to be aided to the patient. And the modern popular way of treatment for burns include plastic reconstructive surgery (skin grafting) along with fulminant resuscitation for enhanced healing in burn tissues. And the post-operative care is the most important part which helps for a better cure.
Conclusion: Burn patient should be given all the priorities like a trauma patient. First of all follow the ABCDs of trauma patient and ensure further hospital care after estimating the severity of burn undergone and provide the patient good care to eliminate the secondary complications from burns. Hence modern treatment is having better healing rate and cure as compared to the traditional treatments.

Keywords: Burns, magnitude of injury, plastic reconstructive surgery or skin graft, post-operative care.

CHRONIC OBSTRUCTIVE PULMONARY DISEASES (COPD)
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Introduction: COPD is one of the common pathologies of lung that makes respiration difficult and it is the fourth most common cause of mortality all over the world and is expected to be the third most common cause of death by 2020. Better awareness, treatment and prevention has the potential to improve the quality of life. In the modern world, increasing number of patients have been diagnosed with COPD because of the adoption of unhealthy lifestyle and the occupational surroundings they are exposed to.

Objective: in this research we are going to discuss the possible ways through which we could reduce the chances of getting COPD, early diagnosis and a better treatment. In addition to this we are also going to point out what lifestyle changes should be adopted for enhancing the quality of life.

Results and discussion: COPD is a condition characterized by irreversible airway obstruction due to narrowing of small airways, bronchiolitis and destruction of lung parenchyma, emphysema. The main cause of COPD is smoking but other exposures may be of importance. Exposure to the casual factors leads to airway inflammation of variety of cells. Besides neutrophil, granulocytes, macrophages and lymphocytes, airway epithelial cells also hold importance in the inflammatory process and development of emphysema.

Conclusion: Recently systemic effects of COPD have attracted the attention and importance of systemic inflammation has been recognized. This seems to have direct therapeutic implications as treatment with inhaled gluco-
corticosteroids has been shown to influence mortality. The increasing body of knowledge regarding the inflammatory mechanism in COPD will most likely have implications for future therapy and new drugs, specifically aimed at interaction with inflammatory processes are currently being developed.

**Keywords:** COPD, bronchiolitis, emphysema, gluco-corticosteroids, therapy

**INCAPSULATION OF LOW-MOLECULAR PLACENTARY PEPTIDES IN NANONIOSOMES FOR SKIN REGENERATION**

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**Background.** The appearance of skin depends on the common condition of the organism and the adaptation opportunities to environmental conditions. Biological process of aging of skin is the adaptation of the organism to the conditions of its existence changing in time. In esthetic medicine it is relevant to influence the skin by the peptide bioregulators. Low-molecular placentary peptides contain the growth factors for keratinocytes and cytokines and give the chance not only to epithelize defects of skin, but also to prevent aging of the skin. Incapsulation in nanocontainers prolongs action of peptides.

**Objective:** the development of the niosomal medicines on the basis of placentary peptides and studying their regenerative effectiveness.

Low-molecular placentary peptides were received and encapsulated in organic silicon niosome based on the original technology developed by professor I. Bazikov. The influence of the peptides allocated from placentary fabric of animal origin on the development of skin explants in the organotipic culture of fabrics were studied.

Increase in a zone of body height of explants in the culture of fabrics, with strengthening of a proliferation of cells of skin is shown. Need of use of encapsulated placentary peptides for esthetic medicine for the purpose of preventing age involute changes of skin is proved.

**Conclusion:** Thus, the expediency of inclusion of peptides in structure of the niosomal cosmetics intended for skin aging delay is proved.

**Keywords:** niosome, peptides, skin regeneration, cosmetics.
FEATURES OF LYMPHOCYTIC INFILTRATION OF THYROID GLAND AT FOCAL AND AUTOIMMUNE THYROIDITIS

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The paper presents a morphological study of lymphoid cell infiltration in patients with autoimmune and focal thyroiditis, the comparative characteristic is carried out. The study was performed on the basis of medical history and surgical specimens obtained from 72 patients with histologically verified diagnosis – autoimmune thyroiditis and 54 patients – focal thyroiditis against various thyroid abnormalities. It was found out that at autoimmune thyroiditis the lymphoplasmacytic infiltrate can form lymphoid follicles with the breeding enters and the lymphoplasmacytic infiltrate located in the stroma as well as in the parenchyma tissue of the thyroid gland and consists of a T-helper and B lymphocytes and to a lesser extent represented the T-suppressors. Focal thyroiditis is characterized by formation of lymphoid infiltrate occupying less than 10 % of the area of microscope slide, located mainly in the stroma of the body without forming large lymphoid follicles with breeding centres. The composition of infiltrate includes equal parts of T-helper cells, T suppressor and insignificant amount of B-lymphocytes.

Keywords: autoimmune thyroiditis, focal thyroiditis, B-lymphocytes, T-lymphocytes, immunohistochemistry.

HYSTEROSCOPY AS A STANDARD DIAGNOSTIC PROCEDURE FOR SUBMUCOSAL MYOMAS IN WOMEN OF REPRODUCTIVE PERIOD

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Background: Uterine myomas are a common benign disease of the uterus with prevalence of 8-18%. Submucosal myomas are associated with infertility and are most commonly seen in women of reproductive period. Submucosal
myomas are also one of the most common reasons associated with menstrual disorders. In the recent years hysteroscopy is considered as standard diagnostic procedure for submucosal myomas. Hysteroscopy is performed not only for diagnosing submucosal myomas but also estimating its size and complexity.

**Objective:** The aim of our research was to conduct and review details of presence of submucosal myomas on hysteroscopy examination in women of reproductive period and compare the results of hysteroscopy with the results of ultrasound examination of lower abdomen.

**Materials and methods:** 20 women of age 28 years and above, mean age 34.16±2.57, who were admitted in gynecological department of City hospital for emergency medical services, Stavropol, diagnosed with submucosal myomas were examined. All the patients were undergone ultrasound of pelvic organs and hysteroscopy. On ultrasound examination submucosal location of myomas were detected and were confirmed on hysteroscopy. Students’ T-test was used for statistical calculations of the obtained data. Results were found significant with p<0.05.

**Results and discussion:** In our research, presence of submucosal myomas was confirmed and coincided with the results of hysteroscopic examination. Mean number of submucosal myomas according with the results of hysteroscopy were significantly higher (p<0.05) than that of the ultrasound examination. Mean size of the observed myomas was found significantly higher (p<0.05) than that of the results found on ultrasound examination of uterus. Menstrual bleeding, pain and lower abdominal discomfort does not correlate with the changes in resulting number and sizes of submucosal myomas accordingly with ultrasound and hysteroscopy.

**Conclusion:** In the observed women, number and size of submucosal myomas were detected prominently higher in hysteroscopy than that of the ultrasound examination results, revealing the significance of hysteroscopy on ultrasound for diagnosing submucosal myomas in women of reproductive period.

**Keywords:** Hysteroscopy, submucosal myomas, ultrasound, reproductive period.
THE USE OF 3D TECHNOLOGIES FOR THE DENTAL SURGEONS TRAINING UNDER THE PROGRAM "DENTAL IMPLANTOLOGY"

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Introduction. Restoration of defects in the maxillofacial area is an actual problem of modern dentistry. Today, 3D technologies allow completely eliminate manual labor and the need to make drawings and calculations on paper. The software allows you to see the model in all angles on the screen and eliminate the identified shortcomings.

In recent years, 3D printing has continued to evolve. For 3D printing, you can use more than one hundred kinds of raw materials. The demand for similar individual products is still growing.

Objective: to create a simulation method for installing dental implants using 3D technology.

Materials and methods. In this simulation technique we used: the PaXi3D CCDT device with a FOV 10X8.5 (12X9) sensor with Ez3D-I software, the Avantis 3D implant treatment planning program, the 3D 3Dison Multi printer, the extraoral 3D scanner. For diagnosis, specialized programs that process cone-beam computed tomography (CBCT) data were used.

Result of the study: for the simulation of the process, the patient's data were used for 48 years. Diagnosis: partial loss of teeth, terminal defect of the lower jaw on the left. Treatment plan: installation of implants in the area of the teeth 3.6, 3.7.

A computed tomography of the jaw bones was carried out, impressions of the mandible and antagonists were obtained, plaster models were made on the prints, the last ones were scanned. With the help of the planning program, implants are virtually installed, 3D reconstruction of the image of the jaws is made, a template is designed. The jaw model and template are printed on 3D scanners. The installation of implants into the plastic model was carried out according to the template in accordance with the adopted protocol.

Conclusion. This method of simulation of implant treatment has demonstrated a good visualization of the anatomical features of the implant placement.
area as well as the possibility for the surgeon to study carefully the intervention area before the operation and simulate the intervention in the conditions of the patient's real anatomy.

**Keywords:** implants, 3D technology, simulation, software, dental implantology.

**STRUCTURAL AND FUNCTIONAL ORGANIZATION OF THE HEART’S ARTERIES**

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**Background:** Over the years, the scientific and medical communities study the heart vessels structure. The given research can help to learn a principle of work of cardiovascular system, the reasons of pathologies and to find ways of treatment.

**Objective:** to study the structural and functional organization of the arteries of the heart.

**Materials and methods:** the study of Russian sources of literature, histological preparations.

**Results and discussions:** The heart and blood vessels belong to systems that function not periodically but permanently, therefore more often, than other systems are subjected to pathological processes.

The coronary arteries extend from the aorta. Aorta refers to the elastic-type arteries. The coronary arteries have a dense elastic frame, in which the inner and outer elastic membranes are clearly distinguished. Smooth muscle cells in the arteries are detected as longitudinal bundles in the inner and outer shells. At the base of the heart valves, the blood vessels at the place of attachment of the folds branch out into capillaries. Blood from capillaries is collected in the coronary veins, flowing into the right atrium or venous sinus. Conducting system is copiously supplied with blood vessels.

Closing arteries. The existence and development of the closing arteries in the heart with congenital defects with their sharp hemodynamic disorders plays an important role in the regulation of the venous circulation of the faulty heart because with a stagnant full blood the excess blood can be removed from the
myocardium by contraction of the powerful walls of the closing arteries through the mouths of the tebesian vessels directly in the cavity of the heart.

According to the A.V. Ryvkind (1948 — 1959) works it is known that in a wall of the closing artery there is a layer of muscles which is completely able to narrow a vessel gleam at contraction. The closing arteries are finely specialized parts of the arterial system, included along the arteries of the muscular type, and communicate with nearby veins, forming arterio-venous anastomoses. The role of the closing arteries in regulation of local blood circulation is undoubted.

**Conclusion.** The modern science is faced the major task of studying the heart vessels structure. Knowledge of a wall structure of various vessels and heart is necessary for understanding of cardiovascular system functions and possible damages at diseases. This knowledge is also necessary for understanding the hemodynamic features of the cardiovascular system of different ages.

**Keywords:** the heart, coronary arteries, closing arteries.

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**THE DEVELOPMENT OF THE WOUND-HEALING GEL "REGENERIN" WITH THE USE OF ORGANOSILICON NANO VESICLE**

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**Background:** A new technology is the creation of transdermal drugs obtained by encapsulating biologically active substances in nanovezicles. This approach will fundamentally change the properties of drugs: make them more effective, influence the mode of their use, give them targetedness and reduce known side effects. The organosilicon microcapsules have the advantage. The organosilicon microcapsules consist of two parts: PEG-12 and Dimethicone. PEG-12 (polyetheline glycol) is a water soluble part and Dimethicone is a fat-soluble part. Due to this structure, microcapsules are easily formed when shaken. The organic part provides biodegradable properties. The reactive sites of these microcapsules allow for targeted interstitial delivery of peptides.
Objective: to study the regenerating properties of the healing gel "Regenerin" in the postoperative period in patients undergoing by dental surgical treatment.

Materials and methods: The current direction in the treatment of lesions of the oral mucosa and marginal periodontium is the development of a dental gel with a regenerating effect. Encapsulated forms containing low molecular weight peptides have a more pronounced effect than native compositions for external use in dental practice.

Results: preliminary studies of the regenerating capacity of isolated low molecular weight peptides microencapsulated in nanoscale silicones showed their high regenerative activity when applied externally for the epithelization of the oral mucosa (10 days after the start of treatment). When carrying out plastic surgery using a connective tissue transplant, the scar under the influence of "Regenerin" on the wound is formed much earlier and its consistency is much softer.

Conclusion: Thus, the effect of the wound healing gel "Regenerin" on the oral mucosa showed that the healing of wounds with the use of a preparation based on nanovesicles of organosilicon nature is more active and prevents complications in their flow.

Keywords: odontogenic infections, soft tissue infections, regenerating properties, wound healing, organosilicon Nano vesicle.

GASTRITIS
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Background: Gastritis is a very common disease. It is an inflammation of gastric mucosa. This study aims to document the etiology, symptoms, diagnosis, treatment, prophylaxis.

Objective: The research includes a comparison of diseases causing factors in India and Russia

Methods: Diagnostic methods include Endoscopy, Stomach bioscopy, X-ray.
Results: (A) Upper gastrointestinal (UGI) endoscopy enables physicians to estimate the secreting ability of gastric mucosa and gastric cancer risk based on the findings of the background gastric mucosa. Endoscopic findings of the background gastric mucosa are important in the Helicobacter pylori - sero prevalent population. (B) Microscopic examination of gastric biopsy specimens, in addition to H. pylori status, provides information about the grade, extent, and topography of gastritis-related and atrophy-related lesions in the stomach. (C) Radiological examination of the stomach was important to determine the condition of the relief of the mucous membrane in gastritis. (D) After research we analyzed the prominent factors causing Gastritis in India and Russia.

Conclusion: This study enabled us to know various causes, consequences which lead to gastritis. It helped us to promote awareness to prevent such diseases by studying the etiology, symptoms, treatment and prophylaxis. Gastritis is a set of conditions that inflame the stomach lining. Gastritis can be caused by drinking too much alcohol, prolonged use of nonsteroid anti-inflammatory drugs (NSAID) such as aspirin or ibuprofen, or bacterial infection, such as Helicobacter pylori (H. pylori).

Gastritis can develop from autoimmune disorders (such as AIDS), bile reflux, burns, injury, general surgery, pernicious anemia (from vitamin B12 deficiency), severe infection or trauma. The most common symptoms of gastritis include abdominal bloating, pain or upset, belching, bloody stool, burning in the upper abdomen, fullness, nausea and/or vomiting.

Keywords: Gastritis, Endoscopy, H. Pylori, Biopsy.

MODERN METHODS OF TREATMENT OF BACTERIAL VAGINOSIS

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Background. Bacterial vaginosis (BV) is a condition in which the normal vaginal microflora, represented mainly by lactobacilli, is replaced by numerous anaerobic and other opportunistic pathogens. The relationship of dysbiosis with complications such as rupture of membranes, premature birth, infection of the chorion, amnion, amniotic fluid, intrauterine fetal death is established. This sug-
gests the need for screening BV and its treatment before pregnancy. One of the main problems of patients with BV is an increase in susceptibility to other sexually transmitted infections. In studies, the relationship between BV and HIV has been proven. In the absence of lactobacilli in the microflora of the vagina, the risk of contracting HIV infection increases by 2-3.7 times, the risk of infection with gonorrhea is 1.7 times, the susceptibility to the herpesvirus type II virus is increased by 2.1 times.

**Objective:** to analyze the effectiveness of various methods of treatment of BV.

**Methods.** A retrospective analysis of 50 outpatient cards was conducted.

**Results:** Patients were divided into 2 groups. The first group included patients who received monotherapy with antibacterial agents (metronidazole, clindamycin), in the second group, patients were waxed with subsequent intravaginal application of probiotics (Acilact, Lactozainal) or acidifying agents (ascorbic acid – Vaginorm C, which creates a favorable environment for the growth of lactobacilli). At the end of the first month, the cure rate was 64% in the group of patients receiving probiotics and 78% in the group without prescribing probiotics; the differences did not reach statistical significance. After 6 months, the cure rate was 65% in the probiotic group and 35% in the placebo group (statistically significant).

**Conclusion.** Modern tactics of treatment of BV are based on the use of antibiotics, which allow achieving high efficacy, but the frequency of relapse with antibiotic therapy exceeds 50%. This suggests the need to prevent recurrence of BV agents that stimulate the colonization of the vaginal mucosa with lactobacilli. Thus, the use of antibiotic-probiotic schemes or an antibiotic-acidifying agent for the treatment and prevention of relapses of BV may be justifiable.

**WISDOM TOOTH**

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**Introduction:** The third molar (wisdom tooth) is the eighth tooth in the dentition, the eruption of which occurs after the other teeth, approximately to 20-30 years of age. Despite the fact that wisdom teeth erupt later than all others, their service life is relatively small. This is explained by the fact that it is very
difficult to clean them, since they grow in hard-to-reach places of the oral cavity. If, in addition, they are located with a deflection to the cheek or to the tongue, its lateral surface cannot be completely cleaned of plaque or stone. That's why these teeth quickly deteriorate and begin to hurt.

**Objective:** to study the evidences of patients about the presence and absence of rudiments of eighth molars, and also to examine whether there are any erupting wisdom teeth. To understand, whether the eighth erupted tooth disturbed the normal life of the patient.

**Materials and methods:** In the study group of 100 people among second-year students of the Stavropol State Medical University (further StSMU) at the age of 19-21, a survey was conducted: are there any erupting wisdom teeth? Are there any rudiments of the third molars? In the absence of rudiments: on what jaw is there no rudiments of eighth molars? Is there discomfort in everyday life in the presence of wisdom teeth?

**Results and discussion:** When conducting a survey of students of the StSMU it was revealed that 75% of the patients had a third molar eruption, while 5% of the respondents had no rudiments of the eighth molars, among them 3% of the girls lacked the rudiments of the lower eighth molars, and 2% of the males had the upper molars. Among 75% of patients who had an eruption of eighth molars, 70% showed destruction of these teeth, damage to a number of adjacent teeth, as well as the presence of a pocket. According to statistics, in 78% of cases, eruption of wisdom teeth is associated with various complications, which include abnormal bite, destruction of a number of seventh molars and others.

**Conclusions:** Based on the analysis of the obtained results of the study, it is necessary to follow the correct hygiene at the initial stages of teething. In the case that there is not enough place for eighth molars erupting in the oral cavity, they must be removed immediately. To monitor the formation of the root of the eighth molars should be started early as 17-18 years, as indicated by the orthodontist, since the early removal of the wisdom tooth with an unformed root, or at the initial stages of root formation is much easier for the dentist and is less dangerous for the patient himself.

**Keywords:** wisdom tooth, rudiment of tooth, teething.
AMBEBIASIS IN THE NORTH EASTERN PART OF INDIA
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Introduction: According to World Health Organization (WHO), Amoebiasis, an infection by protozoa E. histolytica is appraised as the third leading parasitic cause of human mortality after malaria and schistosomiasis. Up to 50 million true E. histolytica infections are recorded and approx 40 thousand to 100,000 deaths occurs annually, mostly from liver abscesses or other complications. Amoebiasis is a global disease and a major public health problem in developing and poor countries.

Background: Although it is usually considered a tropical parasite, but the first case reported (in 1875) was actually in St Petersburg in Russia, near the Arctic Circle. Infection is more common in warmer areas, but this is both because of poorer hygiene and the parasitic cysts surviving longer in warm moist conditions. Symptoms of amoebiasis may include abdominal pain, diarrhea or bloody diarrhea. Complications can include inflammation of the colon with tissue death or perforation, which may result in peritonitis. People affected may develop anemia due to loss of blood.

Objective: To assess the true prevalence and reason of amoebiasis in North Eastern states of India.

Materials and methods: In India, amoebiasis affects an estimated 15 % of the population throughout the country. A comparative cross-sectional study based on a single fecal sample per person was conducted to figure out the true prevalence of amoebiasis from January 2014 to January 2016. The study was carried out in four selected North Eastern states of India (Assam, Manipur, Meghalaya and Tripura) at the levels of community, healthcare facilities and hospitals.

The spatial distributions of infection were 18.2% (107/588) of Assam, 11.7% (23/197) of Manipur, 10.2% (21/207) of Meghalaya, and 8.2% (22/268) of Tripura states.

Children in age group <15 year, Peoples having lower levels of education, and daily laborers exhibited a higher infection rate.
**Results and discussion:** According to WHO, the overall prevalence of amebiasis in the United States is approximately 4%.

The prevalence of *Entamoeba* infection is as high as 50% in areas of Central and South America, Africa, and Asia.

In Egypt, 38% of individuals presenting with acute diarrhea to an outpatient clinic were found to have amebic colitis.

In Mexico City (Latin America) reported that 9% of the population was infected with *E histolytica*.

It is rare in North America.

**Conclusion:** The North Eastern part of India is a hot spot of infection since the climatic conditions are most conducive for the infections and also the proper hygiene and sanitation in some of these areas are poor. Many other reasons are there like eating street food at public place with common sauces in one container, sharing towels and face washes, dirty bathrooms and toilet sheets, and avoiding washing hands after the use of washroom, gives a suitable opportunity to grow and spread *E.histolytica*.

**Keywords:** amoebiasis, WHO [World health organization], protozoa, parasite, proper hygiene.

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**CULTIVATION OF CELL-LIKE CULTURES ON SCAFFOLDS**

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**Introduction:** Biotechnologies of obtaining cultures of the fibroblasts intended for use in regenerative therapy are demanded not only in cosmetology and esthetic medicine, but also in implantology, orthopedics and other specialties where the tissue replacement is required by composite biocompatible materials. Autological fibroblasts can keep the physiological functions. The fibroblasts allocated from bioptat of the person produce components of adhesive system of the cell (a receptor of hyaluronic acid - CD44) and an extracellular matrix, (collagens, fibronectin and tropoelastin). However, insufficient high quality of cell-like culture does not always lead to a desirable result in cell-like therapy.

**Objective:** inducing of viability of cells, reduction of terms of their receiving and increase in quantity of cell.
The fibroblasts received from 10-12 day chicken embryos cultivated in the environment of DMEM containing 10% of serum of cattle. Before it is carried out by trypsinization of cells by means of 0.02% of solution of Versenum and 0.25% of solution of trypsinum at 4 °C (2 min.) with the subsequent incubation in the thermostat at 37 °C. For definition of concentration of cells in culture the method of calculation of cells in Goryaev's camera was used. For the morphometric research of cells, assessment of brightness of a luminescence of 1 field of vision the Adobe Photoshop program was used. As composite materials for immobilization of cell-like cultures collagenic membranes, extracellular matrixes poly-D-lysine and biocompatible polymer of polylactide (PLA) were used.

According to the obtained data on adhesion and proliferation of fibroblasts on these examples collagenic membranes and extracellular matrixes poly-D-lysine were preferred. The adhesion of cells on polylactide was not observed.

Keywords: fibroblasts, adhesion, proliferation, scaffold.

DISTURBANCES OF CARDIAC RHYTHM AND CONDUCTION IN PATIENTS WITH NON-COMPACT LEFT VENTRICULAR MYOCARDIUM

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Background. Non-compact left ventricular myocardium (NLVM) is a rare form of congenital cardiomyopathy occurring at any age. The disease is genetically determined and develops as a result of violation of normal processes of heart embryogenesis. Pathogenesis and clinical picture consist of three leading syndromes: heart failure, arrhythmias, thromboembolic syndrome. Various types of rhythm and conduction disorders are though non-specific but pathognomonic for the disease. Unfavorable prognosis and high mortality in NLVM determine the need for its recognition in the early stages and a differentiated approach to treatment, depending on the severity of the patient's condition.

Objective. The aim of the investigation was to identify and study possible cardiac arrhythmias and conduction disorders in patients with left ventricular myocardium.
**Materials and methods.** 18 patients (13 men and 5 women) with non-compact left ventricular myocardium (according to ECHO-CG) ranging in age from 40 to 65 years were examined. The clinical examination of patients assessed complaints and the presence of concomitant diseases including hereditary. Much attention was paid to the collection of family history. All patients underwent standard clinical examination including ECG in rest in 12 standard leads, ECHO, daily Holter ECG monitoring. Taking into account the complaints 8 patients underwent coronarography (CAG).

**Results.** During the collection of family history 2 family cases of NLVM were revealed (patients included in the study were siblings). Various violations of heart rhythm were identified in all patients with NLVM. Ventricular extrasystole was detected in 83% of patients and ventricular tachycardia was in 56% of patients. While in 22% of patients ventricular disorders accompanied by presyncopal/syncopal states. Atrial fibrillation was recorded in 7 patients. 57% of them had a paroxysmal form, 43% had a permanent form. Transient Wolf-Parkinson’s-White syndrome was revealed in 2 patients according to daily ECG monitoring. In addition, in 22% of cases with NLVM atrioventricular block of I degree was registered on the ECG, in 5.5% of cases of AB block of III degree, which required implantation of a 2-chamber pacemaker in DDR mode. In 33% of patients with NLVM a complete blockade of the left leg of the GIS beam was revealed. In view of life-threatening ventricular arrhythmias for prevention of sudden death, 1 patient was implanted a two-chamber cardioverter defibrillator in the endocardial version of Teligen DR in the mode of DDD stimulation.

**Conclusion.** Thus, the presence of non-compact left ventricular myocardium is associated with a high risk of life-threatening arrhythmias and cardiac conduction, which requires more careful approach to the diagnosis and treatment of such patients.

**Keywords:** non-compact left ventricular myocardium(NLVM), congenital cardiomyopathy, heart failure, cardiac arrhythmias, thromboembolic syndrome, conduction disorders, ventricular tachycardia runs.
STRATEGY TO SAVE LOWER LIMB IN THE PATIENT OF DIABETES MELLITUS

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Background: Diabetes Mellitus (DM) becomes one of the most common disease nowadays due to our sedentary life style and diet. On regarding this, lower limb complication in the patient with DM is not surprised, we know that DM patients often suffer from Peripheral Artery Disease (PAD) and Peripheral Neurotrophic Disease (PND). Due to PAD and PND they no longer feel pain, and blood and nutrient supply is reduced. It will lead to low healing power of lower extremities and complications. In severe cases it may result in amputation.

Objective: In this research we are going to state the guidance of DM foot care and way to prevent severe complication like amputation.

Amputation is not the main method of DM Patient with lower extremities disease. There are several ways to prevent patients from amputation. The first more specific important treatment is to control the blood sugar level. After that we need to do clinical examination of the patient. Clinical examination includes neurological examination of the foot and Ischemic examination of the foot. Laboratory evaluation is also helpful for making diagnose. In addition, we can use revascularization methods like catheter intervention, angioplasty, Percutaneous transluminal angioplasty (PTA), stenting.

Result: Amputation is not the only choice in the management of DM patient. Proper management and treatment of foot will prevent a patient from amputation. Amputation has decreased by more than 50 percent in the past 20 years.

Conclusion: The most important for DM patient with lower extremities disease is to control blood sugar level, maintain proper diet and proper care of foot. Early understanding will help us to diagnose and treat the patients.

Keywords: DM, PAD, PND, Amputation, PTA, Stenting, Angioplasty, revascularization, catheter intervention.
COMPARISON OF CYSTICERCOSIS IN INDIA

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Background: Taeniasis/cysticercosis is an intestinal infection caused by Taenia solium leads to neurocysticercosis and its most frequent preventable cause of epilepsy worldwide. According to the World Health Organization (WHO) 30% of all epilepsy cases in endemic countries and 3% epileptic cases globally may be due to neurocysticercosis.

Objectives: There are frequent changes and increase in percentage or data of its causes and prevalence. Here, it illustrates its condition of effectiveness in human worldwide, especially in India. This is the comparative illustration between India and other countries.

Materials and methods: T. solium infection and the resulting disease neurocysticercosis are endemic in less developed countries where pigs are raised as a food source. Cysticercosis has also been described in ancient Indian medical book, the Charak Sanhita. It is related to age factor (30 onwards). Its prevalency is more in all countries, especially all over parts of India.

Results and discussion: Cysticercosis mainly affects the people in developing countries of Africa, Latin America, parts of Oceania, most of Asia. It is now increasingly diagnosed in more developed countries owing to immigration of tapeworm carriers from endemic zones. The disease is prevalent in "all states of India", although the prevalence varies between the states. It is "highly prevalent in the northern states of Bihar, Orissa, Uttar Pradesh, Punjab, Uttarkhand. "In a rural pig farming community of Lucknow district, Uttar Pradesh, the prevalence of taeniasis was found to be 18.6%. Likely, active epilepsy was confirmed in 5.8% of the populations and 48.3% of people with epilepsy fulfilled either definitive or probable diagnostic criteria for Neurocysticercosis (NCC). In a study from New Delhi, NCC accounted for 2.5% of all intracranial space occupying lesions.

Conclusion: These data shows an increasing trend with the study period. This necessitates a proper attention to the unnoticed spread of parasitic disease, which affects the quality of life in the community. Quality screening & diagnostic strategy should be implied along with proper awareness for preventive measure practices have to be set up because it is preventable and potentially eradicable.

Keywords: Neurocysticercosis, Epilepsy, Taenia solium, Seizures.
Background: Rheumatoid arthritis (RA) is a chronic autoimmune systemic inflammatory disease associated with excess overall mortality and 50% of which are premature due to cardiovascular diseases in these patients. In patients with RA, other than conventional risk factors for developing cardiovascular disease, high inflammatory activity plays an important role in the regulation of lipid metabolism and thereby increasing the risk of atherosclerosis and cardiovascular mortality.

Objective: The aim of our research was to evaluate cardiovascular risk in patients with RA by EULAR modified SCORE index and correlate it with clinical variants of RA.

Materials and methods: 112 patients with RA (26 male and 86 female) of age 40 years and above (mean age 54.03±6.94) were examined, who were under observation and undergoing treatment at rheumatology department and rheumatologist cabinet of Stavropol regional clinical hospital. Diagnosis of rheumatoid arthritis was made in accordance with the classification criteria of ACR/EULAR (2010). Cardiovascular risk with EULAR modified SCORE chart was calculated in the patients. Two sample students’ T-criterion and criteria of Newman-Keuls were evaluated in statistical analysis of the obtained data. Results were considered reliable with the level of significant difference p≤0.05.

Results and discussion: Mean values of index SCORE in the patients were 2.69±0.31 (moderate risk), and in 22.3% of the patients high and very high cardiovascular risk was evaluated. In patients with RA, cardiovascular risk was significantly higher in males (p<0.05) than in female population and with the duration of the disease more than 10 years (p<0.05). In correlation with the clinical stage of the disease was considerably high (p<0.05) in late stage of disease when compared with moderate stage of RA. High level of disease activity by index DAS28 was associated with significantly increased (P<0.05) cardiovascular risk scale but correlation of SCORE indices with the values of DAS28 were not noticed. A significantly high cardiovascular risk by SCORE scale was noticed in erosive variant (p<0.05) of the disease and of x-ray stage III and IV.
With the presence of rheumatoid factor and ACCP in blood, cardiovascular risk in patients with RA was higher (p<0.05) than in patients with seronegative variant of disease, and the association of values of RF and ACCP with SCORE scale was not established. Values of SCORE scale were significantly higher (p<0.05) in patients with high level of C-reactive protein and ESR in blood. Even though a significant association of cardiovascular risk with functional class of the disease was not established, there was a tendency for high values of SCORE scale in patients with functional class III. Complications and systemic manifestations of RA were not implicated any effect on cardiovascular risk in patients.

**Conclusion:** In patients with RA, cardiovascular risk by SCORE index was significantly high in male population, and in patients with the duration of disease for more than 10 years, with late stage of disease and with high activity of the disease by index DAS 28. Erosions and progressed x-ray stage of the disease was characterized with significant increase in cardiovascular risk in patients with RA. Cardiovascular risk by SCORE index in patients with RA significantly increased with increase in level of C-reactive protein, ESR, rheumatoid factor and ACCP indicating the effect of these inflammatory and immunological markers on developing cardiovascular complications.

**Keywords:** rheumatoid arthritis, cardiovascular risk, clinical variants, DAS28, functional class.

**INFERTILITY AND RESECTOSCOPIC TREATMENT OF İSTHMOCELE**

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**Background:** Isthmocele is an anatomic defect (reservoir-like) in anterior uterine wall in the site of cesarean scar. This anatomic defect has symptoms, the most important are infertility and postmenstrual abnormal uterine bleeding.

**Objective:** To study treatment of symptomatic isthmocele with resectoscopic surgery and the results of this method to fertility and postmenstrual abnormal uterine bleeding as main symptoms of symptomatic isthmocele.
Materials and methods: 21 women who had one or more caesarean delivery and infertility (other pathologies for infertility were excluded). Patient selection was casual. All patients passed through a hysteroscopic diagnose of isthmus with a Karl Storz Bettocchi hysteroscope. All patients with Isthmocele were treated with resectoscopic surgery - Olympus hysteroscope 9 mm with cutting loop and pure cut current. It consists of enlargement of isthmus entry and resection of endometrium at the bottom of isthmus.

Results: In 21 hysteroscopically diagnosed women with symptomatic isthmus we found infertility and postmenstrual abnormal uterine bleeding. After resectoscopic surgery treatment of anatomic defect of isthmus, repair of anatomic defect and elimination of symptoms in 100% of cases, all the patients get pregnant within 1 year after resectoscopic surgery.

Conclusion: Isthmocele is an anatomic defect in the site of cesarean scar. Most of them are symptomatic – infertility and postmenstrual abnormal uterine bleeding. Resectoscopic surgery is an excellent method to eliminate 100% of this anatomic defect and its symptoms. 21 patients got pregnant within 1 year after resectoscopic surgery.

SICKLE CELL ANEMIA
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Background: Sickle cell disease is an inherited blood condition which is most common among people of African, Arabian and Indian origin. In India, the disease is largely undocumented. Thus, there is an urgent need to document the features of Indian disease so that locally appropriate models of care may be evolved.

Objectives:
1. To draw attention towards the condition of world and different countries because of this disease.
2. To determine increasing percentage, causes and methodology to overcome the ill effect of this disease from the world specially India and Africa.
3. To demonstrate comparative illustrations between these two countries.
Material and methods: The number of sickle cell anemia cases is expected to increase about 30 percent globally by 2050, scientists said in the journal *PLOS Medicine*. Approximately 5% of the world’s population is healthy carrier of this gene. Countries in sub-Saharan Africa, where the disease is most common, will be the hardest hit as the current percentage is 75% of the global burden. Unlike Africa, India is less affected by this disease.

Results and discussion: The sickle gene is widespread among many tribal population groups in India varying from 1%-40%. Madhya Pradesh has the highest load with an estimated number of 67,861 sickle homozygotes. Further, 27 of the 45 districts in Madhya Pradesh fall under the sickle cell belt and the prevalence of Sickle Haemoglobin (HbS) varies from 10% to 33%. In eastern region Maharashtra it varies from 0%-35%. In the Wayanad district of Kerala a very high prevalence of HbS is reported that is 18.2 to 34.1 %. The survey done by RED CROSS SOCIETY, 22 district of Gujarat shows prevalence of 11.37%.

In Africa Sickle cell disease is reported with a high rate of childhood mortality that is 50%-90% where as other investigators have reported a frequency of 20% among Africans adult. In countries such as Cameroon, Republic of Congo, Gabon, Ghana and Nigeria the prevalence is between 20% to 30% while in some parts of Uganda it is as high as 45%.

From the above data we can illustrate that Africans are more prone than Indians as Africans heritage are the region which are most prone to malaria and the gene of sickle cell disease is basically related to malaria.

Conclusion: The above data shows that there is immediate need to check and ensure proper treatment. As sickle cell disease setting needs multidisciplinary approaches, given the several syndromes and the pathogenic mechanism that are likely to be involved. The early diagnosis of the disease can be done by molecular detection of mutated hemoglobin gene as well as by postmortem light and electron microscopy. So the current percentage must be decreased to maintain healthy society and decreased overall infant mortality rate.

Keywords: sickle haemoglobin (HbS), Public Library of Science (PLOS), molecular detection, electron microscopy, postmortem light.
CRIMEAN-CONGO HEMORRHAGIC FEVER (CCHF) IN PREGNANCY
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Background. Crimean-Congo Hemorrhagic Fever (CCHF) is acute viral infection and a major emerging infectious disease, threatened and affected in a large geographical area in Russia and Stavropol region. There is not proven antiviral therapy and it has a case fatality rate about 4–30%. The natural history of disease and outcomes of CCHF in pregnant women is poorly understood.

Objectives. It is based on the investigation of characteristics of CCHF in pregnancy and on report about these cases in pregnant women from Russia and Stavropol region.

Methods are based on the investigation performed on reports for two in one case in Stavropol region, published in 2016.

Results: In whole Russia, two in one case of CCHF in pregnancy were identified, and combined with the case series data in Stavropol region. 42 Cases were analyzed. The majority of cases originated in Turkey (14), Iran (10) and Russia (6). Outcome of maternal mortality in Stavropol Region is 14/41 (34%) and fetal/neonatal mortality is in 24/41 cases (58.5%). Hemorrhage was associated with maternal (P = 0.009) and fetal/neonatal death (P < 0.0001). There was nosocomial transmission to 38 cases from 6/37 index pregnant cases.

Conclusion. Cases of CCHF in pregnancy are rare, but associated with high rates of maternal and fetal mortality and nosocomial transmission.

MODERN METHODS OF REHABILITATIONS OF STROKE PATIENTS MEDICAL PREVENTION
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Modern rehabilitation methods of stroke patients are considered in the article. Stroke is an acute disorder of the cerebral circulation, which is one of the main causes of disability and mortality of the population. It is on the second
place, after myocardial infarction, in the structure of mortality in Russia. According to the National Association for Stroke Control 450,000 people suffer from a stroke each year. 80% of such people remain disabled. Given this fact, CVA refers to a category of diseases that require mandatory rehabilitation. This topic is on the actual problem of medicine. In the last 10-15 years "vascular catastrophes" began to grow among younger people rapidly. Currently, stroke occurs at patients aged 35 to 40, and sometimes even in adolescents. The consequences of a stroke are diverse. The desire to stop the growth of disabled people is in the interest of rehabilitation, which is a set of measures aimed at restoring the affected by the disease and damage to the functions and social rehabilitation of the patient. The article describes the basic principles, features of the restoration of motor function, speech and cognition.

**Keywords:** stroke, rehabilitation, modern methods, prevention.

**Urgency:** Stroke.

Is an acute disorder of the cerebral circulation, which is one of the main causes of disability and mortality of the population in the last 10-15 years, vascular catastrophes began to grow rapidly.

Currently ONMC occurs in patients aged 35 to 40 years and sometimes even in adolescents especially at the end of the school year when there is a feeling of fatigue and examinations begin, according to the national association for combating stroke (NABI) in the Russian Federation, 450,000 cases of ONMC are registered annually of which 80% of people remain disabled, of these 55% of people do not wish to use the medical facility offered by the government which dramatically reduces the quality of life for these patients.

The consequences of the transferred ONMK are motor disorders violations of statics and coordination, hemiplegia, hemiparesis), speech dysarthria, aphasia, cognitive impairment, memory loss, praxis, gnosis and intelligence.

The desire to stop the growth of disability of the population raises interest in rehabilitation, which is a set up by the government in the interest of the patient.

The purpose is to use modern data for the rehabilitation of patients who have suffered a stroke with the patient helping themselves by being consistent with rehabilitation program, the help of his relatives will benefit the patient recovery.

The basis of the rehabilitation is neuroplasticity to change the brain to its normal function, through various forms of activity.
In recent years the rehabilitation of patients after a stroke has reached a new level, the traditional methods of physicians with the use of manual therapy, simulators, physiotherapy and medicines, advanced development with the use of digital technologies and non-standard approaches.

Kinesiotherapy is a method of active treatment and rehabilitation using simulators, through various forms of movement, natural motor functions of a person is designed to solve two main tasks, the general toning effect on the body and the effect on motor disorders, in recent years, many methods of kinesiotherapy have been developed using computerized and robotic systems by using the control of special programs to assist with the implementation of movements resistance to unwanted or planned movements in order to ensure the accuracy of the exercises.

The results of numerous studies proved that early mobilization of a patient after a stroke leads to a much better functional recovery, these events contribute to the prevention of the development of congestive pneumonia, pressure ulcers and thrombophlebitis of the lower limbs.

One of the methods of rehabilitation is so called mirror therapy, the principle of the operation is as follows, the mirror is positioned so that the patient sees the reflection of a healthy limb and the affected disappears from the field of vision. Thus giving a illusory feeling that both legs or hands are working normally.

The centers responsible for the motor function in the cerebral cortex are activated as a result of which the activity of the diseased limb improves.

According to research, mirror therapy is a component of a complex measures for recovery after a stroke that can speed up recovery of the patient and eliminate a number of unpleasant symptoms, in particular treatment with mirrors can reduce the phenomenon of hemiplegia.

One of the latest innovations is the result of joint work between physicians and the IT industry using a virtual reality system, training is given to create and enable environment for motor skills for creating a virtual reality on a computer, using numerous motion and position sensors, glasses with a liquid crystal monitor, where the image is transmitted, the system allows you to simulate everyday situations, with the use of sports, road jumping, drawing, etc.

The patient instinctively uses the limbs during viewing which is as close to reality as possible with hand motor skills giving a sense of balance, walking skills etc.
To date virtual reality systems are mostly based on visual effects, although future systems will also create tactile sensations.

One of the modern approaches to rehabilitation is transcranial magnetic stimulation called TMSS which is considered as one of the promising methods of restorative treatment in patients with CNS pathology, including motor and other disorders after a stroke, the impact of rhythmic TKMS has the following therapeutic effects, it activates the preserved motor neurons of the precentral gyrus, facilitates the formation of new synaptic connections, reduces the de-adaptive effect of transsynaptic functional deactivation, causes a transient increase in regional cerebral blood flow also helps reduce spasticity.

Numerous studies have demonstrated the safety and efficacy of TCM in the treatment of stroke patients using medication for correction of spasticity based on the intake of muscle relaxants, the most common used are baclofen, tizanidine, tolperisone, there are side effects is with these drugs, with arterial hypotension, in some cases limiting their use.

Physiotherapeutic methods cryotherapy, ozocerite and paraffin applications, whirlpool bath for hands etc are also used.

If it is not possible to use muscle relaxants or with a pronounced local spasticity, injections of type A botulinum toxin are used, the therapeutic activity of the drug is due to its ability to induce reversible chemical denervation of the muscle.

The next direction of rehabilitation is a correction of speech disorders, as more than a third of patients experience aphasia and dysarthria, the restoration of speech disorders is based on repeated exercises on articulation and phonation which help the patient adapt to the existing motor deficit of the facial musculature and tongue which has been based on the results of several studies, positive effects on some speech abilities of low-frequency TKMS were obtained during stimulation of the region projectively corresponding to the Broca centre, nevertheless complete recovery of speech is observed extremely rarely which is primarily due to the destruction of speech centers, it is often enough that when previously restored skills are lost over a period of time, the reason being the patient does not often use them in his everyday life, therefore hampering his defect, for the prevention of this it is better to find as early as possible.

Using newly mastered skills speech rehabilitation is performed against the background of drug therapy which has an activating effect on the integrative functions of the brain, these include cerebrolysin, nootropics (piracetam), gliatilin.
The most difficult issue in the rehabilitation of patients is the correction of cognitive impairment which occur immediately after a stroke or delayed, which are more often due to concurrent neurodegenerative processes that are activated as a result of increasing ischemia.

The basic principle of recovery includes activities aimed at activating mental activity such as reading, memory development exercises and writing.

At present special educational computer programs are increasingly used, in several studies evidence has been obtained that daily memory and attention exercises are associated with the restoration of the late somatosensory evoked potential component N140 reflecting an improvement in the associative abilities of the brain, this type of training should be combined with drug therapy, with the use of cerebrolysin stimulates the growth of various populations of neurons increases the efficiency of associative processes in the brain improves mental activity also memory attention.

Piracetam improves metabolic processes in brain cells, cognitive processes primarily memory and attention, actovegin for transportation and utilization of glucose stimulates oxygen consumption, citicoline enhances neuroplasticity and neuro-regeneration etc.

Conclusion: Rehabilitation of patients after a stroke requires the organization of a complex system of care using clinical features and variants for the disease.

This involves the correction of the motor, cognitive speech disorders and social adaptation.

There are numerous approaches to the rehabilitation of patients, both new and unconventional methods are being developed that have proved effective in restoring patients.

COMMON SURGICAL ERRORS

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Background: More than 200 million surgeries are performed worldwide each year and recent reports reveal that adverse event rates for surgical conditions remains unacceptably high. Surgery is a dynamic speciality with a milieu
of possible mishaps waiting to happen. So to understand and prevent errors in surgery we must explore this intricate multi-cogwheel process. In comparing to Russia, USA has many fold occurrences, nearly 700 death per day because of surgical errors in hospitals.

**Objective:** To provide awareness about the surgical errors that usually occurs in our habitual surroundings without our own knowledge and their reduction.

**Methods:** By the analysis of daily surgical events in hospitals, we can evaluate the types of errors happening during surgery. For example, inobservance during surgery may lead to leaving of unknown alien bodies inside the patient’s body. It is known as Retained Surgical Foreign Bodies (RSB) e.g., sponges or instruments left inside patient’s body after surgery. If the error is present in the diagnosis of patient’s conditions it may lead to Wrong-site surgery. Anaesthesia is an integral part of surgery but if error present in the implementation of anaesthesia, then it cause many adverse effects in the patients. One of the main reasons for these types of errors is diagnostic errors. These diagnostic errors may be due to wrong clinical history analysis and lack of training and experience of the assistants.

**Results:** These types of errors may lead to high risky and adverse effect on humans. RSB after surgical procedure may cause traumatized injury and lead to septic/aseptic and purulent inflammation in the site of surgery. Wrong-site surgery may cause serious conditions of the patients often lead to death in some cases. Errors in the implementation of anaesthesia may produce fatal outcomes such as horrific painfulness, unconscious states such as coma, faintness, etc.

**Conclusion:** Making errors is part of normal human behaviour. Prevention of surgical errors by paying full attention during any kind of surgery procedure is a good way for their reduction. Enhancing the communications between the surgeon and the assistants in operation theatre is necessary. The surgical room will be well developed by illumination and enough space. Reducing the hasty and stressful conditions of the surgeons and nurses are often helpful in preventing such surgical errors.

**Keywords:** retained surgical foreign bodies, wrong-site surgery, anaesthesia errors, diagnostic errors,
HOSPITAL ACQUIRED INFECTION CAUSED BY ANTIBACTERIAL RESISTANCE

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Background: The costs of hospital-acquired (nosocomial) and other health care associated with infections are great. These infections have affected as many as 1.7 million patients and 99,000 lives in hospitals annually. Although efforts to lower infections risks have been challenged by the numbers of immunocompromised patients, antibiotic-resistant bacteria and invasive devices and procedures.

Objective: To estimate the Prevention and Management of antibacterial-resistance in hospitals.

Methods: Pre-discharge vaccination, Antibacterial therapy, Aseptic measures in Operation theatre (OT), Methods of disinfection.

Results: On the effects of various control strategies the incidence and the term of hospital acquired infections especially infections caused by drug-resistant bacteria are reduced. They are achieved by: 1-Isolation of patients with badly infected open wounds, severe urinary tract infection (UTI). 2-Following strict aseptic measures in OT and in ward by hospital attendants. 3- Proper cleaning and use of disinfectant lotions and sprays for bed pans, toilets and floor. 4- Preventing patients already colonized with bacteria.

Conclusion: The incidence of hospital acquired bacterial infection and frequencies of antibiotic-resistant bacteria can be markedly and rapidly reduced by different readily implemented procedures.

Keywords: Diagnose and treat infections effectively, use antibiotics wisely, prevent infection and transmission.
ALTERATION OF RESPIRATION IN DIFFERENT STATES
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Background: All organisms exhibit daily patterns of rest and activity that resemble daily sleep and wakefulness patterns. This research and associated case studies are aimed to measure the Recovery rate after doing exercise and change in respiration during stages of Sleep.

Objective: To analyze the change in respiration during sleep and to evaluate the respiratory recovery rate in healthy subjects.

Methods: Fitbit is based on actigraph measurement and a smartphone interface are used to measure the recovery rate after exercise. E-health system is fully automated web application for sleep monitoring in home environment.

Results: After analyzing the values obtained are:

Experiment-1: Recovery rate after exercise is a good indicator of overall cardiovascular health. It is calculated in 5 healthy subjects. Both heart and muscle need a brief time to recover after a strain of exercise. The normal heart and respiratory recovery time is 2min.

Experiment-2: As progress through the stages of sleep in 3 healthy subjects, the respiratory rate and heart rate is 18bpm and 68 bpm respectively. Our breathing pattern and heart activity slightly decreases during Non-REM sleep: respiratory rate (RR) – 12 bpm and heart rate (HR) – 53 bpm. It becomes very regular during REM sleep, and the values obtained are RR-16 bpm and HR-64bpm.

Conclusion: Recovery rate helps to track the recovery time of heart and respiration and compared them with mortality rate of test subjects. By measuring the RR and HR during sleep help us to know that the function of sleep is to give the heart a chance to rest from the constant demands of waking life.

Keywords: Recovery time, stages of sleep, actigraph measurement.
MINOR ANOMALIES OF THE HEART DEVELOPMENT

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Background: Hereditary deviations of development of internal structures of the heart, developing in the cause of dysplasia of the connective tissue, they include well-known, often revealed minor anomalies of the heart (mitral valve prolapse, anomalous location of chord of the ventricle). The diagnosis of rare minor anomalies of the heart during the life of the patient causes difficulties, because insignificant hemodynamic architectonic disorders are not known well by the clinicians.

Objective: The main aim of current study is revealing rare minor anomalies of the heart during the autopsy and evaluating their importance in thanatogenesis, comparing the result of the lifetime and posthumous diagnosis of architectonical heart disorders.

Results and discussion: Anomalies were found in the form of insufficient, plentiful or with defects of development of cusps of atrioventricular valves and large bicuspid vessels, aortic valve, doubled ostium of the tricuspid valve, fenestration of tricuspid and mitral valve. Inherited fenestrations of valves were found in the form of one or two small holes in the cusp. They lead to the development of valve insufficiency, when the minor fenestrations ruptured or in case if it is sizeable or if it is too large. Fenestration of aortic, tricuspid and mitral valves were mainly situated in the marginal zone of the posterior cusps, they had a round shape with a size with about 0.2-0.5 sm. The microscopic research showed that uneven edema was situated in the surrounding tissue of valves and there was a mild proliferation of fibroblasts. A slight sclerosis and infiltration of round cells were revealed. One of the cusps of the tricuspid, mitral and aortic valves from the side of the ventricular surface and on the arterial surface of the demilune of the pulmonary artery valve “false” vegetations were found. The analysis of the patient’s history with “false” vegetation showed that during an ultrasound lifetime examination, formations on the cusps were not recognized. Often anomalies of the valve cusps were determined (6.91%) rarely, anomalies of the coronary arteries were determined (1.89%).

Conclusion: The result of the autopsy showed that rare minor anomalies of the heart are found in men and women in all age groups who died from different
reasons. Deviations of development often are revealed by anomalies of the valves, location of the coronaries, additional formations in the heart chambers. Identification of the structure and topography of the rare anomalies of the heart, their effect on the development of the pathogenetic syndromes is important for physicians of different specialties.

**Keywords:** dysplasia of the connective tissue of the heart, clinical observation, developmental anomalies.

**COGNITIVE IMPAIRMENT IN PATIENTS WITH CARDIOVASCULAR DISEASES**

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**Background:** Cardiovascular diseases are known to be the most prevalent category of diseases that befall humans worldwide, in addition to being the main attribute of death. CVDs are believed to impact negatively on not only the relevant system of the human body, but also other systems, disturbing their physiology and further complicating the patient’s overall condition. Accordingly, CVDs are estimated to have an influence on the brain functions that include, but are not exclusive to cognition, memory and coordination. This can be attributed to the complications of, for example, arterial hypertension, atherosclerosis, cerebral ischaemia (discirculatory encephalopathy) that arise in the long run.

**Objective:** To assess the level of cognitive impairment in patients with cardiovascular diseases and confirm the influence of these diseases on brain functions.

**Materials and methods:** 20 patients aged over 50 to 91 with an array of CVDs (e.g CHF, valve diseases, angina pectoris “stenocardia”) have been surveyed in the cardiovascular department of the third governmental hospital in Stavropol. The Mini-Cog test was chosen to be conducted on them due to its simplicity and the short time it entails to be undertaken. This test comprised the following steps: Each patient was given three irrelevant words to listen to and memorise, then they were requested to draw a circular clock, insert all numbers and the two hands (arrows) showing a particular time upon request. Afterwards they were requested to repeat the same three words given to them at first. The total standard score of this test is 5 points, divided on three for the TWT, and two points for the CDT. For the latter, either a zero or two points are scored. The
total score does more or less speak for the condition of cognitive functions and indicate their stability or decline.

**Results and discussion:** Four patients refused undertaking the test, which left us with 16 patients to study their cases. In the TWT, 15 of 16 patients got a 3, with the remaining patient having got a 2. In the CDT, only 3 patients got a 2 (18.75%). As for the overall result, 3 patients scored a 5 (18.75%), 12 patients scored a 3 (75%), and one patient scored a 2 (6.25%). Accordingly, only 6.25% CVD patients appear to have an intact cognitive status, 75% are more or less cognitively impaired, with a likelihood of dementia, whereas only 6.25% appears to be having a remarkable cognitive decline and a high likelihood of contracting dementia in the future.

**Conclusion:** It appears that CVDs and brain functions are interrelated to some extent, becoming clinically explicit in the long run. It is therefore advisable to regularly monitor the patient at not only the cardiovascular but also the cognitive aspect, so that any impairments – if any - can be early enough detected and handled in case appropriate and effective managements for these impairments are available. It should also be highlighted that the mini-cog test must not be solely relied on to confirm the presence of dementia or cognitive decline, and that a range of other cognitive tests ought to be conducted in order to properly establish the diagnoses.

**Keywords:** Cardiovascular, cognitive, mini-cog, brain, memory, impairment, heart, disease

**Abbreviations:** CVD=Cardiovascular diseases, CHF=Chronic heart failure, TWT=Three-word test, CDT=Clock-drawing test.

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**EVALUATION OF VASCULAR AGE AS AN EFFECTIVE TECHNOLOGY OF PREVENTIVE EXAMINATION OF YOUNG PEOPLE**

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**Background.** Due to the wide spread of premature aging of the artery wall without clinical manifestation it is essential now to justify the use of modern di-
agnostic technologies which can provide wide angiologic screening among different groups of population.

**Objective.** To determine the statistical parameters of the mass evaluation of vascular rigidity of students in frames of the University preventive project.

**Materials and methods.** A group of 224 students have been examined on basis of Health Centre of SSMU within "Healthy University" project. "VaSera VS-1500" ("Fakuda Denshi", Japan) has been used. It allows to evaluate the index of vascular rigidity such as Cardio-Ankle Vascular Index (CAVI) to the left and to the right (L/R). The device also assesses the vascular age of investigated group and it allows to detect the so-called EVA syndrome. Groups were formed by gender signs. Descriptive statistics and quarter analysis have been conducted. The data were analysed by bundle of statistic apps "Statistica 10.0" (StatSoft Inc, USA).

**Results.** It was determined that signs of EVA syndrome were found in 12,7% of male students-group in 7,8% of female group. Average value of R-CAVI & L-CAVI for male students are 5,80±0,09 and 6,01±0,09 and 5,58±0,06, 5,90±0,05 for female. The most significant difference between left and right extremities was determined in female group. 25,4% of R-CAVI & 23,9% of L-CAVI fixed students hit the upper quartile in men and 19,6% and 17% correspondingly in women which is less than one third. The coverage of the principles of healthy lifestyle at the school of student health is significantly higher among the persons who underwent the survey.

**Conclusion.** Every 9th-10th person among medical students has EVA syndrome. Preliminary assessment of vascular age increases the involvement of students in the educational process at the school of health. The obtained data are useful in taking into account while formation of groups of students with increased cardiovascular risk during clinical examination in order to obtain further creation of more individualized preventive programs for every young person.

**Keywords:** vascular age, EVA syndrome, healthy life style, young people, CAVI.
COMPARATIVE CHARACTERISTIC OF THE RESULTS OF TREATMENT OF ACUTE OBSTURATION CHOLECYSTITIS DEPENDING ON THE TERMS AND METHODS OF DECOMPRESSION OF THE GALLBLADDER

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Background: Treatment of patients with acute cholecystitis, burdened with a pronounced concomitant pathology, an urgent problem of abdominal surgery. A common tactic is two-stage treatment. Currently, in the development of acute cholecystitis, the leading role of the disturbance of bile outflow from the gallbladder is considered indisputable.

Objective: to compare the results of treatment of acute obstructive cholecystitis, depending on the terms and methods of performing PTC.

Materials and methods: Depending on the terms of the performance of PTC, they were divided into two groups. In the main group, PTC was performed immediately after the first day of the onset of the disease. In the control group, 48-72 hours after the disease. The number of the first group was 64 people, the number of the second group - 69. The composition of the groups was close by sex and age. When cholecystostomy was applied, a device was used to drain Ivshin's cavity formations and fixed piggy-tail drainage in 81% of cases. Drainage multi-way Seldinger type-6%, single-stage drainage with stylet-catheter-13% of cases. All patients underwent dynamic ultrasound.

The appearance of bile on the cholecystostomy tube is evidence of a true deblocking of the gallbladder. In the main group, in 87.5%, the appearance of bile was noted in the first day. 9.4% - to the end of the second day. In 3.1% of cases, no true release of the gallbladder occurred. In the control group, the appearance of bile in 55.2% was noted in the first day. At 15.1% - to the end of the second day. On the third day, another 12.3%. In 12.4% of cases, no true release of the gallbladder occurred. In the main group in 78% of patients with video laparoscopy: moderately pronounced adhesion process in the cervical region, differentiation of the cystic duct and artery is preserved. In the control group in 67%: a sufficiently pronounced adhesion process in the subhepatic space, differentiation of the cystic duct and the vesicle artery is difficult. In the main group, 77% of the histology revealed signs of regressing catarrhal inflammation. In the
control group, 63% of the symptoms of the transferred phlegmonous inflammation.

**Conclusions.** Performed in early terms (up to a day), PTC irrespective of the method contributes to: early true release of the bladder, faster fading of inflammation, more favorable intraoperative conditions.

**Keywords:** gallbladder, PTC, cholecystostomy, cholecystitis.

**MORPHOMETRIC FEATURES OF THE ORGANIZATION OF SUBEPICARDIAL ARTERIES AND VEINS OF THE HEART IN THE ADOLESCENTS**

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**Background.** Analysis of the modern literature on morphocardiology showed that there was insufficient information about morphological and functional indicators of branching sites in coronary arteries and the formation of venous trunks, angioarchitectonics of vascular bed as a whole, its features in various topographic and anatomical regions of the body in adolescents.

**Objective.** The main aim of the study is to present morphometric features of the organization of sub-epicardial arterial and venous channels of the adolescent heart in the anterior interventricular sulcus in the left-leaved version of the branching of the coronary arteries and the variant of the distribution of veins by the predominance of the large vein of the heart.

**Materials and methods.** The study of subepicardial vascular bed of 5 hearts of adolescents was carried out with the help of a complex technique involving:

the injection of the arteries and veins of the heart, the R-graph of the heart vessels in 4 projections, R-grams scanning and inserting their images into computer programs. Morphometry: measurement of the length of the left and right tributaries was carried out using the program Video Test Morphology 5.0.

**Results and discussion.** Morphometric features of the branches of the anterior interventricular branch (AIVB) of the left coronary artery and the levels of fusion (LF) of the inflows of the great cardiac vein (GCV) were established along the anterior interventricular sulcus (AIVS). The subepicardial department
of GCV includes 3±1 LF. LF is formed as a result of joining the PP, the length of 17.4±0.2 mm and the LP length of 20.0±0.1. The OC IUS is formed simultaneously PP II US. Its length is 29.0±0.2 mm. The length of the LP II UC contain 10.5±1.4 mm, III US is located to the lower third of the LAD. It is formed by the fusion of the OS BVS which is simultaneously LP III US with a length of 15.0±0.2 mm and PP length of 11.0±0.1 mm. The subepicardial section of the LAD is formed on the majority of the investigated hearts 4±1 generation. The first level of division (ICD) is located in the upper third of the LADA, the left "subsidiary" branch, up to a length of 16.0±0.3 mm, does not give sub-myocardial branches and is immersed in the myocardium, the right "subsidiary" branch is OSI IUD, its length is 42.0±0.2 mm. In the middle third of the LADS from OSI IUD, the right "subsidiary" branch of length 25.3±0.1 mm departs. The left hand "subsidiary" branch of length 25.0±0.2 mm forms II UD the final section of the right "subsidiary" branch before immersion in the myocardium forms III UD, the length of its left and right "subsidiary" branch was 6.0±0.2 mm and 10.0±0.1 mm. In the lower third of TMB formulate IV UD, length of the right "subsidiary" branch is 8.0±0.1 mm and the left is 6.0±0.2 mm.

**Conclusion.** The presented morphometric indicators of the subepicardial arterial and venous channels of the heart characterize the features of the vascularization of the sternum-costal surface of the organ in adolescents, in the left leaved version of coronary artery and the variant of distribution of veins with pre-dominance of the GCV system.

**Keywords:** morphometric features, morphological and functional indicators, coronary arteries, vascularization.

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**COMPARATIVE ANALYSIS OF MORBIDITY AND MORTALITY OF PATIENTS WITH PANCREATIC CANCER IN THE STAVROPOL REGION AND THE RUSSIAN FEDERATION**

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**Background:** In the structure of oncological diseases, pancreatic cancer (PC) ranks the 11th place (2.9%), and among tumors of the gastrointestinal tract it is on the 4th place after the stomach, thick and rectum cancers (2.7%). In the
structure of mortality from malignant tumors, PC causes 5% of deaths in men (7th place) and 4.7% in women (8th place) in our country.

**Objective:** To carry out a comparative analysis of morbidity and mortality rates from pancreatic cancer in the Stavropol Territory and in the Russian Federation.

**Materials and methods:** The study was conducted on the basis of the Stavropol Regional Oncology Center for 2015 - 2017. Information on morbidity and mortality from this pathology is given by A.D. Caprina, V.V. To Starinsky, G.V. Petrova ("The state of oncological care for the population of Russia" 2015-2016).

**Results:** The incidence of PC is growing in the Russian Federation and in the Stavropol Territory. In 2015, 189 patients were registered in the Stavropol Territory for the first time, 199 in 2016, and 248 in 2017. The age of patients with PC varied from 32 to 90 years. The analysis of distribution of patients with PC according to the age showed that it is most common in the age group of 51-60 years (43.5%). The ratio of men to women suffering from PC varied in a province and it almost equaled and amounted to 1.3: 1.0 only in 2017.

In our country the III stage of PC is detected in 21.8%, the IV stage – in 59.4% of primary cases, in the Stavropol Territory– 22.3% and 56.3% respectively. The first stage of PC was diagnosed only in 2.1% of patients in Russia and 2.4% in the Stavropol Territory in 2016. In Russia mortality of patients with the diagnosis of malignant neoplasm was 67.7±1.4% since the diagnosis of this disease was made during the year and over the past 5 years it was 67.7±1.4%. In 2016 in Russia the mortality of population from PC was 41.7%, in the Stavropol Territory it was 51.8%. In 2017, 248 patients with malignant neoplasms of the pancreas were registered in the Stavropol Territory, 155 (62.5%) of them died. The first stage of PC was diagnosed in 2016.

**Conclusion.** This study allows to estimate the realistic situation of the morbidity and mortality of patients with PC in the Stavropol Territory and in the Russian Federation. Thus, a wide system of measures for early diagnosis, a preventive examination of risk groups and expansion for the accessibility of radical surgical and combined treatment of malignant neoplasms of the pancreas should now be undertaken.

**Key words:** pancreatic cancer, morbidity, mortality.
EPIDEMIOLOGY OF PANCREATIC CANCER IN DISTRICTS OF THE STAVROPOL TERRITORY

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Introduction: The later detection of pancreatic cancer (PC) (mean Russian indicator - 59.4%, in some regions - up to 80%), a short life expectancy in patients who did not receive specific therapy (4-12 months), high one-year mortality (42.8%) determine the urgency of the problem of timely diagnosis and treatment of this pathology.

The objective: To study the prevalence, morbidity and mortality of patients with malignant neoplasms of the pancreas in the inhabitants of the Stavropol Territory.

Materials and methods: The study was conducted on the basis of the Stavropol Regional Oncology Center for 2015 - 2017. Information on morbidity and mortality from this pathology in the Russian Federation is taken from books published every year under the editorship of V.I. Chisov, V.V. Starinski, G.V. Petrov.

Results: Uneven distribution of patients with PC in the territory of the Stavropol Territory was noted. The growth of indicators of the patients registered first was traced in the following areas: Krasnogvardeysky, Levokumsky, Predgorny, Shpakovsky, Sovietsky, Georgievsky and in the cities – Pyatigorsk, Mineralnye Vody, Svetlograd, Blagodarny, Nevinnomyssk, Stavropol, Georgievsk, Ipato, Budennovsk. The tendency to an increase in the number of patients with malignant neoplasms of the pancreas in the cities of Budennovsk, Stavropol, Pyatigorsk, Svetlograd is especially expressed. The incidence of PC has decreased, in many districts of the region – in Aleksandrovsky, Andropovsky, Arzgirsky, Kirovsky, Trunovsky, Turkmensky and Neftekumsky, Essentuki, Kislovodsk. In Apanasenkovsky, Grachevsky, Kochubeevsky, Kirovsky, Novoaleksandrovsky, Stepnovsky districts and in cities Zheleznovodsk, Izobilny, Blagodarny, there is a lack of dynamics. The mortality of the population from PC was 41.7% in Russia in 2016, in the Stavropol Territory – 51.8%. 248 patients with malignant neoplasms of the pancreas were registered in the province in 2017, 155 of them died, (62.5%). Thus, every second patient with PC was admitted to a medical institution with the IV stage.
**Conclusion:** Currently, there is an increase in the incidence of this pathology in Russia, the city of Stavropol and some areas of the province. Prospects for changing such a depressing situation are seen in the following: searching for new screening markers, cheaper and more accessible methods of examination for the purpose of revealing preclinical forms of PC, forming risk groups, promoting healthy lifestyles, the search for new targeted drugs.

**Key words:** pancreas, epidemiology, morbidity, mortality.

**AMBULATORY PHLEBECTOMY IN VARICOSE VEINS OF LOWER EXTREMITIES**

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**Introduction:** Stationary substituting technologies are a modern trend and strategic direction of Russian medicine. The range and extent of surgical interventions conducted in outpatient conditions is constantly expanding now. This fully refers to phlebology.

**Objective:** To study the results of surgical treatment of phlebeurysm of lower limbs in the Phleboland Clinic for a one-year period.

**Material and methods:** During 2017, 68 patients underwent 82 operations with a common and segmental form of varicose veins in the Phleboland Clinic in Stavropol. The ratio of women to men was 3:1, the minimum age of the patient - 14 years, the maximum age - 81 years. All patients were examined comprehensively. Among the concomitant pathology, hypertension prevailed (38.2%). The operations were performed under local anesthesia for one visit to the clinic. 14 patients underwent bilateral phlebectomy. The operation included a crossectomy, a saphenectomy by Babcock and a miniphlebectomy of the tributary veins by Muller in 75.6% of cases, a crossectomy and saphenectomy by Babcock was performed in 14.8% of cases, an epifascial ligation of perforating veins with miniphlebectomy according to Muller - in 9.6% of cases.

**Results:** The average duration of the operation was 74 minutes, the average blood loss - 80ml. All patients could move independently immediately after the operation and were discharged after a short observation in the ward. The postoperative monitoring protocol included bandaging with an operating surgeon in the clinic on the next day, removing of the sutures on the 8-10 days, and controlling
duplex scanning of the veins 2 months after the operation. Uncomplicated postoperative period was noted in 94.2% of cases. The early postoperative period was complicated by the development of hypertensive crisis which was stopped medicamentally in 3 patients (4.4%). The residual varicose was not detected by control duplex scanning of veins none of the patients.

**Conclusion:** The phlebectomy is an effective, radical and safe surgical method for the treatment of phlebeurysm, now it can be fully implemented on the basis of an outpatient clinic.

**Keywords:** varicose veins, phlebeurysm, ambulatory phlebectomy, Phleboland Clinic.

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**PROBLEMS OF PRIVATE MEDICINE DEVELOPMENT IN RUSSIA**

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**Introduction:** After a meeting of the Presidium of the state Council "On the tasks of subjects of the Russian Federation to improve the accessibility and quality of medical care," Vladimir Putin raised the issue of the private medicine development. The President of Russia said: "Of course, it is important to develop and maintain private paid medicine. This approach is in the interests of the country's citizens, who should not only have the right to choose a medical institution, but also the real possibility of this choice." For the present, the country's citizens are provided only by 2.2% of medical services. What prevents the private medicine to develop in Russia? What problems may arise in providing of paid medical services?

**Objective:** To determine the main problems of development of private medicine in Russia.

**Materials and methods:** According to the data of the Internet survey conducted in 2016 by the regional offices of the First All-Russian Association of private practitioners, the problems in the development of private medicine are: modern licensing procedure – 40%, imperfection of laws – 22.86%, corruption – 17.4%, unpredictability of standards – 8.57%, taxes – 8.57%, pressing of sanitary - epidemiological service – 2.86%.
Results: Among the main problems of the private health sector in Stavropol there are the following: the problem of premises; the problem of "interaction" between the public and private health sectors, the problem of dumping of market prices (along with the constant improvement in the quality of medical services and the need for strict compliance with standards of medical care the practice of partial laying in the price of medical services the cost of insurance against such claims is forced, thus, paid services in health care is not so much profitable entrepreneurship as entrepreneurship of the highest risk), the problem of insurance in the private health sector.

Conclusion. For the full development of the private sector of medicine, the state has to solve many problems of health care in Russia. After all, private medicine in Russia has great potential for development, as it inherently follows three principles formulated by the first All-Russian Association of private practitioners: 1) responsibility; 2) high standards; 3) effective systems of quality insurance.

Keywords: private healthcare, paid medical services, the problems of private medicine.

SYSTEMIC LUPUS ERYTHEMATOSUS

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Background: Systemic lupus erythematosus (SLE) is an auto-immune disease in which the body immunity attacks healthy tissue mistakenly. Common symptoms include painful and swollen joints, fever, chest pain, hair loss, mouth ulcers, swollen lymph nodes, tiredness and a red rash which is most commonly on the face. Often there are periods of illness, called flares, and periods of remission during which there are few symptoms. These are most commonly anti-nuclear antibodies and they result in inflammation. Women of childbearing age are affected about 9 times more often than men, it most commonly begins between the ages of 15 and 45.

Objective: The cause of SLE is not clear. It is thought to involve genetics together with environmental factors. Female sex hormones, sunlight, smoking, vitamin D deficiency, and certain infections are also believed to increase the risk. The aim of our study was to investigate the effect of vitamin D and female
sex hormones levels on systemic lupus erythematosus and its effect on other organs like lungs, kidneys, heart, etc.

**Results and Discussion:** SLE is believed to be a type III hypersensitivity response with potential type II involvement and its mechanism involves an immune response by autoantibodies against a person's own tissues which is mainly inflammation by over-secretion of biomarkers like cytokines, interleukin 6, 17, 18, type I interferons, and tumor necrosis factor α (TNFα). It has been seen that Vitamin D inhibits release of cytokines from monocytes in the place of inflammation which can be therapeutically advantageous. Female sex steroids promote survival and activity of high affinity auto-reactive B cells and interfere with its tolerance.

**Conclusion:** From our research work we conclude that Vitamin D, as a steroid hormone, exhibits regulatory effects on growth, proliferation, apoptosis and function of the immune system cells which are in association with pathophysiology of SLE, elevated levels of Vitamin D can reduce the harmful effects of SLE. Therefore, with dietary measures or Calciferol supplements we may help the patients with this disease. Similar effects are seen with sex steroids which make gender dependence. The identification of systemic lupus erythematous in patients either with estrogen-responsive or prolactin-responsible disease requires further development of therapeutics that can specifically modulate hormonal responses.

**Keywords:** Systemic lupus erythematosus, cytokines, vitamin D deficiency, sex steroids.

THE CHARACTERISTICS OF SUB-EPICARDIAL BRANCHES OF ANTERIOR INTRA-VENTRICULAR BRANCH OF THE LEFT CORONARY ARTERY IN ELDERLY PEOPLE

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**Objective:** To present the morphological-functional features of branches of the anterior intra-ventricular branch (LAD) in elderly people with a legal variant of ramification of the coronary arteries. Arterial sub-epicardial branches of
LAD are studied from data of 5 intra-vital coronary angiographies. To determine the morphological-functional parameters (internal diameter, cross-sectional area (S-section), length, branching coefficient (KV), special computer programs were used (Video Test-Morphology, 5.0; Makhaon).

**Materials and Methods:** The sub-epicardial department of LADF forms 4±1 generations Ssech. The initial section of the main stem of the LAD with a length of 28.7±1.9 mm is 15.2±1.6 mm2, slightly reduced to 11.9±1.4 mm2 when divided into derivatives. KV the first level of division LIV - 0.84±0.06 that testifies to some decrease in the general area of section of "affiliated" branches. The final branch of the left "daughter" branch is immersed in the myocardium through 36.4±1.5 mm. On the anterior surface of the left ventricle Ssech. the final section of the main trunk of the second level of division of LAD with a length of 3.8±0.2 mm is 11.3±0.7 mm2. However, the total Ssech. its derivatives increase to 12.8±1.3 mm2 (KB - 1.14±0.10). The final section of the right "daughter" branch passes through the myocardium through 54.6-1.4 mm. Ssech. of the final section of the main trunk of the third division level of LADS decreases to 5.7±0.4 mm2, reaching a length of 33.6±2.1 mm. In this case, the general Ssech. "Daughter" branches increase in 1.52 times, making accordingly 4.9±0.3 mm2 and 3.8±0.2 mm2. The left "daughter" branch of the third level of division of LAD reaching a length of 60.6±3.6 mm are immersed in the myocardium. Before the fourth level of division LIV Ssech. the final section of the main trunk is reduced to 4.2±0.3 mm2, however, the total cross-sectional area of the derivatives reaches 3.6±0.2 mm2. The final sections of the right and left "daughter" branches in the lower sections of the anterior wall of the left ventricle penetrate into the myocardium at a distance of 24.4 ,21.2 mm and 40.3±2.0 mm, respectively.

**Conclusion:** The presented structurally functional organization of sub-epicardial branching of LADS characterizes features of vascularization of various topographic divisions of the organ.
INDIVIDUAL BODY MASS INDEX RELATED TO AUTONOMIC ACTIVITY
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Background: Body weight is determined by the balance between energy intake and energy expenditure. The autonomic nervous system, and particularly its sympathetic component, is involved in body weight regulation by modulating energy expenditure. The identification of a link between autonomic nervous system activity and body mass index (BMI) may provide valuable insights into the physiological regulation of body weight and important clues to the development of effective anti-obesity strategies.

Objective: To investigate whether BMI is related to the autonomic nervous system activity as assessed by Kerdoautonomic Index (KAI).

Materials and Methods: The study protocol was approved by the scientific supervisor. A group of 40 students (M/F=20/20) were studied after giving informed consent. Body weight and height were measured, and BMI determined accordingly. BMI was calculated as weight in kilograms divided by the square of height in meters. The activity of the autonomic nervous system has been assessed by means of the pulse, blood pressure measurements and KAI which reliably predict autonomic nervous system activity in different conditions. Autonomic nervous activity was evaluated by KAI analysis – (KAI =1-DBP/PR)x100%.

Conclusions of autonomic basal tone were made according to following classification: Normal tone – KAI + 10% till -10%, Sympathetic prevalence in autonomic balance -KAI over + 10%, Parasympathetic prevalence – KAI less than -10%. Data were normally distributed, calculated, analyzed using mean value and percentage.

Results and discussion: Subjects were then stratified according to their BMI (BMI<20 kg/m², BMI 20–25kg/m², BMI>25kg/m²). Out of 40 samples, 10 (25%) were under BMI<20kg/m², 16 (40%) had BMI 20–25kg/m² & 14(35%) had BMI>25kg/m².

Conclusions of autonomic basal tone were made according to the classification: Out of total 40 samples of 31(77.5%) had sympathetic KAI, 3 (7.5%) had parasympathetic KAI, & 6 (15%) had normal KAI. Mean values of 40 samples:
Age was 20.1, BMI was 23.9 kg/m², Systolic pressure was 108.3 mmHg, Diastolic pressure 68.05 mmHg, Pulse rate 84.8 beats/min, KAI was 20.6%.

**Conclusion:** The obtained results demonstrate the role of Autonomic nervous system activity on influencing BMI through likely modulation of body weight. In healthy individuals, increasing BMI is correlated to increased sympathetic and lower parasympathetic activities.

**Keywords:** BMI, Kerdoautonomic Index (KAI)

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**ONCOLOGICAL STATUS IN INDIA**

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**Background:** Overview of Indian oncology presents all-encompassing research of oncology markets for various cancers. The research focuses on pharmaceutical industry spending in various segments of cancer treatment. Cancer is the leading cause of death in India, so the oncology therapeutic market is growing at very high speed.

**Objective:** To provide the awareness about cancer among people in India and to help them to know the facts of cancer screening and treatments.

**Materials and methods:** We just have collected information from the cancer healer centre. Some tests have been shown both to find cancer early and to lower the chance of dying from the disease. Others have been shown to find cancer early but have not been shown to reduce the risk of dying from cancer. However, they may still be offered to people especially those who are known to be at increased risk of cancer. There are such tests as colonoscopy, sigmoidoscopy, and fecal occult blood test (FOBTs), computed tomography, mammography, HPV testing.

**Result:** India recorded an estimated 3.9 million cancer cases in 2016, data available with the National Cancer Registry Programme of the Indian Council of Medical Research (ICMR) shows. “More than 40% of the cancer cases in India are totally preventable such as lung cancer and cancers of mouth”. The ICMR earlier this year announced that India is likely to have over 17.3 lakh new cases of cancer and over 8.8 lakh deaths due to the disease by 2020 with cancers of breast, lung and cervix topping the list.
Conclusion: From the above data, we have concluded that most common type of cancer in India is lung cancer and oral cancer. One of the major reasons of cancers of mouth and lung is tobacco consumption. India is the hub of smokeless tobacco users. The average age is 62 for oral cancer and twice as common in men than women.

Keywords: patient’s general health and personal preferences

ELECTRICAL INJURY AND ORGAN SAVING
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Background: Electrical injury is a physiological reaction caused by electric current passing through the human body. Electric shock occurs upon contact of a human body part with any source of electricity that causes a sufficient magnitude of current to pass through the victim's flesh, viscera or hair. But in the recent times people without knowing the severity of electric shock easily get electrocuted due to their carelessness towards electricity, which may lead to organ loss.

Objective: In this research we are going to state the various methods of saving an electrocuted organ especially the limbs without getting it amputated. Patients with electrical injury should be initially evaluated as a trauma patient. Stabilize patients and provide airway and circulatory support as indicated by ACLS/ATLS protocols.

Results: Functional outcome of an electrical burn wound is inversely proportional to the time elapsed before the start of the reconstructive procedure. As part of the nature of the electrical trauma, tissue damage leads to vascular thrombosis and skin and muscle necrosis. This leads to gross limitation on manipulation of local tissues for reconstruction. The optimal management of these wounds has evolved to initial debridement, decompression (fasciotomy), and aggressive planned debridement and early skin coverage with the goal of preserving vital structures.

Conclusion: Bring the patients to the operating room after aggressive resuscitation has reversed shock, assure oxygen delivery, restore circulating volume, and re-establish end-organ perfusion. Follow the principles of good surgi-
cal technique. Perform fasciotomies following prescribed techniques, and ensure that any at-risk compartment is released. Make every effort to protect marginal tissue. Local wound care is the surgeon's choice; they usually prefer wet-to-dry gauze dressings changed at twice-daily whirlpool sessions. Therefore providing the treatment in a correct manner and sequence, i.e. proper preoperative, intraoperative and postoperative procedures can save the patient from losing his or her organ (amputation).

**Keywords:** electric shock, amputation, trauma, debridement, resuscitation.

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**EFFECTIVENESS OF MEDICINE «MAXIKOLD ENT» IN TREATMENT OF CATARRHAL TONSILLITIS IN CHILDREN**

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**Relevance.** It is well-known, that administration of antibiotics in ARVI does not shorten the treatment time and the probability of complications. To date, in the treatment of catarrhal tonsillopharyngitis, local drugs, to which hexidine belongs, are increasingly being used. (Maxikold ENT, Pharmstand art (Russia)). Maxikold ENT has an exclusively local action. After inhalation, the drug is not detected in the plasma; on the mucosa it persists for 12 hours that makes its double application sufficient.

**Objective:** to evaluate the efficacy of Maxikold ENT in the treatment of catarrhal tonsillopharyngitis in children.

**Materials and methods.** We observed 70 children from 3 to 17 years old, 35 of them received Maxikold ENT during treatment of catarrhal tonsillopharyngitis (main group) and 35 (control group) received only basic therapy. In 40,0% of cases there was a mild form, 60,0% of children had a moderate–severe form of the disease.

**Results and discussion.** In the main group full recovery for 7 days was achieved in 85,7% of cases, in 14,3% – significant improvement. To the 10th day – full recovery. In the control group, slower rates were noted: by the 7th day of
treatment, recovery was achieved in 68.6% of patients, and in 1/3 there was only improvement. It was of interest to evaluate the effectiveness of therapy, depending on the severity of tonsillolaryngitis. So, with the inclusion of Maxiokold ENT in treatment with mild course, recovery was achieved in 85.7% of cases compared to 71.4% in the absence of this drug. In the case of a moderate–severe form, the recovery was achieved in 85.7% of patients in the main group by the 7th day of treatment, and 1.8 times less in the control group.

Tolerability of the drug Maxikold ENT as a whole is characterized as excellent and good. Adverse and undesirable events were not noted.

**Conclusion:** ENT Maxikold included in the therapy of catarrhal tonsillo- paryngitis in children turns out to have a positive effect, reducing the recovery time frame both in the mild and moderate-severe form; it is a worthy alternative to more expensive imported medicinal aerosol based on hexidine.

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**THE RESEARCH BY ATOMIC FORCE MICROSCOPY OF THE MORPHOLOGY OF THE TITANIUM SURFACE APPLICATIONS WHICH OBTAINED BY MAGNETRON SPUTTERING**

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**Introduction.** In the last decade the dental implantation has become firmly established in the practice of dentistry and this fact is natural because the partial or complete loss of teeth with caries and periodontal diseases is the most common pathology of dentoalveolar system.

In this regard, it is very important to develop new methods of modification of the implant surface, providing the specific physical and chemical characteristics, which is necessary to achieve the best, close to 100%, osseointegration.

**Objective.** The aim of this work was to develop a method of titanium surface applications by magnetron sputtering and to research the influence of the technological conditions of spraying on the nanostructured morphology (roughness) of the derived titanium surface applications by atomic force microscopy.

**Material and methods.** In this research, we used a prospective method of magnetron sputtering which widely used in vacuum technology for the applica-
tion of coatings of various materials: metals, semiconductors and dielectrics for applying of nanostructured applications of titanium. The installation of magnetron sputtering allows to obtain coatings from almost any metals, alloys and semiconductor materials without disturbing the stoichiometric composition. Magnetron sputtering was carried out on the NSC-3500 NANO-MASTER. Inc. company. As a working gas, we used the high-purity argon of 99.999%. In our experiments we used the target of the Mac design from especially pure titanium 99.99%.

The research of titanium surface morphology applications was carried out with using atomic force microscopy (AFM) with the installation of NT-MDT “SOLVER NEXT” company.

**Results and discussions.** Below are the results of AFM measurements of surface titanium morphology application which are obtained at different spray capacities before and after vacuum heat treatment. The largest number of grains has a size about 50-60 nm. The profile of inhomogeneity (roughness) of the titanium surface applications is given for example, the inhomogeneity value is about 45-50 nm. The largest number of grains has a size about 1 micron. The profile inhomogeneity (roughness) of the titanium surface applications, the magnitude of inhomogeneity is about 0.5 microns.

The titanium applications are obtained with the temperature of 150°C and with the 100W and 200W capacities, after this they are subjected to vacuum heat treatment with the temperature of 300°C and 450°C for 2 hours.

**Conclusions.** The technique of titanium application was developed by DC magnetron sputtering. The influence of technological modes of spraying on the character of surface morphology, grain structure and surface roughness of obtained titanium coatings was researched. In particular, it was confirmed that the doubling of the DC spraying power (from 100 W to 200 W) leads to a significant change in the grain structure (from 50 nm to 1 nm) and the surface roughness of titanium coatings (from 50 nm to 600 nm).

The results of studies have shown that vacuum thermal ignition up to 450°C does not lead to significant changes in the morphology of the surface applications, inhomogeneity profile and its granularity.
SCIENTIFIC ABSTRACTS
OF PARTICIPANTS
FROM OTHER MEDICAL
UNIVERSITIES
OF THE RUSSIAN FEDERATION
CRYSTALLOGRAPHY OF ORAL FLUID AS A METHOD OF DIAGNOSTIC TECHNIQUE IN DENTISTRY

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**Background:** Dental pathology can be suspected by the testing of oral fluid. The comparison of patient’s oral fluid with a standard sample could be informative, time and cost saving, especially in initial stage of dental pathology.

**Objective:** to study crystallography as a scientific method used in dentistry; to describe the various patterns of oral liquid crystallization.

**Materials and method:** We took the samples of oral fluid from 24 students; the age ranges from 18-25 y.o.; each portion of oral fluid was collected in the plastic tube, and then placed on the glass slide (in advance, the glass slide should be used washed in alcohol 96 %) with volume 25 µl and should be left for a period of time (24 h) until it dries. We accurately investigated each sample of oral fluid by the microscope «Leica DM 100» with the useful total magnification x 200. A sample of oral liquid from healthy person serves as a negative control. Before sampling we were instructed and skilled. We excluded those samples which were after tooth paste brushing, food and/or liquid intake, and gum chewing for at least 30 min before collection of oral liquid. Before sampling, the students rinsed the mouth with water (preferably distilled).

**Results:** the majority of the subjects had a clear boundary between the central and peripheral zones. A number of single crystals were observed in the peripheral area, and the crystal lattice corresponded to the normal oral fluid was observed in the central zone. However, in some cases, we detected a cracking peripheral zone. We considered such pattern as a type of crystallization corresponding to the subcompensated caries. The pattern of crystallization with a number of dark "blots" was identified as well. We considered the blots as the deposits of metabolic products of microorganisms. In one case, the crystal lattice was completely absent, only single crystals were observed, indicating a reduced content of salts in the oral fluid which may be due to a general deficiency of trace elements.

**Conclusion:** The technique of oral fluid crystallography may serve as a screening method for diagnosing of dental lesions, especially in initial stage of dental pathology.

**Keywords:** oral fluid, crystallography, oral cavity, dental diseases.
ASSESSMENT OF THE SIGNIFICANCE OF AUTOANTIBODIES IN THE IMMUNOREACTIVITY PROFILES OF MOTHERS AND THEIR CHILDREN WITH AUTISM SPECTRUM DISORDER

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Background: It is assumed the development of specialized immunochemical methods of analysis designed to detect abnormalities of the immune system that could harm the health of the unborn child, may soon become the basis for organizing a wide screening process for women planning pregnancy and therefore to correct the detected abnormalities if necessary. As a matter of fact the incidence trends of newborns naturally correspond to changes in the mother’s general and reproductive health.

Objective: To reduce the risk of giving birth to a child with an autism spectrum disorder (ASD) by determining serum autoantibodies.

Materials and methods: We examined 50 patients who gave birth to children with ASD, aged 25 to 35 (M = 30.0 ± 1.5 years) and 32 children diagnosed with ASD presenting characteristic clinical symptoms (M = 3 ± 1.2 years, boys n = 25 and girls n = 7). For the study, fresh samples of serum stored for not more than 2 days at a temperature of 1-4°C were used. Immunochemical analysis was performed using «ELI-Viscero-Test» and «ELI-Neuro-Test» test kits, according to the manufacturer’s instructions.

Results and discussion: Anomalies associated with autoantibodies to beta 2-GPI were often detected in the serum immunoreactivity profiles of mothers who gave birth to autistic children. In the immunoreactivity profiles of autistic children themselves, an anomalous peak of autoantibodies to ds DNA is often observed. These data indicate an increased incidence of immune-inflammatory disorders in both mothers and their autistic children. In addition, it was revealed that 44% of mothers showed anomalies of immunoreactivity associated with autoantibodies to Spr-06. Results of ELI-N-test revealed a characteristic shift in the serum immunoreactivity profile of autistic children, associated with changes in the content of auto-antibodies to opiate µ-receptors and/or β-endorphin. Interestingly, the same changes in immunoreactivity profiles were detected in their
mothers. The obtained data can be the basis for the organization of a widespread immunochemical screening process for women planning pregnancy, to prevent and reduce anomalies associated with the development of autism in children.

**Keywords:** pregnancy, autism, auto-antibodies.

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**TNF ALPHA (G308A) POLYMORPHISM IN HEALTHY PERSONS AND PATIENTS WITH ULCERATIVE COLITIS**

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**Background:** Tumor necrosis factor alpha TNF is a cytokine produced by macrophages, Its main actions are tissue factor expression by macrophages and endothelial cells, the induction of apoptosis, the TNF alpha effects are involved in the pathogenesis of ulcerative colitis, immune reactions of a person depend on genetic polymorphism of molecules involved in the immune response, including TNF-alpha.

**Objective:** The aim is to study the TNF alpha gene polymorphism in healthy persons and patients with ulcerative colitis.

**Materials and methods:** 190 healthy persons and 30 patients with ulcerative colitis were examined. Polymorphism of gene was determined by PCR. Buccal epithelium was used to extract DNA samples, DNA extraction amplification and detection of Amplicones were provided from the company 'Litech' in Moscow.

**Results and discussions:** 168 normal homozygotes (88.4%), 19 heterozygotes (10%), 3 pathological homozygotes (1.6%) were found in healthy persons, and established that frequencies of pathological A-alleles are minor, and normal G-alleles are major in the group of patients with ulcerative colitis, the homozygous AA were founded in 4 cases 13.3% GA heterozygotes in 12 cases 40% homozygous GG in 14 cases, 46.6% A-alleles among patients were observed with frequency of 0.27, which is significantly higher among healthy individuals, at the same time normal G-allele was less common in the patients with ulcerative colitis, in comparison with the control group the relative risk of ulcerative colitis in carriers of allele was 3.29 times higher than subjects with normal allelic variant, where the odds ratio are 4.72.
**Conclusion**: We assume that the carrying of A-allele of TNF may be considered a risk factor for the development of ulcerative colitis.

**Key words**: TNF-α, gene polymorphism, ulcerative colitis.

**THE ROLE OF LOCAL ANESTHESIA IN THE IMPLEMENTATION OF DEZERTERIZATION OF HEMORROIDAL NODES**

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**Introduction.** The most optimal method of low-traumatic treatment of hemorrhoidal disease is the operation of HAL RAR.

**Objective.** The wide application of this technology requires the selection of the optimal method of anesthesia. Desarterization of hemorrhoidal nodes is used mainly in outpatient or one-day hospitals, where it is not always possible to use regional or general anesthesia. This is due to a high risk of complications of the above methods of anesthesia.

**Materials and methods.** We generalized the experience of deparortization of hemorrhoidal nodes with mucoscopic mucosa of the rectum from October 2013 to November 2017. Over this period, 289 doppler-oriented bandages of hemorrhoidal arteries with mucopexia were performed. There are 154 men and 135 women.

**Results and discussion.** Simultaneous operations were performed in 53 patients. Anesthesia on Ropivacaine. The technique of performing anesthesia is as follows: the introduction of an anesthetic into the anal sphincter was performed at 3.6.9 and 12 hours. The anesthetic effect develops in 2-3 minutes. During the manipulation, patients did not experience pain. In the postoperative period, the anesthetic operated for 3-4 hours. After manipulation, the patient was in the blade for 1 hour.

**Conclusions.** According to the above described method of local anesthesia, 289 operations were performed, including 53 simultaneous anal interventions on the anal canal. Thus, the treatment of hemorrhoidal disease in the volume of Doppler-controlled desarterization of hemorrhoidal nodes with mucopexy and rectal mucosal lifting under local anesthesia with a solution of 0.5% -80.0 Ropi-
vacaine is performed in comfortable conditions without pain that does not require prolonged stay of patients in the clinic in the postoperative period.

**Key words:** hemorrhoidal disease, desarterization, anesthesia, mucopexy, doppler.

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**EQUINUS COMPONENT ETIOPATHOGENESIS OF CLUBFOOT**

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**Background.** Despite the centuries-old experience of clubfoot treatment and a huge number of proposed conservative and surgical methods of treatment of this pathology there is a high percentage of relapses. The most difficult for the treatment of the clubfoot element which in most cases requires surgical intervention is equinus. A possible cause of clubfoot relapse and a malfunction of the foot in a remote postoperative period is the absence of an etiopathogenetic approach to the choice of the method and volume of surgical treatment of the equinus deformity component.

**Objective:** to determine equines etiopathogenesis with clubfoot.

**Materials and methods.** The study included 65 patients with clubfoot who needed surgical intervention to eliminate the equinus component. Anesthesia combined mask anesthesia and conductive anesthesia. Before performing the operation we made a determination of the range of movements in the ankle joint measured by a fleximeter.

**Results and discussion.** Depending on the angle of the foot extension patients were divided into 2 groups: Group I – extension 90° and more (37 patients); Group II – extension less than 90° (28 patients). In the first group of patients with clubfoot, surgical interventions were applied to the Achilles tendon. In group II the equinus deformity component was eliminated by surgical interventions on the muscles.

**Conclusion.** As a result of the study, we obtained data confirming the presence of a neurological factor in the etiopathogenesis of equinus in some patients with clubfoot. The volume of medical manuals must take into account the pathogenetic features of pathology formation.

**Keywords:** clubfoot, equinus, verification.
WITHDRAWAL SYNDROME
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Background: Statistics says that 70% of the people who are addicted to alcohol suffer from withdrawal syndrome. Withdrawal syndrome is a set of symptoms such as anxiety, tremor, sweating, palpitation, vomiting, mild fever (38.0 C), seizures and they occur due to discontinuation or dosage reduction of some types of medications and recreational drugs. The risk of the syndrome occurring due to alcohol intake increases with dosage and length of use.

Objective: A detailed study about the withdrawal syndrome occurring due to sudden discontinuation of alcohol.

Materials and Methods: Research was conducted in Cherkessk city, Russia from November 2017 until February 2018. There were 20 chronic alcoholic men from 25 to 40 years old. They were divided into control and research groups each containing 10 men. We had discontinued the intake of alcohol in both groups for a period of one week and examined. About 15 of them developed anxiety and tremor, sweating and vomiting were common among all, and seizure was seen in 2 among them. After the onset of symptoms, Tab. diazepam 2-10 mg BD or QID per day was given in the control group and the symptoms got decreased gradually and in the research group small quantity of alcohol were provided for next one week.

Results: An intake of 1-3 drinks, each containing 9.8 g ethanol up to 3 times a week did not increase seizure susceptibility and other symptoms in the research group.

Conclusion: A sudden discontinuation of alcoholism can result in the manifestation of abnormal symptoms but by gradual reduction in the quantity of alcohol in-take can reduce the after effect.

Keywords: alcohol, seizures, tremor, syndrome
**RISK FACTORS OF HYPERTENSIVE NEPHROANGIOSCLEROSIS AND THEIR RELATIONSHIP TO CHRONIC KIDNEY DISEASE**

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**Introduction:** An increase in the incidence of hypertensive nephroangiosclerosis (HN) plays a significant role in increasing the prevalence of chronic kidney disease (CKD). It can be assumed that the study of risk factors for the development of renal dysfunction in patients with AH will slow down the progression of CKD in patients with arterial hypertension.

**Objective:** to study the risk factors (RF) of the development of hypertonic HN, to clarify its relationship with the development of CKD in patients with arterial hypertension (AH).

**Materials and methods:** an analysis of the scientific medical literature on the stated subject was made.

**Results and discussion:** Analysis of modern registers of patients on renal replacement therapy shows that among the reasons for the development of the terminal stage of CKD the second place after diabetes is occupied by AH. It has been shown that in patients with AH, there is an increase in urinary excretion of the transforming growth factor (TGF-P), vascular endothelial growth factor (VEGF), an inhibitor of the plasminogen activator type 1 (PAM), and type IV collagen. An increased content in urine of above mentioned growth factors is considered as an early sign of HN. The growth of urinary excretion collagen type IV is associated with microalbuminemia and indicates the activation of renal fibrogenesis. The progression of endothelial dysfunction is facilitated by hyperuricemia. In the initial stages HN is reversible. If the appropriate medical treatment is carried out in time, it is possible to slow down the development of CKD. Particularly effective in this respect is the use of drugs of the group of angiotensin-converting enzyme inhibitors. To assess the effectiveness of treatment of hypertension with GN, follow the control of the restoration of endothelial dysfunction at the level of the microcirculatory bed, for which it is necessary to use the index of vascular adaptation, to carry out the determination of microalbuminemia and other RF.

**Conclusion:** diagnosis of early stages of kidney failure in HN, clarification of its RF, will reduce the rate of progression of CKD.
Keywords: arterial hypertension, chronic kidney disease, hypertensive nephroangiosclerosis, microalbuminuria.

INFLUENCE OF CADMIUM IONS ON BIOCHEMICAL INDICATORS OF GERMINATIVE WHEAT GRAINS

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Background: Bioindication is one of the fastest and cheapest ways to assess the state of the environment. As test objects of species, animals and plants are used. Plant organisms are more often resistant to various physical and chemical stressors, for example to the action of heavy metals.

Objective: To determine the biochemical parameters of grain and wheat sprouts under the conditions of using heavy metal ions (cadmium) in model systems.

Materials and methods: Washed wheat seeds were placed in petri dishes (2 times repetition, in each 30 pieces of Grain) and poured in solutions of cadmium chloride with concentrations from $10^{-1}$ to $10^{-6}$ M, in the control – water. To study the change in the dynamics of soluble fractions of grain proteins, the experiment lasted up to 3 days, to assess the level of formation of TBA-active products – 10 days. Determination of protein concentration was carried out by UV method, TBA-active products- photometric. All determinations were carried out using a spectrophotometer PE-5400UV. Statistical processing included the calculation of the mean and error of the mean, and the Pearson correlation estimate.

Results: Wheat grains, placed in solutions of cadmium chloride, consumed soluble protein fractions on the first and third days in different ways. During the first 24 hours from the moment the test objects were placed in solutions, the content of albumins and globulins in the solution with a molarity of $10^{-2}$ and $10^{-6}$ M increased by 9 and 10% compared to the control, respectively. The amount of this fraction was noticeably lower in solutions with a concentration of $10^{-3}$ and $10^{-5}$ M, with a minimum at $10^{-4}$ (50% of the control). In the dynamics of prolamin there was a slight excess of content in the experiment compared with the control (by 5-7%). The amount of gluten was the maximum difference from the
control at a salt concentration of $10^{-2}$ and $10^{-6}$ M, and was an increase of 48 and 41%, respectively. The measurement of the absolute content of protein fractions on the third day from the beginning of the experiment revealed the following trends. The total number of albumins and globulins changed: this was a significant (2-fold) increase in their amount in solutions with a molarity of $10^{-3}$-$10^{-5}$ M, and a slight decrease at $10^{-6}$ M. The content of prolammin in most samples decreased by 40-50%, and only in a solution with $10^{-6}$ M there was an increase of 8.5%.

The content of glutelins also decreased, but with a decrease in the concentration of the solution, their amount increased (by 40% compared to the control). Thus, it can be assumed that in low and ultralow concentrations, cadmium ions can exert an activating effect on the hydrolysis of reserve proteins. In the total content there was a tendency to a gradual increase in the number of all fractions under the action of Cd$^{2+}$ ions with a molarity of $10^{-6}$ M. The study of the action of solutions with a toxicant - cadmium in a longer germination period revealed the death of seedlings at a high solution concentration and a good development of vegetative organs in conditions of minimum quantities of pollutant. To quantify the impact of the stressor, the determination of TBA-active products was used. Under conditions of maximum concentration, germination and growth arrest were observed, while the level of MDA in seedling tissues was maximal, compared to all samples (97.5 nM). The minimum values of this index were observed in leaf blades of wheat at a Cd$^{2+}$ $10^{-5}$ M concentration of 20.77 nM. In general, in the roots and leaves of sprouts in toxicant solutions with a molarity of $10^{-4}$ to $10^{-6}$ M, the amount of TBA active products did not exceed 34 nM, and significant growth occurred only with a significant increase in the concentration of Cd$^{2+}$ ions.

**Conclusion:** Therefore, under conditions of low concentration of Cd$^{2+}$ ions, plants cope with toxic stress and can develop normally. High concentrations of salt, in contrast, slow down the growth and development of plants, due to the irreversible non-competitive inhibition of enzyme systems.
STRESS-ASSOCIATED CHANGES OF GIT MUCOSA IN THE WHITE LABORATORY RATS UNDER CHRONIC STRESS

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Background: New data received in the last years influence and maintain the interest of health professionals to the problem of stress-associated changes in gastrointestinal tract (GIT) mucosa. The authors investigating the ulcerogenic effect of stress concluded that stressors stimulate the activity of hypothalamus, vagus nerve, and release of histamine and catechol amines. These influence on the increasing of the acid production by the parietal cells in stomach. Due to the activation of hypothalamus, the production of adrenocorticotropic hormone (ACTH) by pituitary increases and is followed by an increase of corticosteroids. Corticosteroids reduce the production of gastric mucus and impair its buffer capability. In addition, corticosteroids disrupt the rate of epithelial regeneration in the gastric mucosa, stimulate the histidine metabolism with the formation of histamine (due to the activation of the histidine decarboxylase enzyme). Corticosteroids and catechol amines worsen microcirculation and provoke a local ischemia. All these known mechanisms lead to the stress-associated lesion (ulcer) of the GIT. However, there is a question whether there is a relationship between the type of stressor and changes that occur in the mucosa under stress. The authors of the articles published on this issue are not unanimous.

Objective: to study the morphological changes of the gastric mucosa under different types of stressors.

Materials and method: 24 white laboratory rats (males) aged 60 days were kept in standard cages with free access to water and food. The animals were divided into three groups: a control group, a group of animals stressed with a physical stressor, and a group stressed with an emotional stressor (8 individuals in each group). A stressful situation for the rats of the physically stressed group was created by water immersion (mainly physical stress) during 30 min, 5 days (temperature 15°C). Emotionally stressed group subjected to an emotional stressor ("stress of observation"). In our model of emotional stress, the swimming rats suffering from the intense physical stress were observed as experi-
mental animals. Before and after the stress session, the weight of body and adrenal glands was examined.

For microscopy, we performed the tissue processing. The stomach was sampled, fixed with 10% buffered formalin for 24 hours, embedded with paraffin and stained with hematoxylin-eosin. The microscopic examination of gastric mucosa was performed with the microscope «Leica DM 100», total magnification x 200.

**Results:** We detected a decrease of the body weight in 84.5% of all animals, hypertrophy of the adrenal cortex in 81.2% of all animals. However, the changes of weight were noted in 92% cases of physical stress and 52% cases of emotional stress. The gastric mucosa was evaluated macro- and microscopically. In 76% of rats subjected to physical stressor we identified multiple erosions, hemorrhages, inflammatory cell infiltration, and focuses of local necrosis in the mucosa of stomach. The gastric mucosa of rats subjected to the emotional stress only demonstrated the same pathological changes in 43% of animals.

**Conclusion:** Stress-associated reaction is a nonspecific response of organism to the stress. However, it can be concluded that the stress-associated morphological effect provided by an activation of sympathoadrenal and hypothalamic-pituitary systems has various grades which depend on the type of stressor.

**Keywords:** stress, emotional stressor, physical stressor.

**MAGNETIC RESONANCE IMAGING EVALUATION OF TEMPORO-MANDIBULAR JOINT DYSFUNCTION**

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**Background:** Significance of improving the diagnosis of temporomandibular joint (TMJ) dysfunction is due to both the widespread prevalence of the disease, and the multiplicity of research methods with different information content. Numerous researchers reported the validity and effectiveness of magnetic resonance imaging (MRI) in the diagnosis of TMJ dysfunctions.

**Objective:** Optimization of MRI study of internal derangements-related TMJ dysfunction.
Materials and methods: The study included a survey of 45 subjects (25 patients with TMJ dysfunction and 20 volunteers) aged 18 to 35 years. MRI scans were performed by 1.5 Tesla system with head coil (Toshiba, Japan) using sagittal and coronal oblique T1-, PD- and T2-weighted sequences in the closed and open mouth positions, slice thickness 2 mm-0.1 mm gap. A graduated 5 to 45 mm mouth-opening device was positioned between the central incisors of the jaws. The average MR scan acquisition time was 30 minutes. Statistical processing was carried by the program "Statistica 10.0". The critical level for testing hypotheses was 0.05.

Results: MRI analysis showed that displacement and deformation of the mandibular condyle was revealed in 28% of patients with maximally open mouth. In 72% of subjects with restriction of mouth opening, the mandibular condyle was located at the maximum open mouth, not reaching the apex of the articular eminence at ½ of its width. At this position, the cortical layer of the condyle and the articular eminence were not impaired. Regular changes in the structure and shape in identical places were determined in all cases in anterior mandibular condyle displacement. This was manifested by the presence of subcortical sclerosis, flattening of the mandibular condyle in the superior-posterior area and the anterior surface of the articular eminence. Disc displacement was observed in 100% of cases. Fibrosis of the disc was also found in all subjects.

Conclusion:
1. Mandibular condyle chronic displacement contributes to the development of subcortical sclerosis and flattening of both the superior-posterior area of the mandibular condyle and the anterior surface of the articular eminence.
2. Compression results in disk deformation (perforation, "wrinkling", flattening) and its dystrophic changes.
3. TMJ dysfunction causes the appearance of small-focus hemorrhages, sclerosis and contractions in the posterior disk attachments area.

Keywords: temporomandibular joint, dysfunction, internal derangements, MRI.
Background: Nutrition is an important factor for better life. It is always a concern for students living in foreign countries to establish the proper nutritional requirements, adaptation to the new environmental and habitual changes and different lifestyle.

Objective: to understand the nutritional value and adaptation of Indian students studying in Russia.

Materials and Methods: Between October 2017 and January 2018 survey was done on 35 Indian students (20 males and 15 females) of 1st and 2nd year living in Academy hostel in Cherkessk. We made a comparative study of student’s food style in India and Russia with questions related to different aspects of their food pattern, its nutritional value and daily routine.

Results and discussions: According to the survey the commonly used foods of students in Russia are meat=136.4cal, rice=204 cal (one cup), potato (100g) =77 cal, chicken (100g) =236cal, egg (100g) =155cal, milk (100ml) =42cal, curd (one cup) =80cal and green peas (100g) =81cal. Most of the students consume 1-2 times meal per day, whereas in India they consume 3-4 times per day on average. That is average calories consumed per day in Russia is around 1011, whereas in India around 2000-2500 calories per day. According to the standard calorie scale, men should consume 2500 cal per day and women 2000 cal per day (critical value).

Conclusion: Due to lack of nutritional achievement, students often undergo weight loss, loss of appetite, menstrual cycle changes, depression which may further lead to low immunity, low blood sugar, and lack of focus. Main factors affecting their diet are lack of proper daily diet schedule, time management and family economical background. Students may reestablish nutritional balance by taking multivitamins, cod liver oil supplements.

Keywords: nutrition, adaptation, calorie, students
THE EXPERIMENTAL APPROBATION OF POLYETHEREAL IMPLANTS FOR THE FORMATION OF THE LOCOMOTOR STUMP AFTER ENUCLEATION

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**Introduction:** The main aspect of the pledge of success in performing enucleation is the formation of the locomotor stump after removal of the eye using orbital implants.

**Objective:** To study the properties of microbiological examination of a polyethereal implant with medicinal impregnations, to form a locomotor stump after enucleation of the eye in rabbits of the Chinchilla breed (experimental group of animals).

**Materials and methods:** On the basis of the experimental operating vivarium of the TSMU, an experimental group of animals was used – rabbits of the Chinchilla breed, who underwent surgery on one eye: enucleation of the eye followed by the formation of the locomotor stump with a polyethereal implant with medicinal impregnations.

**Results and discussion:** The results of the microbiological examination of the polyethereal web have established antibacterial activity against the following microorganisms: B. subtillis, S. aureus, Salmonella typhimurium, E. Coli, Sh. sonnei. With regard to pseudomonads and yeast-like fungi of the genus Candida, medicinal impregnations are not active. The results of the study of macropreparations showed that among the studied group of rabbits of the Chinchilla breed, there are no signs of infection, migration and rejection of the implant.

**Conclusions:** Thus, in carrying out the experimental part of work on 6 rabbits of the Chinchilla breed on the surgical intervention – enucleation of the eye with the subsequent implantation of a polyethereal fiber implant with medicinal impregnations, a volumetric and mobile locomotor stump was formed, intended for further prosthetics.

**Keywords:** enucleation, the polyethereal implant, medicinal impregnations, rabbits of the Chinchilla breed, the locomotor stump.
EFFECTIVENESS OF BENFOTIAMINE IN COMPLEX THERAPY OF DIABETIC AUTONOMIC NEUROPATHY IN AGED PATIENTS

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Background: Benfotiamine is a vitamin-like compound, one of the derivatives of vitamin B1 (thiamine), which has high bioavailability. The advantage of benfotiamine is expressed in the improvement of the indices of cardiovascular testing.

Objective: to evaluate the effectiveness of benfotiamine in the complex therapy of diabetic autonomic neuropathy (DAN) in elderly patients.

Materials and methods: Forty-one (41) patients aged from 65 to 78 years with type 2 diabetes were examined. Seven (7) patients were diagnosed with diabetes mellitus for the first time. The remaining 34 patients had a history of their illness of 2-18 years. Clinical symptoms of neuropathy, including autonomic ones, were investigated according to the NSC scale. All patients were examined fasting blood glucose and glycemic profile, glycosylated hemoglobin. Besides, they underwent a test for microalbuminuria and were tested for body mass index. The presence of autonomic neuropathy was judged by the results of cardiovascular analysis using five standard D. Ewing samples. All patients with neuropathy signs were treated with a-lipoic acid (thiogamma, Wörwag Pharma) 600 mg/day according to the standard scheme (injection course with crossover to oral forms). In addition, 20 patients were treated with benfotiamin orally in a dose of 300 mg/day in the preparation of milgamma (Wörwag Pharma) — 1 pill t.i.d. The course of treatment was 3 months.

Results: Clinical manifestations of the cardiovascular form of DAN (resting tachycardia, lipothymia) were found in 28% of the examined patients. Various gastrointestinal motility disorders in the absence of gastroenterological impairments (signs of gastrointestinal form of DAN) were found in 30.5% of the patients. Electrophysiological signs of DAN of varying severity were found in all patients, regardless of the duration of diabetes mellitus, the level of its compensation, body mass index. After 3 months of follow-up, 69.3% of patients treated with benfotiamine and a-lipoic acid and 53% of those treated with a-
lipoic acid only noted improvement in their health and decrease in the severity of subjective manifestations of DAN. An improvement in the indices of cardiovascular testing occurred in 77.3% of the patients treated with benfotiamine compared with 63.6% of untreated patients. Reducing the severity of the cardiovascular form of DAN as a result of autonomic tests occurred in 27.3% of patients treated with benfotiamine and a-lipoic acid, and 18% of those treated with a-lipoic acid only. Both medicinal drugs were well tolerated. Adverse effects associated with their administration during the observation period were not recorded.

Conclusions: The combination of benfotiamine with a-lipoic acid surpasses the effectiveness of a-lipoic acid administration only as a pathogenetic therapy of DAN and promotes reducing the severity of its electrophysiological manifestations in greater percentage of cases. High tolerability of the medicinal drug, along with its effectiveness, makes it possible to recommend it for widespread use in the neuropathy treatment in elderly patients.

Keywords: benfotiamine, thiogamma, electrophysiological signs, cardiovascular, milgamma, microalbuminuria
Materials and methods. The object and subject of researches of this study are the country's drinking resources. The methods of water quality studies of water sources and drinking water, which are generally accepted in hygienic practice were used. The data were obtained from the State Center for Water Quality Control.

Results and discussion. NamWater is a public water supplier that operates dams, pipelines and water treatment facilities throughout the country. It provides and sells water to municipalities that distribute and sell water to households, businesses and offices in their respective service areas. The main problem in Namibia is inadequate sanitation. More than 50% of child mortality is due to lack of water, sanitation or hygiene. The UN has identified a "sanitation crisis" in the country. Approximately 40 per cent of the urban population in Namibia does not have access to sanitation. CuveWaters conducts sanitation and sewage treatment with the repeated use of water in agriculture, energy production. In the first stage, the wastewater is transported to a vacuum station and a wastewater treatment plant. Water is stored in a pond for reuse.

Conclusion. Namibia is a very dry country, and it managed to take and supply the country with clean water - a wonderful trade. Many Namibians know that they consume processed water and are coping with it perfectly. There are ways in the country to use sea water for drinking. Since there are few precipitations in the country that are used sparingly.

DETERMINATION OF THE VOLUME OF SURGICAL INTERVENTION IN CHILDREN WITH EQUINUS IN CEREBRAL PALSY
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Background. According to different authors, deformities of feet in children with cerebral palsy (CP) occur on average in 60% of cases. At least 40% of them need surgical treatment. Considering the multicomponent nature of the disease the choice of the volume of surgical intervention is not always unambiguous and first of all depends on the severity of the deformity.

Objective: To determine the volume of surgical treatment depending on the severity of the feet deformities in children with cerebral palsy.
Materials and methods. Since 2016 there have been 59 children at the age of 9 to 15 under our supervision. By gender boys predominated (38 people). The main component of the foot deformation was the equinus. Degree of deformation was determined on the basis of measuring the amount of force necessary to eliminate the equinus position of the foot. The study was carried out using the device proposed by us. Patients were divided into 3 groups: group I – patients with equinus of mild severity (39 persons); group II – children with equinus of moderate severity (15); group III – children with equinus of a serious degree (5). In group I and group II gastrocnemius tenomyotomy was used on the basis of sonography of the gastrocnemius muscle according to the method we proposed. In group III the Achilles tendon lengthening was used.

Results and discussion. Results of treatment were evaluated 2 months after the operation. In the first two groups the range of dorsiflexion increased by 10 ± 2°, the gastrocnemius muscle tone decreased by 1 point on the Ashworth scale, when walking the movements of the foot were represented by three phases. In group III the range of dorsiflexion increased by 6±2°, the gastrocnemius muscle tone decreased by 2 points, the foot roll was disturbed.

Conclusion. The choice of the operation volume depending on the severity of equinus in children with cerebral palsy made it possible to obtain good clinical results.

Keywords: cerebral palsy, equinus, children, surgery.

LEVEL INFLUENCE OF ACCUMULATION OF SEVERE MOBILE FORMS OF METALS ON FERMENTAL ACTIVITY OF SOILS AND ARTIFICIALLY EDUCATED SOILS

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The growth of the cities has led to expansion of territories of technogenic landscapes. They are characterized by level decrease of biological diversity, violation of natural biogeochemical cycles of macro and microelements, global change of conditions of living organisms. As a result the intensification of re-
receipt of toxic compounds is observed. Its accumulation has the negative impact on people who live in the territory of an intensive techno genesis or nearby. As example of such conditions is the ash dump of thermal power plant №2 located in the southern suburb of the city. It is situated on the right bank of the river Ingoda, about 0.74 miles lower than confluence of the river of Chita into it

**Objective:** to estimate the influence of content of mobile forms of heavy metals (HM) in soils on activity of enzymes in the conditions of technogenic pollution of the environment.

**Materials and methods:** 14 tests of soils on perimeter of ash dump were selected for a research. The first contours (7 tests) were selected close to the object. Others were selected at the distance from 50 to 150 m from the object border. Soil samples were crushed and used for activity definition of invertase enzymes (gravimetric method) and catalases (spectrophotometric method). Heavy metals were extracted by acetate ammonia buffer solution (pH=4.8 V). The definition of these xenobiotics was carried out by Stripping voltammetry. The obtained data were subjected to mathematical the statistical processing by statistical package of MS Excel 2010 and PAST 3.0.

**Results:** The distribution of ions of heavy metals in the samples showed the following features. The greatest number of Zn²⁺ was revealed in samples in the city soil of an ash dump No. 4 (67,9±15 mg/kg) and No. 7 (30,2±9,2 mg/kg). It exceeded the limit values for mobile forms of this element (23 mg/kg). By the content of Cd²⁺ excess of maximum allowable concentration in the relative frame forms (1 mg/kg) was not noted. The maximum was recorded for point 6p (0,82±0,25 mg/kg). By the value lead extraction excessive concentrations in the sample 6p (of 46.45±2 mg/kg) was revealed. High content of Cu²⁺ is 12.2±0.8 mg/kg was noted in the same sample.

The comparison of enzyme activities – catalases and invertases, in dependence on cooperative accumulation of mobility of forms of heavy metals on various sites revealed the following tendencies. The activity of a catalase had minimum values in substrata of points 7 and 6p (1,75 and 4,02 mm of H₂O₂/h respectively). Then as maximal activity enzyme showed in samples of soils from points 1p, 9 and 8 (10,05, 10,81 and 13,07 mm of H₂O₂/h respectively). The invertase activity was significantly higher in substrates from peripheral sites, with degraded soil cover (in paragraph 4P – 67, 5P – 94, 6P – 100 mg glucose/1 g soil per hour, respectively).

**Conclusion:** The excessive content of mobile forms was noted in the conditions of formation of the technogenic soils on ash dump of thermal power
THE INFLUENCE OF DENTAL HEALTH ON THE QUALITY OF PEOPLE’S LIVES

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Introduction. The condition of dental health influences the level of anxiety as well as the quality of people’s lives. The higher the quality of dental well-being is, the less is the emotional intensity, the amount of concerns and neurosis, which may be caused before or after visiting a dentist.

Objective: to examine the influence of dental health on the level of anxiety as well as the quality of patients’ lives.

Materials and methods. We have examined and provided with orthopaedic therapy of 56 people who appealed to dental clinic for the orthopaedic dental care, and who had included defects of dental rows and aesthetic dissatisfaction with the front raw of teeth of the upper and lower jaws.

The age of the patients was between 25-50 years old, including 27 men (48,2%) and 29 women (51,8%). The examining of the patients was held in definite consistency according to the traditional scheme. The defining of the anxiety level was conducted by the method, offered by C.D. Spielberger (Spielberger's State Trait Inventory (STAI), adapted by U.L. Khanin; for the estimation of the quality of life the Brief Questionnaire of the World Health Organization (The world health organization quality of life (WHOQOL) - BREF) and the modernized scale of dental questionnaire OHIP-14.
**Results.** The recovery of anatomy and the function of dentition system by means of various orthopaedic constructions, as well as restoration of the vital teeth of the front row by means of photocomposite materials were provided for the patients. All the patients were surveyed before and after the prosthesis.

After the giving of orthopaedic dental care the general quality of the patients’ lives raised in the following characteristics: physical and psychological well-being – 26%, self-perception – 33%, perception of dental health – 36%. The level of reactive anxiety decreases by 18%.

**Conclusion.** The most significant deductions a dentist – orthopedist should made out of the research results are: the degree of dental health of a patient is directly proportional to the quality of human’s life and is inversely proportional to the level of personal or reactive anxiety.

**Keywords:** partial absence of teeth, life quality, level of anxiety, aesthetic dissatisfaction.

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**HYGIENIC ASSESSMENT OF THE ACTUAL NUTRITION OF FOREIGN STUDENTS OF ISMU**

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**Introduction.** One of the forms of educational interstate relations is the education of students in foreign educational institutions. Irkutsk State Medical University trains citizens of Africa (Ghana, Nigeria, Namibia, South Africa, Egypt, and Zimbabwe), India, Kurdistan, Sri Lanka, Bangladesh, Pakistan and others. Temporary relocation of students from territories with a hot tropical climate to places of residence in Russia with a sharply continental climate can lead to problems of physiological adaptation of their organism. Therefore, it is necessary to study this in order to preserve the health and success of education. A large role in adaptation processes is given to the proper nutrition of foreign students.

**Objective.** To study of the actual nutrition of foreign students in the process of adaptation of their organism to the sharply continental climate of Siberia and also to study the peculiarities of nutrition. To study the actual food of foreign students of IGMU living in new climatic conditions.
Materials and methods. The diets of 50 foreign students studying at the medical department of the ISMU were analyzed. Among them are 35 men and 15 women. The content of basic nutrients, vitamins and macro elements was studied. The content of nutrients in actual diets was compared with the Norms of physiological needs for energy and nutrients for different groups’ population of the Russian Federation (2008). The main method used in the research is questionnaires. Face-to-face interactions were used. Based on the survey, observations and questionnaires, the type of nutrition of foreign students in the summer-autumn period is determined. The statistical processing of the resulting material is done using the Microsoft Excel programs.

Results. Assessment of nutrition of foreign students was conducted during the week. Analysis of the content of essential nutrients in actual nutrition allowed us to identify a pronounced protein deficit by 30%, fats by 46%, carbohydrates by 35%. The energy value of the diet is reduced by 40.5%. The calcium content is reduced by 70.0%. There is insufficient intake of vitamin A and vitamin C. Deficiency of saturated and polyunsaturated fatty acids. The power mode does not meet the requirements. Many students have 2-3 meals a day.

Conclusion. In the diet of foreign students, there is a shortage of essential nutrients, vitamins, minerals, saturated and polyunsaturated fatty acids. It is necessary to eliminate the identified shortcomings and imbalances, since in the future this can affect the health of foreign students.

MODERNIZATION AND ITS EFFECTS ON AGEING
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Background: Olden day’s people lived longer and aged slowly. Aging is the process of becoming older and its various causes are shortening of telomere in cells, oxidative stress, glycation, diet, hereditary, environment, etc.

Objectives: to compare lifestyle of 1900’s, 1950’s and today’s population, respectively for ageing.

Materials and Methods: From August 2017 till January 2018 a study was done in India and Russia based on modernization, pollution, diet and physical activity. We divided people into 3 groups and each had 10 men and women. The
first group consisted of people from 1940’s whose parents had lived up to 90-100 years average. Modernization, pollution and radiation due to gadgets were less then, followed a healthy diet and high physical activities. In 2nd group, from 1950’s had parents who lived up to 70-80 years. Modernization and pollution was moderate while radiation due to gadgets was less. Diet was healthy and physical exercise had moderately decreased. In 3rd group, present day people in the 2000’s having neither disease nor injury, expected to live up to 50-60 years as modernization, pollution and radiation due to gadgets has considerably increased. Physical exercises have reduced and diets have become unhealthy.

**Result:** It is observed that the process of aging had increased overtime and life expectancy decreased based on modernization, pollution, diet and physical activity. An average of 20% decrease in age was observed overtime.

**Conclusion:** Primitive and simple lifestyle slows the process of aging, while modern lifestyle causes stress, anxiety, radiation, unhealthy diet, lack of physical activities and fastens the process of aging.

**Keywords:** ageing, modernization, diet, lifestyle.

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**MIFEPRISTONE: SPECIAL USE AT INDUCED ABORTION OF LATE TERM PREGNANCY**

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Abortion poses a threat for reproductive health of women. Currently the frequency of unsurvivable congenital malformations. One such solution is the using of Mifepristone.

**Objectives.** To evaluate the effectiveness of Mifepristone at induced abortion of late term pregnancy on medical reasons.

**Materials and methods.** Over the period of 2013 – 2017 in Regional Autonomous Public Health Care Institution of Primary Health Care Unit of Irkutsk Aircraft Manufacturing Factory 65 induced abortions of late term pregnancy on medical reasons were performed using Mifepristone. The data were obtained by post-hoc analysis of hospital records (form 003 / y). Groups on the presence of complications after induced abortions were formed when using these drugs. The summary table is made using the Microsoft Excel program. While processing of
statistical data and the reliability of the study they used a nonparametric chi-square test, parametric t-Student's test.

**Results.** Indications for abortion were: from mother’s side 8% of cases; from fetus’s side 92%, multiple malformations of them: congenital malformations Central nervous system 30%, congenital malformations Cardio vascular system 33%, presence of chromosomal abnormalities 22%, congenital malformations Urinary system 7%, congenital malformations Gastrointestinal tract 5%, congenital malformations Muscular skeleton system 25%, congenital malformations Respiratory system 4%, Dento facial anomalies 7%, non-developing pregnancies in 2% of cases (p <0.01).

In evaluation of results after induced abortions in the first group in 80% of cases complications were not determined; in the second group: the presence of early complications was in 20% of cases, eliminated in the period of hospitalization; the third group, with late complications had 0% (p <0.01).

**Conclusion.** The use of Mifepristone is an effective and safe method of induced abortion of late term pregnancy.

**Keywords:** Mifepristone, induced abortions, late term pregnancy, medical reasons of abortion

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**EFFECT OF DIETARY COUNSELING TO PREVENT EXCESSIVE WEIGHT GAIN DURING PREGNANCY**

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**Background:** Pregnancy is a critical period when good maternal nutrition influences the health of both a child and a mother. Obesity is a growing problem and excessive gestational weight gain (EGWG) is associated with long-term obesity in both a mother and a baby. The prevalence of obesity has increased among women of childbearing age, approximately 60 % of obese pregnant women gain more weight than they were recommended during pregnancy. Excessive weight gain during pregnancy welcomes several complications during pregnancy, delivery and also neonatal complications. It is highly linked with adverse maternal and fetal outcomes including gestational hypertension, preeclampsia in the mother and long-term obesity in the offspring.
**Objective:** To study and assess the effect of dietary counseling on excessive gestational weight gain.

**Materials and methods:** The study was conducted with a random sample of 200 women, age between 20-30 years, free from any chronic diseases in the first trimester of pregnancy at the antenatal care clinic as a randomized controlled trial including intervention and control group of pregnant women. Based on data analyses, nutritional practice of the studied participants were identified and tailored nutrition counseling sessions were designed. Follow-up of the studied participants was ensured to enforce healthy dietary intake and weight gain as per recommendations to avoid EGWG.

**Results and discussion:** The assessment resulted in a significantly higher proportion of women in the intervention group who gained gestational weight compared to the women in the control group (42 % vs 14 % respectively). In contrast, individual counseling on diet and physical activity was unable to prevent EGWG. One possible explanation to this was that targeted women during their studies might have gained less weight during pregnancy and retained less weight postpartum. The results of this study send a strong message for the actual need of implementing dietary counseling for pregnant women in healthcare facilities.

**Conclusion:** The results of this study demonstrated that dietary counseling given to pregnant women reduced the proportion of EGWG and promoted healthy nutritional practice. There is a strong need for effective intervention strategies targeting EGWG to prevent adverse outcomes of pregnancy.

**Keywords:** excessive gestational weight gain, dietary counseling.

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**PREVALENCE OF SKIN CANCER IN NIGERIA**

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**Introduction.** Skin cancer is the most common cancer. Approximately half of people, whose age is more than 65 years old, had skin cancer at least once in their life. Skin cancer is more common in the southern regions, especially in people with fair skin. People with swarthy skin fall ill with it several times less often. The highest rates of morbidity are observed in South Africa and Australia. Over the past decade, there has been an increase in the rate of growth of skin
cancer. Skin cancer is divided into three types: basal cell carcinoma, squamous cell carcinoma and melanoma. The most common types are basal cell carcinoma and squamous cell carcinoma. Melanoma is much less common, but is the most dangerous, as it gives metastases throughout the body.

**Materials and methods.** To achieve this goal, a scientific and statistical analysis of the incidence of skin cancer between 2011 and 2016 was conducted. The bulk of this information is collected in the State Cancer Center, where centralized registration of cancer patients is carried out. The main sources of information about the sick were notices about the disease, in which there were information about the place of residence and age and sex signs of patients.

**Results.** One hundred and twenty five histologically diagnosed dermatological malignancies were reported during the period under review. This comprised 12.7% of all histologically diagnosed cancers in Kano. Sixty seven (54%) were males and 57 females (M: F=1.2:1).

Squamous cell carcinoma was the most common constituting 40% followed by melanoma 34.4% and dermatofibrosarcoma 8.8%.

The site distribution of skin malignancies. The lower limbs were by far the commonest site accounting for over 70%. Over 90% (40 cases) of our melanomas were nodular hyper pigmented plantar tumours and all were >10mm in thickness. Half (5) of the Kaposi sarcomas cases in this series were from human immunodeficiency virus (HIV) positive patients. Dermatological cancers comprised 12.7% of all malignancies in Kano. This is comparable to 12.3% in Zaria, 14 a neighbouring city but higher than 6.81% in Jos11 and lower than 20% in Maiduguri. Even with the differing figures from these Nigerian studies, the relative frequency of skin cancer is much lower than in White populations where skin cancer accounts for over half (>50%) of all malignancies especially among those living in sunny tropical/subtropical climates and the incidence continues to rise alarmingly.

**Conclusion.** Melanomas are the most lethal cutaneous malignancy accounting for more than three quarters (79%) of all skin cancer deaths In Nigeria. These highly aggressive tumours were the second most prevalent dermatological malignancy in this study constituting 34%. It is noteworthy that although Melanomas comprise a relatively large fraction of malignant cutaneous tumours in Negroids, they are in fact 10-20 times more common among the fair skinned.
SELENIUM EFFICACY IN COMPLEX THERAPY OF MODERATE SEVERITY THYROID-ASSOCIATED OPHTHALMOPATHY

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Background: Thyroid-associated ophthalmopathy (TAO) is a chronic autoimmune disease affecting the thyroid and orbit, which can result in fibrosis of extraocular muscles and hyperplasia of adipose tissue. Oxidative stress is important in the pathogenesis of TAO. Selenium has extensive antioxidant properties, regulates the functioning of the immune system and the thyroid gland.

Objective: The purpose of the study was to evaluate efficacy selenium drugs use as a part of the complex therapy of moderate severity TAO.

Materials and methods: 30 patients aged 43 [34, 53] years were carefully examined. TAO was diagnosed clinically, instrumentally and by laboratory tests. Patients of the control group (n = 14) received standard TAO therapy, the comparison group (n = 16) received selenium (100 mcg once a day for 6 months orally) in addition to the standard treatment. Evaluation of the therapy efficiency was carried out after 1, 3 and 6 months from the start of taking medications. Statistical processing of the data was carried out in the program Statistica 10. The clinical trial was approved by the Local Ethics Committee of Chita State Medical Academy (N 86 of 01.11.17).

Results: One month after treatment, patients of both groups had a decrease in TAO activity on the CAS scale (Clinical Activity Score). Decrease in eyelids retraction and proptosis degree was noted in 10 patients of the group receiving standard treatment (71.4%) and in 15 patients (93.7%) receiving selenium 3 months after treatment. Recurrence of the disease after 3 or 6 months was revealed only in 3 patients (21.4%) of the control group. 6 months after treatment the diplopia and strabismus formation was recorded in 5 patients (35.7%), who did not receive selenium. There were no side effects from the use of selenium.

Conclusion: A positive therapeutic effect of selenium was found in TAO. It is necessary to continue studies of selenium influence on inhibition of the extraocular muscles and retrobulbar fiber fibrosis in TAO.

Key words: selenium, treatment, thyroid-associated ophthalmopathy
PARTICULAR QUALITIES OF DENTAL CROWN HEIGHT OF THE FIRST AND SECOND MOLARS CAUSED BY THE DOMINANT HAND

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Background: Dental identification is the most reliable method in many countries. Identification of the person is used in the detection of impersonal cadaver, bones due to traumatic or criminal dismemberments, significant destruction of human bodies in natural disasters and large-scale disasters. Specific details of the human victim are very important for identification.

Objective: To establish particular qualities of dental crown height of the first and second molars caused by the dominant hand.

Materials and methods: 99 subjects with a physiological type of bite at the age of 19-25 years (mean age 21.3 ± 1.8) were involved in the study. A face-to-face interviews using to functional tests to determine the dominant hand were performed. Then, gypsum models of participants were obtained. Morphometric parameters were conducted using by calipers according to the methods of R. Martin and A.A. Zubov. The accuracy of the division was 0.01 mm. The obtained data were prepared by Microsoft Excel 2013. Statistical analysis is performed using the language R (http://cran.r-project.org) version 3.4.3. Comparisons of groups were performed using the Wilcoxon test with multiple-comparison correction by Hommel (1988). Differences were considered statistically significant when P values were less than 0.05.

Results: 45% of men and 55% of women were identified. 79% of right-handed, 12% of left-handed and 9% of ambidexters were revealed. A significant difference of dental crown height between right-handed and left-handed participants was established (segment II p<0.01; segment III p<0.01). We have combined to a common group left-handed and ambidexters, because no significant differences were determined. In this group, dental crown height was lower than that of the right-handed (segment II p <0.001, segment III p <0.01).

Conclusion: We determined that dental crown height in left- handed and ambidexters was similar. So, we combined them to a common group. Dental crown height of the first and second molars in a common group was lower than that of the right-handed. We believe that the integral indicators of the absolute
tooth size should be studied in future. The obtained data can be used in forensic science to determine the dominant hand in the postmortem state.

**Key words:** Forensic odontology, dental status, dominant hand, dental crown height, the first and second molars, identification.

METHODS OF PREPARATION OF BONE TISSUE BEFORE PROSTHETICS

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**Background:** One of the urgent problems of orthopedic dentistry is prosthetics of patients with significant atrophy of bone tissue of the alveolar bone. An important role is given to the method of preparation of bone tissue before implantation. The method of autotransplantation of bone fragments consists in using autopsy from any part of the jawbone. The disadvantage of this method is the pronounced traumatic nature of the procedure.

**Objective:** To investigate the effect of directed bone regeneration for further prosthetics.

**Materials and methods:** Directed bone regeneration - is to obtain an additional bone volume using resorbable and non-resorbable membranes. The advantage of this technique is a long-term and qualitative result. The disadvantage is the duration of the process of preparation of supporting tissues. Combined techniques: autotransplantation of bone fragments in combination with barrier membranes and biomaterials. Long-term results after orthopedic treatment are mostly positive. Osteoplasty is becoming very popular with local tissues. The essence of this technique is the use of own gum tissue. This method includes orthodontic tooth extrusion, implantation of fragments of removed teeth. The advantage of this technique is the use of own tissues, low traumatic interference, and a fairly good predictable result.

**Results:** The results of any bone plastics are based on the processes of remodeling and resorption, which are accompanied by a certain decrease in the volume of bone tissue. The speed and volume of resorption depends on many factors, for example, the size and quality of the grafts, the quality of the bone bed, biomechanical properties and fixation to surrounding tissues.
**Conclusion:** Thus, in order to achieve a qualitative and successful treatment result, before planning bone grafting, the physician faces the most important tasks of selecting and justifying the future orthopedic design and the way the chewing load is transferred. The key to any orthopedic treatment on implants is long-term and functional.

**Keywords:** prosthetics, atrophy, autotransplantation, bone regeneration, osteoplasty, implants.

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**THE CHOICE OF APPROACH, STRATEGY AND TACTICS FOR PREPARING A CHILD FOR THE DENTAL APPOINTMENT**

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**Introduction.** At the dental appointment both adults and children are frightened. An important factor in successful treatment is to find an approach to parents and a child. Then the goal of successfully treating will be achieved not only the teeth but also the elimination of trauma at a dental appointment at an early age.

**Objective.** The identification of causes and the development of methods for eliminating the refusal of dental intervention. Knowledge of the psychology of complex patients helps to prevent and avoid the difficulties that arise at the dentist's appointment, as well as choose the strategy and tactics of the doctor's behavior, reduce the psychoemotional stress of the doctor and the child.

**Materials and methods.** Let us consider two actual personality behaviors and the relationship of the adult to the doctor and the behavior of the child: 1) Children who visit their dentist with their parents but do not always agree to treatment; 2) Children with parents who after the first visit the dentist do not open their mouths to the doctor.

**Results and discussion.** All children aged from 3 to 10 years. 50 children and parents were examined. Questionnaires were developed to detect the presence of fear or any phobias in parents and children. For elimination of phobias the method of adaptation of the child for admission was developed and conducted in the form of an open lesson. Difficulties were revealed with parents having narcissistic and parainoid types of personalities who had to come to re-adaptation.
Conclusions. In all cases of preparation and conduct of the adaptation lesson, fear and phobia were overcome before taking the dentist. Children after the first or second lessons have treated their teeth in different clinics of the city.

Keywords: children, phobia, psychology, psychoemotional stress, parents, adaptation lessons.

INFLUENCE OF NON-REMOVABLE ORTHODONTIC EQUIPMENT ON LOCAL IMMUNITY OF THE ORAL CAVITY

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Introduction. It is believed that poor hygiene and injury to the oral mucosa by equipment are the main factors in the development of gingivitis and periodontitis in the treatment of the bracket system. But inflammatory processes with orthodontic treatment can arise regardless of the hygienic state of the oral cavity. Local immunity of the oral cavity plays an important role.

Objective. Identify the impact of non-removable orthodontic equipment on local immunity of the oral cavity.

Material and methods. 15 patients with a bracket system. All patients were collected mixed saliva, spitting method. Patients were asked before picking up saliva not to brush their teeth or eat for 3 hours. In mixed saliva, the activity of lysozyme and the level of secretory immunoglobulin A (sIgA) were determined before fixation of the bracket system and 1 and 3 months after fixation.

When determining the activity of lysozyme, O.V. Bukharin (1997) in the modification of PG. Storozhuk.

The level of sIgA was determined by the enzyme immunoassay. The reliability of sample differences was estimated using the Student's test.

Results. 1. Activity of mixed saliva lysozyme:
15,28 ± 0,81 U / ml / min, in a month 11,01 ± 0,64 (M ± t), unit / ml / min, after 3 months 14,59 ± 0,78 unit / ml / min. At 40%, the activity of lysozyme after 3 months of treatment remained low at 10.43 ± 0.33 U / ml / min.
2. The content of sIgA in mixed saliva was: 200.70 ± 9.78 pkg / ml, in a month 127.05 ± 6.04 pg / ml, after 3 months 186.22 ± 9.07 pkg / ml.
In 40%, the amount of sIgA did not increase after the adaptation period and was 139.77 ± 4.30 pg / ml.

**Conclusions.** 1. Orthodontic treatment suppresses local immunity factors with a decrease in lysozyme activity and sIgA concentration.
2. 3 months is the time when we can decide whether local anti-inflammatory drugs should be added to standard hygiene products.
3. The initial state of local immunity is one of the determining factors for the onset of inflammatory reactions of the mouth.

**Keywords:** lysozyme, local immunity, secretory immunoglobulin A, bracket system.

**ORTHODONTIC PATIENTS WITH DIABETES MELLITUS – THE NEED FOR SPECIALIZED PREVENTION OF COMPLICATIONS**

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**Introduction.** Difficult mouth hygiene typical to orthodontic treatment leads to a gradual destruction of the hard tissues of the teeth and inflammation of periodont. In addition to local factors in the progress of parodontopathy, there are common factors in the development of periodontal diseases, therefore, the standard hygienic measures are often not efficient. One of these common diseases is saccharine diabetes.

**Objective.** Improvement of methods of oral hygiene of orthodontic patients with saccharine diabetes.

**Material and methods.** The Department of Orthodontia of University invented the preventive hygienic agent for orthodontic patients with diabetes mellitus. The mixed saliva and blood were the objects of examinations. The monitoring of initial state has been effected using the primary method of statistical data processing. All observed patients were divided into two groups. The first consisted of 12 healthy volunteers, the second – 20 patients with diabetes mellitus. All patients were treated with a non-removable orthodontic technique. First group underwent the single test of agent, and the second group – multiple. On the first day the saliva and blood of first group were taken twice: on an emp-
ty stomach and 2 hours after the meal. On the second day same was repeated but all patients washed the mouth right after the meal. The second group has been using the agent during 1 month on its own. First two weeks patients measured and recorded in diaries the level of blood sugar fasting and 2 hours after the meal. The next two weeks the mouth wash after meal was added to the same procedure.

**Results.** This agent significantly reduces the level of glucose in mixed saliva at the initial stage of digestion and does not reduce the glucose level in blood. However, in most cases, both the first and second groups, it prevents the rise of glycemic levels in the blood up to the usual high figures, especially for the second group of patients with diabetes.

**Conclusions.** This preventive hygienic agent reduces the risk of inflammatory and degenerative processes during orthodontic treatment, which is especially important for patients with diabetes, and accelerates the recovery process of periodont after the treatment in all groups of patients.

**Keywords.** Diabetes, hygiene of the oral cavity, saliva.
SCIENTIFIC ABSTRACTS
OF PARTICIPANTS
FROM THE UNIVERSITIES
OF THE FOREIGN COUNTRIES
Background: Laparoscopic and endoscopic cooperative surgery (LECS) was performed for the local resection of gastrointestinal stromal tumors (GIST). LECS enables less resection of the lesion area and preserves function. Furthermore, LECS can be safely performed and independent of tumor location. However, LECS is not usually used for cases involving gastric carcinoma because it may seed tumor cells into the peritoneal cavity when the gastric wall is perforated. Here, we report seven cases of LECS for intra-mucosal gastric carcinoma, which were difficult to carry out by endoscopic sub mucosal dissection (ESD) because of ulcer scars.

Objective: To study effectiveness of laparoscopic and endoscopic cooperative surgery for intra-mucosal gastric carcinoma adjacent to the ulcer scars.

Description of Research: We performed LECS (classical LECS and inverted LECS) in seven cases of intra-mucosal gastric carcinoma. All cases had ulcer scars beside the tumor. LECS was chosen because ESD was thought to be difficult because of the ulcer scars. We only selected cases in which the patients did not prefer gastrectomy and endoscopic examination was indicative of intra-mucosal gastric carcinoma.

Results: In all cases, LECS was performed without severe complications including postoperative stenosis. Histopathology findings proved that the tumors were intra-mucosal carcinoma and had been resected completely. Furthermore, there were ulcer scars (Ul IIIs-IVs) beside the tumor. Currently, dissemination and recurrence have not been apparent.

Conclusions: LECS for intra-mucosal gastric carcinoma is an efficient procedure, but strict observation is necessary because of the possibility of peritoneal dissemination. Results suggest that LECS is likely to be effective for cases involving intra-mucosal gastric carcinoma that are difficult to treat by ESD due to ulcer scars.
DYNAMIC OF LIPOPOLYSACCHARIDE-BINDING PROTEIN (LBP) DURING EXPERIMENTAL INTESTINAL OBSTRUCTION

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Background: The lipopolysaccharide binding protein (LBP) uses as a predictor of septic complications by acute intestinal obstruction. This biomarker plays a key role in the detecting of intestinal microflora translocation in the systemic blood-circulation.

The objective of this research was measurement of LBP levels by experimental intestinal obstruction (EIO).

Methods and material: The experimental rat model of intestinal obstruction was created by application of plastic clips on the intestine part above 1-1.5 cm proximally than ileocecal via especially applicator. Operation was made under general anesthesia by ketamin injection. We had 2 groups in our research: 1-comparing group that included 12 rats with SHAM and experience group that included 65 rats with model of intestinal obstruction. Both of groups were divided on 3 subgroups: with obstruction on 1\textsuperscript{st} day -22; 3\textsuperscript{rd} -22; 5\textsuperscript{th} day-20; 7\textsuperscript{th} day-10 and. The blood was taken off by heart punction and aspiration under narcosis. The LBP was detected by ELISA on a robotic system via commercial kit tests in the blood serum. The mean value ± standard deviation of all parameters was determined, for find significance the nonparametric test was used.

Results: The source meanings of LBP level were 354,89±121,43 ng/ml and then this index increased on 4.5% on the 1\textsuperscript{st} day (371,5±158,2 ng/ml; p>0,05).On the 3\textsuperscript{rd} day the level of LBP decreased slowly to 299,1±121,6 ng/ml, however its level became higher on 5\textsuperscript{th} day and registered on 289,1±127,7 ng/ml(p<0.05). On the 7\textsuperscript{th} day of intestinal obstruction the LBP meanings decreased to 212.2±90.6 ng/ml but stayed higher than normal criteria during all the period of experiment. The changes of LBP were not significantly during the late period of intestinal obstruction.

Conclusions
The level of lipopolysaccharide binding protein changes more significantly on the 1\textsuperscript{st} and on the 3\textsuperscript{rd} days of acute intestinal obstruction and could use as a predictor of sepsis and bacterial translocation.

Keywords: Intestinal obstruction, biomarker, LBP.
PERSISTENT FENESTRATION MAY BE A MARKER FOR PHYSIOLOGIC INTOLERANCE AFTER FONTAN COMPLETION

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Background: We sought to evaluate the medium-term implications of fenestration status.

Objective: To study the role of persistent fenestration that may be a marker for physiologic intolerance after Fontan completion.

Description of Research: Between 1994 and 2012, 326 patients received an extra cardiac Fontan (hospital mortality n = 6, 1.8%). A fenestration was routinely created (n = 306, 94%) unless there was technical difficulty. Three hundred patients discharged with an open fenestration were included. The primary end points were death and Fontan failure. Secondary outcomes were Fontan complications such as venovenous collaterals, protein-losing enteropathy, pacemaker requirement, and arrhythmias.

Results: The fenestration was closed in 260 patients: 185 as a catheter intervention (62%) and 75 (25%) spontaneously. Forty patients (13%) had the fenestration open at a median follow-up period of 5.05 years. Of these patients, catheter-based closure failed in 10 (3%). There was no statistically significant difference in pre-Fontan hemodynamic parameters, such as pulmonary artery pressure and pulmonary vascular resistance between the patients with open fenestration and the ones with closed fenestration. Patients with an open fenestration had significantly more late deaths (P < .001), Fontan failure (P = .021), and Fontan complications (P = .011) compared with those with a closed fenestration. Multivariable Cox regression revealed open fenestration (P < .001) and indeterminate ventricular morphology (P = .002) as risk factors for death/Fontan failure, and ventricular dysfunction (P = .014) and open fenestration (P = .009) as risk factors for Fontan complications.

Conclusions: Persistent fenestration was a marker for physiologic intolerance as noted by increased rates of mortality and a higher incidence of Fontan failure/complications. The specificity of pre-Fontan physiologic data for fenestration status may not have the fidelity needed for long-term care and thus, the consequences of decision making regarding fenestration status may not be determined until well after the operation.
EPIDEMIOLOGY, LOCALIZATION AND TYPES OF OPERATIVE MEASURES AT THE PATIENT WITH HAND ENCHONDROMAS

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Introduction. Enchondroma is a benign tumor of heterotopic localization, consists of hyaline cartilage. This tumor most often is a radiological find; in certain cases, it is diagnosed at pathological fractures of bones.

Objective: to study epidemiology and results of operative measures at patients with hand enchondromas.

Materials and methods. The statistical research of archive for 2015-2017 is conducted on the basis of the Minsk City Clinical Center of Traumatology and Orthopedics. Case histories of 133 patients – 47 men (35,3%), 86 women (64,7%) were studied. 59 (44,4%) persons had enchondromas on the left hand, in 74 (56,6%) it was on the right one. It was localized on fingers. Left hand: the 1st finger – 8 (6,0%) enchondromas, the 2nd finger – 7 (5,3%) enchondromas, the 3rd finger – 6 (4,5%) enchondromas, the 4th finger – 15 (11,3%) enchondromas, the 5th finger 23 (17,3%) enchondromas. Right hand: the 1st finger – 10 (7,5%) enchondromas, the 2nd finger – 13 (9,8%) enchondromas, the 3rd finger – 13 (9,8%) enchondromas, the 4th finger – 17 (12,8%) enchondromas, the 5th finger – 21 (15,7%) enchondromas. Localization on bones: a nail phalanx – 33 (24,8%) enchondromas, a median phalanx 40 (30,1%) enchondromas, the main phalanx – 45 (33,8%) enchondromas, a metacarpal bone – 15 (11,3%) enchondromas. 48 patients had excochleation, a segmentary resection was carried out in 85 patients.

Results and discussion. Results of operative measures are investigated in terms from 3 months up to 3 years. A recurrence of pathology isn't traced. All patients are satisfied with the results of the executed operations. Regeneration of a bone tissue happened quicker at a segmentary resection which was executed at conservation, or an insignificant thinning of cortical layers of a bone tissue.

Conclusions. 1) Enchondroma occurs at women more often than at men.
2) The most frequent localization on bones is on a median phalanx, most less often it occurs on metacarpal bones.
3) A segmentary resection is the most widespread operation at treatment of this pathology.

Keywords. Enchondromas, operative measures.
Porous nanofiber materials on the basis of chitosan are the most perspective nanofibres for regeneration of the soft tissues. Chitosan provides pH-sensivity because of the large number of aminogroups that makes chitosan nanofibres the perspective carriers for delivery of macromolecules. The nanofibres function with biologically active materials of various types: the antimicrobial, anesthetizing, growth factors and also the functional polymers to increase effectiveness and acceleration of regeneration of the soft tissues. For stabilization of nanofibres and improvement of physical characteristics glutaraldehyde, glyoxal, genipin or heat treatment is used.

The objective of research is the development of the wound coverings containing the nanofibres different in structure and the functional features for improvement of regeneration of the soft tissues.

Chitosan and composite frameworks containing chitosan are studied in research. Chitosan is used for fibroplasia inhibition during the regeneration of wounds and for assistance for growth and differentiation of tissue in tissue culture. Siliconorganic niosomes were for the first time applied to the functionalization of nanofibres for the purpose of delivery of medical components.

The effectiveness of antibacterial activity of complexchitine-glycan with nanofibres for the regeneration of wounds is shown. The regeneration of deep wounds in which skin and the soft tissues were damaged demanded 3D reconstruction and stimulation of processes of regeneration in volume of defect. In this case thrombocytes, cell-like components and products of secretion of cells were used.

In research new strategy for the functionalization of nanofibres with the system of delivery of drugs is used. The organic silicon niosomes with incapsulated medical and biologically active substances were the most efficient for regenerative medicine as nanocontainers.
Keywords: regeneration, functionalization, nanofibres, chitosan, regeneration of wounds, niosomes, regenerative medicine.

ECONOMIC BURDEN OF VACCINATION BY ANTI-PNEUMOCOCCAL VACCINES IN THE REPUBLIC OF BELARUS

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Introduction: The national calendar of preventive vaccinations approved by the decree of the Ministry of Health of the Republic of Belarus includes vaccinations against 12 infections. The list of mandatory vaccines does not include a number of vaccinations (influenza, pneumococcal infection, etc.). The inclusion of a new position in the vaccination calendar requires confirmation of clinical efficacy and safety, and also entails a significant financial burden.

Objective: To determine the economic burden of the vaccination calendar in the Republic of Belarus and to assess the potential burden of anti-pneumococcal vaccines with the prospect of determining the method and the need for pharmaco-economic analysis.

Materials and methods: Documentary and statistical methods of research are used in the work. The national legislation on vaccination has been analyzed. The analysis of the cost of the disease”, taking into account the direct medical costs for the vaccine, preliminary medical examination and laboratory studies, calculation of the mean and relative values. The principles of the use of pneumococcal vaccines and their assortment on the market are analyzed.

Results and discussion: Total costs for vaccination of one person in accordance with the national calendar is 867.43 bel. rub., incl. vaccines – 40.72 bel. rub. The cost of vaccination with pneumococcal vaccine is 229,095 bel. rub. The share of pneumococcal vaccine from the cost of the vaccination calendar is 0.26. Vaccination against influenza once a year is 23.7 bel. rub. or 0.03 of the total burden of vaccination, which is 1633 bel. rubles / for a course of vaccination (share – 1.88), taking into account the average life expectancy of a person of 68.9 years.
Conclusions: The actual cost of vaccines as medicines is an insignificant part of the burden of the process. The current economic burden of vaccination can be used as a threshold for assessing the economic feasibility of including a vaccine in the calendar.

Keywords: burden of vaccination, anti-pneumococcal vaccine.

SURGICAL METHODS OF TREATMENT OF INJURIES OF THE RADIAL BONE IN CHILDREN

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Introduction: In children, the fractures of the head and neck of the radius are represented by epiphiseolysis and osteoepiphiseolysis with the classical X-ray pattern inherent in these damages.

Objective: Conduct an analysis of the results of the use of minimally invasive surgical methods with the use of EOP for fractures of the head and neck of the radial bone in children.

Materials and methods: From 2005 to 2018, 36 operations (of which 28 were minimally invasive) were performed on the basis of the Children’s Traumatology and Orthopedic Department of the Minsk City Clinical Hospital in Minsk. The patients had osteoepiphiseolysis of the head and fractures of the cervical radial bone in children (15 boys, 21 girls).

Results and discussion: In the diagnosis of this type of lesion, X-ray of the elbow joint was performed in 2 projections. Among the methods of closed reposition under the control of the image intensifier, the technique of closed repositioning on Svinukhov was most often used. But this method did not always provide a qualitative reposition, since the pressure on the head of the radial bone goes indirectly through soft tissues. With a large displacement of the head of the radial bone, correction was made according to Bairov. These methods of repositioning made it possible to achieve a satisfactory position of the fragments in 78% of cases. When the closed reposition was unsuccessful, an open intervention was performed with a reposition of the head and fixation with its spokes intramedullarily or transarticularly. The average duration of operations with the use of EOP was 30-40 minutes depending on the type of damage. Patients were discharged for outpatient treatment on the 5th-6th day after the operation.
Conclusions: The use of a minimally invasive technique for the operation with the use of EOP in osteoepiphiseolysis of the head and fractures of the neck of the radial bone in children is a highly effective method of treatment and allows in most cases to avoid open repositioning, which shortens the duration of treatment and rehabilitation, and reduces the length of the patient’s stay in the hospital.

Keywords: osteoepiphiseolysis, fracture of radial bone in children, minimally invasive technique.

RARE VARIANTS OF VARIABILITY OF THE BRANCHES OF THE ABDOMINAL PART OF AORTA

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Relevance. The presence of deviations from the classical anatomy of the branches of the abdominal part of aorta, in particular located in the hepatobiliary zone and retroperitoneal space, calls for a more detailed study of the arterial blood supply of the liver and kidneys.

Objective: to search and to study the variants of architectonics of the branches of the abdominal part of aorta.

Materials and methods. On the basis of the X-ray Diagnostics Department of the Aktyubinsk Regional Hospital, 150 CT scans of male and female aged 23-88 with hepatic and renal arteries (axial plane) contrast were studied with the help of the "General Electric, Optima 660" apparatus.

Results and discussion. The data obtained by us showed rare combined variations of the hepatic arteries origins. Due to the variability of the renal arteries, we stated the undescribed in the literature case with the pelvic standing of the right kidney and two renal arteries belonging to it to the right, the (the upper one from the superior mesenteric artery, and the lower one from the right external iliac artery).
Conclusion. The analysis of the obtained results confirms the multivar-
ianse of the branches of the abdominal part of aorta which is of great importance
for the Anatomy and Surgery sciences.

VARIANTS OF THE LIVER BLOOD SUPPLY
ON RESULTS OF CT EXAMINATION
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Background. An important role is played by the cases of variant anatomy
of the hepatic arteries - from 20 to 30% - in operations on the liver and extrahe-
patch bile ducts. Therefore, the study of variant anatomy remains relevant be-
cause new kinds of their forms are discovered, the presence of which is of great
practical importance in hepatobiliary surgery, as well as in liver transplantation.

Objective. The aim of the study was to search for and to study the anato-
mical variations of the liver blood supply to the liver on the results of CT exami-
nation.

Materials and methods. On the basis of the X-ray Diagnostics Department
of the Aktyubinsk Regional Hospital, 150 CT scans of male and female aged 23-
88 with the hepatic arteries contrast were studied with the help of the "General
Electric, Optima 660"apparatus.

Results. The obtained data testify of a rare combined variations of hepatic
arteries origin: left hepatic artery from the superior mesenteric + the right hepatic
artery from the abdominal part of the aorta, the left hepatic artery origin from
the left gastric + the right hepatic artery from the gastroduodenal, left hepatic
artery from the left gastric + the right hepatic artery from the superior mesenter-
ic one. Isolated variations: the right hepatic artery origin from the splenic, from
the gastroduodenal, from the superior mesenteric and from the celiac trunk; the
presence of additional and replacing both the right and left hepatic arteries, as
well as other variations of the liver blood supply that we met.
Conclusion. Analysis of the results confirms the multivariance of the liver blood supply which expands the range of variations for Anatomy science.

THE EFFECT OF NIGHT LIGHTING ON SLEEP
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Introduction: Night rest determines the performance, stress resistance and immune functions of a person. Therefore, it is necessary to pay special attention to the creation of comfortable conditions in the bedroom, even weak artificial light has a negative impact on the functioning of the sleeping organism. Light contact changes the expression of genes associated with the development of cancer processes. The issue of the impact of lighting on sleep has recently become even more relevant, given the presence in everyday life of all kinds of gadgets that are sources of light.

Objective: Determination of the influence of night lighting on the quality and duration of sleep, the development of effective preventive measures.

Material and methods: 100 students of specialty "General Medicine" of the 1st and 3rd courses were studied. The material was divided into 2 groups: experimental (50 3rd year students) and control (50 1st year students). The participants of the experimental group did not observe the regime of sleep and rest, slept in places unprotected from night lighting. During 6 months we observed the behavior of both groups and compared them according to the results of the survey "HAM".

Results: It was revealed that in the experimental group students were more exposed to emotional pressure, aggressively responded to negative news. From the analysis of the data obtained during the survey, we stated that 30% of the respondents did not have sleep disorders, 48% had mild sleep disorders, and 22% – permanent sleep disorders.

Conclusion: Since human biorhythms have a 24-hour cycle, the response to the effects of home and street lighting will generally differ. We assume that night lighting adversely affects the well-being, behavior and, in general, the quality of life of students. We developed recommendations for young students in terms of preserving their health.
BACKGROUND: Modern technological progress and the successes of Anatomy science have found their application in clinical medicine which led to a revision of the strategy and tactics of the patients’ treatment. The study of variant anatomy of the renal arteries remains topical and in the operations on the kidneys it has a great practical importance.

Objective: To search for and to study variability variants of renal arteries based on the results of CT examinations.

Materials and methods: On the basis of the X-ray Diagnostics Department of the Aktyubinsk Regional Hospital, 150 CT scans of male and female aged 23-88 with the renal arteries (axial plane) contrast were studied with the help of the "General Electric, Optima 660" apparatus.

Results: According to the renal arteries variability the following variations were revealed: the presence of a paired renal artery both to the left and to the right (a paired renal artery with separate origin from the abdominal aorta and combined one, with separate origin, but with an early extraorganic branching). The undescribed in the literature case with a pelvic standing of the right kidney and the paired renal arteries belonging to it on the right was also found.

Conclusion: Analysis of the obtained results confirms the multivariance of the structure and topography of the renal arteries. Accurate identification of this or that variant identified by us will help to avoid damage, as well as safe taking of the transplant and proper application of arterial anastomoses to prevent ischemic manifestations. The variety of variability in the structure of the renal arteries induces the surgeon always to approach to the patients’ treatment creatively and not standardly.

Keywords: renal arteries, structural and topographical multivariance, transplant, arterial anastomoses.
PROSPECTIVE EVALUATION OF BODY SIZE AND BREAST CANCER RISK AMONG BRCA1 AND BRCA2 MUTATION CARRIERS

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Background: Although evidence suggests that larger body size in early life confers lifelong protection from developing breast cancer, few studies have investigated the relationship between body size and breast cancer risk among BRCA mutation carriers. Therefore, we conducted a prospective evaluation of body size and the risk of breast cancer among BRCA mutation carriers.

Objective: To study the Prospective evaluation of body size and breast cancer risk among BRCA1 and BRCA2 mutation carriers.

Description of Research: Current height and body mass index (BMI) at age 18 were determined from baseline questionnaires. Current BMI and weight change since age 18 were calculated from updated biennial follow-up questionnaires. Cox proportional hazards models were used to estimate the hazard ratio (HR) and 95% confidence interval (CI).

Results: Among 3734 BRCA mutation carriers, there were 338 incident breast cancers over a mean follow-up of 5.5 years. There was no association between height, current BMI or weight change and breast cancer risk. Women with BMI at age 18 ≥22.1 kg/m2 had a decreased risk of developing post-menopausal breast cancer compared with women with a BMI at age 18 between 18.8 and 20.3 kg/m2 (HR 0.49; 95% CI 0.30-0.82; P = 0.006). BMI at age 18 was not associated with risk of pre-menopausal breast cancer.

Conclusions: There was no observed association between height, current BMI and weight change and risk of breast cancer. The inverse relationship between greater BMI at age 18 and post-menopausal breast cancer further supports a role of early rather than current or adulthood exposures for BRCA-associated breast cancer development. Future studies with longer follow-up and additional measures of adiposity are necessary to confirm these findings.
THE RISK OF DEEP VEIN THROMBOSIS IN TOTAL JOINT PATIENTS COMPARED TO ORTHOPAEDIC TRAUMA PATIENTS: NEED FOR NEW PREVENTION GUIDELINES

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Background: The development of Deep Vein Thrombosis (DVT) is a major concern following orthopaedic surgery. No study has yet to compare the rate and risk factors for DVT between total joint and orthopaedic trauma patients. To evaluate if DVT prophylaxis for trauma should differ from total joints, we explored the rate and risk factors for DVT between both cohorts.

Objective: To study the risk of deep vein thrombosis in total joint patients compared to orthopaedic trauma patients: Need for new prevention guidelines.

Description of Research: Using a CPT code search from 2005 to 2013 in the ACS-NSQIP database, 150,657 orthopaedic total joint patients and 44,594 orthopaedic trauma patients were identified. DVT complications, patient demographics, preoperative co morbidities, and surgical characteristics were collected for each patient. A chi-squared test was used to compare the risk factors for DVT between orthopaedic trauma and total joint patients. A multivariable logistic regression model was built to adjust for co morbidities for each cohort.

Results: The rate of DVT diagnosis in the total joint population was 0.8% (N = 1186) and 0.98% (N = 432) in the orthopaedic trauma population (p = 0.57). After controlling for individual co morbidities, dyspnoea, peripheral vascular disease, and renal failure were significant risk factors for DVT in total joint patients (p < 0.05), whereas age, ascites and steroid use were significant risk factors for DVT in orthopaedic trauma patients (p < 0.05).

Conclusions: Historically, the risks for DVT in total joints have been emphasized, yet based on our results, the incidence of DVT is the same for orthopaedic trauma. However, the risk factors varied. It is therefore important to consider specialty-specific DVT prophylaxis for orthopaedic trauma patients in order to improve care and reduce postoperative complications.
CORTICAL THICKNESS, STANCE CONTROL, AND ARITHMETIC SKILL: AN EXPLORATORY STUDY IN PRE-MANIFEST HUNTINGTON DISEASE

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**Background:** Huntington disease (HD) is an inherited neurodegenerative disorder most commonly manifesting in adulthood. Identification of biomarkers tracking neuro-degeneration before the onset of motor symptoms is important for future interventional studies. Our study aimed to contribute in the phenotypic characterization of the pre-manifest HD phase.

**Objective:** To study the cortical thickness, stance control, and arithmetic skill: An exploratory study in pre-manifest Huntington disease.

**Description of Research:** 28 pre-manifest subjects (preHD), 25 age-matched controls, and 12 manifest HD patients were enrolled for the study. The participants underwent a multimodal protocol including cognitive evaluations, arithmetic ability test, posturography, composite cerebellar functional test (CCFS), and brain 3T-MRI. PreHD were divided at the group median for predicted years to expected onset into "far-from-onset" (>15 years, PreHD-far), and "close-to-onset" (≤15 years, preHD-close). Basal ganglia volumes and cortical thickness were computed using Free Surfer.

**Results:** PreHD-close showed significantly lower scores than controls in Symbol Digit Modalities Test (p = 0.017), Arithmetic subtraction task (p = 0.04), and MMSE (p < 0.006). At posturography, preHD-close showed increased sway velocity (<0.04) and distance (p < 0.02) compared to controls. PreHD-close had reduced striatum and globus pallidus volumes and left occipital cortical thinning compared to controls. Compared to PreHD far-from-onset, PreHD-close showed bilateral cortical thinning in occipital and parahippocampal regions, inversely correlating with burden score and prognostic index for HD. CCFS only differed between controls and manifest HD. PreHD far-from-onset did not show significant differences in comparison with controls.

**Conclusions:** We confirmed that quantitative brain MRI represents a valid biomarker of neurodegeneration in preHD. Posturography and Arithmetic tests seem promising tools for detecting early changes in premanifest HD, but need to be further confirmed in large cohorts.
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