

**Ministry of Public Health of Russian Federation**

**Amur State Medical Academy**

**Students' Scientific Society**



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**25**

**ABSTRACTS**  
**25<sup>th</sup> SCIENTIFIC STUDENTS**  
**CONFERENCE IN FOREIGN**  
**LANGUAGES**

21

2015 .

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# Section of the English Language



## **ACTUALITY OF ANISACIDOSIS IN RUSSIA**

E. Fedorova, O. Cherednichenko – the 5<sup>th</sup>-year students

S. Cherednichenko – the 5<sup>th</sup>-year student of PSMU (Pacific State Medical University)

Supervisors – T.A. Dolgikh, N.A Subacheva

Anisakiasis (Anisacidosis) is the group of zoonotic biohelminthiasis, which is characterized by a chronic duration, toxic and allergic reactions and various damages of the digestive tract. Thanks to polymorphism of symptoms and difficulties of their differentiation from manifestations of other diseases, because of the lack of doctors' attention, wrong diagnoses such as enterocolitis, appendicitis, peritonitis, etc. High infestation of many species of fishing larvae anisakid in the Caspian, Baltic, White and Barents seas suggests an unfavorable situation on anisakidae in these regions, but primarily it refers to the seas of the Far East, where larvae infected almost all commercial species of fish.

Anisakiasis of human may be caused by the live larvae from the family of Anisakidae belonging to the genera of Anisakis, Pseudoterranova, Hysterothylacium and Contracaecum. The larvae are very resistant to various physical and chemical factors.

There are two most common forms of the disease: gastric and intestinal. In the gastric form there are such symptoms as intoxication and dyspepsia. In an intestinal form, there are pain in the navel area and in right ileac area and syndrome of dyspepsia. Sometimes the clinic of acute abdomen is typical to appendicitis or impassability of intestines.

Anisacidosis in Russia is an actual disease, in the connection with high prevalence, a frequent invasion of trade species of fish, registration of deadly outcomes and a lack of knowledge of doctors concerning this pathology.

## **PECULIARITIES OF THE DURATION OF INFECTIOUS MYOCARDITIS DUE TO THE ETIOLOGICAL FACTOR**

A. Velieva, O. Cherednichenko – the 5<sup>th</sup>-year students

Supervisors – Assoc.Prof., Dr.Med..Sc. V.I. Pavlenko, N.A. Subacheva

Infectious myocarditis is an inflammation of the muscle of the heart. In the result of it the main functions of heart, such as excitability, conductivity and a contractility are broken.

Myocarditis are diagnosed in 1 — 15% of persons having a viral infection. In the period of epidemics of viral infections electrocardiograms signs of myocardium injuries are registered in 12 — 43% of cases. In diphtheria myocarditis occur in 20 — 30% of cases. In systemic lupus erythematosus myocarditis of different severity is noted in 8% of cases and in rheumatoid arthritis it is marked in 30% of patients.

According to the purposeful autopsy researches, myocardites are the reason of death in 4 — 10% of cases. Patients with myocarditis and a myocarditic cardio-sclerosis make about 10% of all cardiological patients. Myocarditis can arise at any age, often in young people at the age of 30 — 40 years old. Women are ill more of-

ten than men.

The clinical picture in infectious myocarditis can be very various: from insignificant subjective feelings to heart failure. There is no full coincidence between the clinical picture and numerous morphological manifestations of inflammatory process in a myocardium.

Influenzal myocarditis is often accompanied by the pain in the heart zone that similar stenocardia. There is a tachycardia and heart increases in the diameter. Systolic noise arises over the apex of heart, which is connected with the insufficiency of the mitral valve. In most cases, diphtheria is the reason of myocarditis. Usually myocarditis arises at the end of the first week of the course of the infection. Diphtheritic toxin affects the myocardium. In most cases, diphtheria is the reason of myocarditis. There are myolysis, a fatty degeneration, and interweft inflammation of the cardiac muscle. It is typical to toxin to strike the cardiovascular system. In similar cases, the prognosis becomes the most serious. Sometimes the blockade may be the cause of sudden death.

In this infectious myocarditis, treatment of the main disease is necessary. For example, an effective tonsillectomy in the treatment of tonsillitis.

#### **THE RESULTS OF THE APPLICATION OF TRANS-SCLERAL CYCLOPHOTOCOAGULATION IN PATIENTS WITH GLAUCOMA**

Nagieva L.A. – internship doctor

Supervisor - Prof. Krasnogorskaya V.N.

The treatment of glaucoma continues to be an important issue in ophthalmology. Intraocular pressure compensation in the terminal stages is a difficult task. Traditional fistulizing operations are ineffective and unsafe. Cyclodestructive techniques (cyclocriopexy, diathermo- and laser coagulation of ciliary processes) could be the alternative way. Recently, transscleral diode laser cyclophotocoagulation (DLC) is the most popular in the treatment of refractory glaucoma. That method is characterized by simplicity, safety and relatively high efficiency. DLC causes hypotensive effect due to the reduction of intraocular fluid secretion, primarily by coagulation of the pigment epithelium of ciliary processes. In addition, this contributes to the moderate stimulation of uveoscleral outflow of intraocular fluid by after-coagulation inflammatory response.

The purpose of this study is to evaluate the results of the DSC in patients with advanced and terminal glaucoma.

We observed 10 patients with far-advanced and terminal glaucoma. Dynamic monitoring of the effectiveness of treatment in 10 patients with primary open angle glaucoma (10 eyes) was developed, the mean age of patients is  $71 \pm 1.0$  years (9 men, 1 woman). The terminal stage of glaucoma diagnosed in 4 (40%) patients and far-advanced in 6 (60%) patients.

The criteria of patients selection were: high, not declining IOP with maximum hypotensive mode. The level of IOP in all eyes was high, averaging  $50 \pm 11.4$  mm. Hg.

Cyclophotocoagulation technique. Periocular anesthesia and akinesia of

eyelids by 2% solution of lidocaine. We used a diode laser with a wavelength of 810 nm. Laser coagulates were deposited on the surface with transscleral handpiece (G-Probe) through the conjunctiva concentrically to scleral limbus in 2 mm away circumferentially from 180 to 270 °. The exposure time were 2 seconds. Impact energy and the number of applied coagulates in pigmented irises were within a 1500-2000 MW, in light irises - from 2000 to 2500 mW, the 30 coagulates. Anti-inflammatory treatment for 10 days was performed in the postoperative period (indokollir, dexamethasone, korneregel). The follow-up of patients was 1 month. The criteria for the assessment of were: The degree of IOP reduction was the criterion of treatment effectiveness. All patients had the painless surgery without any intraoperative complications.

The results: IOP decreased down to  $32,2 \pm 1,2$  mm Hg to the 7<sup>th</sup> day of treatment, observed in 4 eyes. Initial IOP under 40 mm Hg occurred only in three eyes, over 40 mm Hg. Art. - in one eye. In two eyes it reached subcompensative values and amounted to  $28.3 \pm 0.8$  mm Hg.

In patients with end-stage in one eye the mean subcompensative IOP were  $28.3 \pm 0.8$ , in other patients the mean IOP was  $39.3 \pm 0.4$  mm Hg. Art.

After 7 days in the postoperative period the median pressure in patients with far-advanced stage was equal to  $25.3 \pm 0.8$  mm Hg, with terminal stage -  $37.2 \pm 0.4$  mm Hg, the average for the group -  $30 \pm 0.1$  mm. Hg.

After 1 month the median in patients with far-advanced stage was equal to  $26.5 \pm 0.6$  mm Hg, with terminal stage -  $36 \pm 0.1$  mm Hg, the average for the group -  $30.3 \pm 0.8$  mm Hg.

After 1 month of observation with b-blockers and carbonic anhydrase inhibitors using: in 3 eyes IOP level was  $24.3 \pm 0.2$  mm Hg. In 4 eyes IOP values ranged subnormal level -  $29.25 \pm 0.3$  mm Hg. In 3 patients ophthalmotonus remained strong and amounted to  $37.6 \pm 0.3$  mm Hg. despite hypotensive medical treatment. The median value in patients with far-advanced stage was equal to  $26.5 \pm 0.6$  mm Hg, with terminal stage  $36 \pm 0.1$  mm Hg, the average for the group was  $30.3 \pm 0.8$  mm Hg.

The use of diode laser transscleral cyclophotocoagulation of the ciliary body in patients with far-advanced and terminal primary open-angle glaucoma resulted to the decreasing of the IOP levels by 28% from baseline. In patients with far-advanced stage the decline of IOP was 32% and with terminal stage - 29%. Comparative analysis of the effectiveness of treatment showed a decrease of IOP in patients with far-advanced stage at 9.5 mm Hg compared with the terminal stage.

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#### **DOMINANT AND RECESSIVE TRAITS IN HUMAN BODY**

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Supervisor - ass. Yutkina O.S.

The most interesting section of Genetics - Human Genetics - the science of heredity and variation in human traits. The basis of the genetic system of DNA, where RNA is synthesized which, in turn, serves for the biosynthesis of proteins; all the diversity of genes constructed with the participation of the four nucleotides; genetic information is read in triplets. Inheritance of the person subject to the laws and regulations of genetics: the laws of Mendel, Morgan, clutch gene, allelic and non-allelic interaction of genes. However, as a person - is not only biological, but also a social being, the genetic studies of Homo sapiens are different from the number of features, including: dominant and recessive traits of human being.

#### **DOMINANT AND RECESSIVE HUMAN'S TRAITS.**

Dominant	Recessive
<b>Skin</b>	
Normal skin's, eyes's, hair's pigmentation	Albinism
Swarthy skin	Fair skin
Piebald spotting	Normal skin color
Pigmented spots in the sacrum	Missing
The skin is thick	The skin is thin
<b>Vision</b>	
Myopia	Normal vision
Hyperopia	Normal vision
Normal vision	Night blindness
Color vision	Daltonism
Cataract	Normal vision
Strabismus	Normal vision
<b>Stature</b>	
Low stature	Normal stature
<b>Hands</b>	
Polydactyly (extra fingers)	The normal number of fingers
Brachydactyly (short fingers)	The normal length of fingers
Right-handed	Left-handed
Thumb thick and short (flattened)	Normal
Nails are thin and flat	Normal
The nails are very firm	Normal
The patterns on the skin of the fingers elliptical	The patterns on the skin of the fingers circular
<b>Legs</b>	
A disposition for varicose veins	Normal
The second toe longer than the big toe	The second toe is shorter
The increased mobility of the big toe	Normal
<b>Hearing</b>	
Normal	Congenital deafness
<b>Body processes</b>	

## **FRIENDSHIP IN THE LIFE OF MODERN YOUTH**

Yutkina Ju., Lyceum BGPU

Supervisor - ass. Yutkina O.S.

Relevance. Young people – is a special socio-psychological and demographic group, which has its own rules, attitudes and specific behaviors. The leading activity of mental development of young people - communication with peers, where their vital problems are reflected: the protection of self-esteem; the desire of friendship - the desire to be recognized and accepted; relationships with the other gender.

Purpose of research. To find the problems of peers's relationships among modern youth.

Methods of research. Students of the 3rd year medical faculty of AGMA took part into the research: 58 people, including 32 girls and 26 boys, 19-20 years old.

Results of research. When they were asked, "It's hard to start new relations," 18% of girls and 25% of boys answered «yes», so, most of them have no problems in becoming acquainted with their peers, besides, more girls are more active. The first communication, the formation of friendly relations, when it comes to a close circle of friends (10 people) with an emotional involvement, support and mutual assistance is difficult and sometimes impossible task, 58% of girls and 48% of boys said that they have no many friends.

It is important to note that 12% of young people believe that they have no friends. Almost all of the boys and 2/3 of girls noted that they do not care about the problem of lack of friends, but the question "Would you like to have more friends," about half of youth respondents answered positively.

Friendship for young people – is an important part of life. At this age there is a need not just superficial knowledge, and in close cooperation, in close communication, the need for faithful friend.

One of the most urgent problems of young people - loneliness. Teens suffer loneliness because of the difficulty to establish long-term relationships with their peers due to low self-esteem, anxiety or depression. Among researching students, 10% of boys and 27% of girls said - "I feel lonely". 58% of boys and 78% girls said that they have enough self-esteem and do not consider themselves worse than their peers. Independent teenagers cope with their loneliness, setting a specific goal; dependent teenagers overcome it hoping on the external support. If communication does not develop in a group, there is no friendship to those who want, or as a result of the conflict there is the alienation of young people looking for a new field of communication and thus can go for casual contacts, if only not to be left alone.

Conclusions. Girls, 19-20 years old, are more active, come into contact and get acquainted with their peers more easily. To create friendship in practice is a complex task. Girls have fewer friends than boys, although better acquainted, it is connected with their higher emotional and large requirements to friends. The need for friendship is a central and important among teenage values. The external peace in the absence of friends, most young people dream of having real friends. Loneliness – is

the acute problem of modern youth. Almost 1/3 of girls, 19-20 years old, feel lonely, even though they have more self-esteem than boys of this age.

#### **AUTOIMMUNE OOPHORITIS**

O. Pnyukhtin, M. Tonkonogova – the 5<sup>th</sup>-year students  
Supervisors - D.S. Lysiak, N.A. Subacheva

Autoimmune diseases are the result of the occurrence of forbidden clones of immunocompetent lymphoid cells in the organism. The auto antigens are substances of an unaltered tissues which were devoided of contact with immunocompetent cells in the embryonic period. Antibodies formed to these antigens are called autoantibodies and are formed to its own tissue components.

Autoimmune process in the ovaries in 50 % of case is combined with other autoimmune disorders: adrenal insufficiency of autoimmune origin, autoimmune thyroiditis, hypoparathyroidism, vitiligo, etc.

The community of mechanisms of development of autoimmune pathology confirms this combined duration for many autoimmune diseases. The study of the process of atresia of follicles in healthy women showed that under physiological conditions, it is provided by immunological mechanisms.

The main methods of diagnostics of AO are morphological, histological method and method of detection of circulating anti - ovarian antibodies. Additional diagnostic criteria of AO may include: a detection of autoantibodies to steroid-producing cells of other endocrine organs.

In the treatment of AO gonadotropin-releasing hormone agonists which oppress the synthesis of gonadotropin-releasing hormones and ovarian function were used. In the early stages of the disease there were used combined estrogens such as progestin drugs, given their ability to oppress the growth of the dominant follicle and reduce auto-antigen stimulation. This leads to a decrease in the level of anti-ovarial antibodies in the blood of patients with hyper gonadotropic forms AO.

#### **AWARENESS OF TUBERCULOSIS PATIENTS ABOUT THEIR DISEASE**

M. Tonkonogova, O. Pnyukhtin, O. Cherednichenko, M. Mehedova – the 5<sup>th</sup>-year students  
Supervisors - Dr.Med.Sc., Prof. L.N. Voit, N.A. Subacheva

The problems of spreading mass, socially dangerous and socially significant disease take special attention at present. Tuberculosis is an important medico-social problem in the Amur region. The number of tubercular patients in the Amur region exceeds the average Russian indicator almost in 1.6 times. The lack of necessary knowledge of these patients leads them to inadequate reaction on doctor's orders that are reflected on the efficiency of medical treatment. The deficiency of public awareness in matters of tuberculosis leads to the late medical examination and to the development of neglected forms of illness.

There were questioned 80 tubercular patients. The results of questioning of patients with tuberculosis showed the lack of knowledge about their disease. On the

question about the right and timely method of diagnose of tuberculosis 59 of respondents (75.5 % of cases) answered correctly, they noted “fluorography”. The answers “sputum analysis” and “common blood test” were noted by 18 (22.5% of cases) and 5 (6.25% of cases) of respondents respectively ( $p = 0.01$ ). 65 of respondents (81, 25 % of cases) believe that the immune system has an influence on the development of this disease. More than half of patients (61.25% of cases) know about the concept of “drug resistance” ( $p = 0.01$ ).

Gained results indicate the lack of knowledge about TB and its prevention among people. It’s necessary to conduct preventive measures in the form of lectures at schools, secondary and higher professional educational institutions.

### **POSITIVE PSYCHOTHERAPY**

O. Pnyukhtin – the 5<sup>th</sup>-year student

Supervisors - K.A. Arutyunyan, N.A.Subacheva

Positive Psychotherapy (PPT) is a psychotherapeutic method developed by [Nossrat Peseschkian](#) and colleague in Germany since 1968. It can be described as a humanistic Psychodynamic Psychotherapy, which is based on a positive conception of human nature. PPT is an integrative method which includes humanistic, systemic, psychodynamic and CBT-elements. Today there are centers and trainings in some twenty countries world-wide. It should not be mixed up with Positive Psychology. The founder of Positive Psychotherapy, [Nossrat Peseschkian](#) (1933-2010), was German certified psychiatrist, neurologist and psychotherapist an Iranian by birth. In 1997, the method had received the most prestigious award in Europe for the quality assurance in medicine (Richard Martin Award).

Positive psychotherapy is cross-cultural method, including, on the one hand, the philosophical and the intuitive wisdom of the East, and on the other hand, rational consistency and science of the West. Positive psychotherapy is based on transcultural researches by more than 20 types of culture and is a new method and approach to the person who pursues mainly the following objectives: treatment (therapeutic aspect), education and prevention (pedagogical aspect), the development of intercultural consciousness (transcultural-social aspect) and the interaction and integration of various psychotherapeutic directions (interdisciplinary aspect).

Not the healthy who have no problems, but one who knows how to solve them.

### **ENTEROVIRAL VESICULAR STOMATITIS OR “HAND-FOOT-MOUTH” SYNDROME**

O. Pnyukhtin, M. Tonkonogova – the 5<sup>th</sup>-year students

Supervisors - T.A. Dolgikh, N.A. Subacheva

Enteroviruses infection (EVI) is a group of diseases caused by different serotypes of enteroviruses. It is characterized by polymorphism of clinical signs, high contagiousness, as well as seasonal nature.

The particular relevance of the problem of EVI is due to the widespread

prevalence and high frequency of occurrence. Clinical polymorphism, the prevalence of asymptomatic forms, which are about 75% of all cases of the disease, highly contagious are factors that allow to attribute this disease to the group of "high risk". Enteroviruses are also the cause of infant morbidity and mortality.

The total incidence of EVI in Russia is 4.74 per 100 thousand of population it is much higher – 26.14 per 100 thousand of population, among children under 14 years old. However, this is not the true numbers of disease cases, since the proportion of asymptomatic cases are about 85% of it. EVI is diagnosed as mild febrile illness in 12-14% of cases, and approximately 1-3% of cases have a severe course, especially in infants and persons with impaired immune systems. EVI possess of high resistance to high pH, detergents, ether, 70°alcohol, 5% Lysol, and are resistant to freezing. They can survive in unboiled milk and dairy products of cold ferment, on the surface of vegetables, fruits and herbs from three to four months.

The mucous membrane of the oral cavity, the skin is like a magnet for a variety of pathogens. Many infectious agents use mucosa of the oral cavity as gateway. One of these illnesses is enteroviruses vesicular stomatitis, which, despite of its apparent harmlessness, may be dangerous for people with lowered immunity. Enteroviruses can be considered as one of the most studied infectious diseases. Typical symptoms and the stages of development of these diseases are virtually unchanged since the first descriptions of them. Along with this Enteroviruses are of great particular interest to practitioners.

#### **ANTIBIOTIC- ASSOCIATED DIARRHEA**

M. Zorina, T. Semina – the 6<sup>th</sup>-year students

Supervisors – Can.Med.Sc., Assoc.Prof. E.L. Lazutkina, E.A. Volosenkova

Prescription of antibiotics of broad - spectrum action is accompanied by the development of such side effects as diarrhea. Antibiotic-associated diarrhea (AAD) is diagnosed in case an unformed stool (5-7- type on the Bristol stool form scale) coupled with an increase in stool (assessed by the patient ) for 2 or more consecutive days on a background of antibiotics or 8 weeks after their intake. Risk factors for diarrhea include the use of broad-spectrum antibiotics and the patient's individual characteristics: older age, chronic illness, contact with nosocomial pathogens.

#### **CROUZON CRANIOFACIAL DYSOSTOSIS**

L. Timkova - the 5<sup>th</sup>-year student

Supervisors - Doc.Med.Sc. O.S. Yutkina, N.A. Subacheva

Arest of mental development is characterized by the late speech development mental retardation from their peers.

Intelligent defect can be expressed by various degrees and often persists during the whole period of life. Genetic disorders is characterized by the violation of the functioning of the FYFR 2 gene in the tenth chromosome, resulting on prenatal of early healing of coronal sutures and hypoplasia of facial facial bones. The type of inheritance is the autosomal dominant, it means that if one of the parent in the family has

Crouzon syndrome, the probability of the sick child's birth is between 50 and 100% of cases.

Diagnostic. The analysis of complaints and anamnesis of the disease, and family history were also studied. Complications and consequences include, the loss of view due to prolonged elevated intracranial pressure the optic nerve is compressed that leads to atrophy. There are corneal ulcers because of the removing of eyeballs out of their eye-sockets that makes them impossible to be completely closed by the eye lids and drying results on the formation of the defects on it such as ulcers.

Preservation of mental defect, in a case of the absence of timely performed surgical treatment, with the combination of cosmetic facial features may disturb their interaction with other members of society.

### **CHILDREN PROGERIA (HUTCHINSON-GILFORD SYNDROME)**

A. Oleksik - the 5<sup>th</sup>-year student

Supervisors - Doc.Med.Sc. O.S. Yutkina, N.A. Subacheva

Children progeria (Hutchinson-Gilford syndrome) - is a rare genetic disorder which is characterized by premature aging. This disorder is rarely met, the frequency of it is 1 on 4 000 000 newborns (Netherlands), 1 on 8 000 000 (US)

Children progeria is occurred because of a point mutation of the LMNA gene. LMNA gene codifies A prelamin, which is a precursor of the mature forms of A and C lamins. In the cells of patients with progeria nuclear membrane are wrinkled, nuclei become irregular. Such cells can not be divided normally. As the result, the body does not just stop growing, but also loses its ability to replace dying cells by new cells that leads to accelerated aging,

Children Progeria is characterized by polyorganic affection. The manifestation of symptoms occurs on the 12-14 months and leads to the lag in growth, total alopecia prevalence of the cerebral part of the cranium on the facial part (macrocephaly); dry, blotchy and thin skin. It is typical for sick children the resemblance to the older people, the appearance of the diseases of senile period, the increase of systolic and diastolic blood pressure, however, cognitive abilities are developing in accordance with the real age. Prognosis is poor. Lifespan is from 7 up to 20 years.

### **ANALYSIS OF THE INCIDENCE OF INFLAMMATORY BOWEL DISEASES IN THE AMUR REGION**

G. Guseinli - the 5<sup>th</sup>-year student

Supervisors - and.Med.Sc., Assoc.Prof. E.L. Lazutkina, N.A. Subacheva

There were analyzed 82 medical records for 2009-2013. The distribution of patients according to age, sex, occupational history, the severity of the endoscopic picture, the level of activity, the duration of the disease, extraintestinal manifestations were studied.

In recent years there has been an upward trend of IBD in the Amur region among patients with inflammatory bowel disease, ulcerative colitis patients were prevailed, in comparison with the data of world statistics. Among hospitalized pa-

tients persons with moderate and severe forms of the disease were dominated. Among the extra-intestinal manifestations anemia and fever were observed more frequent in the patients with functional disorders of the nervous system.

### **DIROFILARIASIS IN THE AMUR REGION**

G. Guseinli - the 5<sup>th</sup>-year student

Supervisors - V.V. Kovalyova, N.A. Subacheva

In recent decades, the incidence of heartworm people is growing rapidly, the area of infestation increases, moving to temperate latitudes. It is expected that this trend is due to both natural (global warming), and socio-economic factors (the difficulty of diagnosis, the lack of prevention, activation of migration processes and others.).

On the territory of the Amur region has a number of natural focal zoonotic biogelmintozov endemic and enzootic to the region - it clonorchiasis, trichinosis, and other difilobotrioz.

The last decades the world has witnessed an increase in migration. It refugees gasterbactery pilgrims, shuttles tourists. Domestic travel agencies learn as recreation areas compatriots exotic, tropical countries of Southeast Asia, Africa, Central and South America. In recent years, increasingly popular among Russians holiday purchases in the territory of Thailand, Vietnam, Cambodia, India, etal. Asian countries are characterized by low socio-economic level of development and poor sanitary conditions of the population. In these countries is the natural habitat of a number of tropical and exotic (for DFO) diseases, especially helminthic invasion. Passenger traffic through customs points of the Amur region is crossed every day thousands of people in one or another direction.

As a result of progressively developing tourism as a sector of the economy, the past decade, cases of infection amurchan exotic tropical parasitic diseases, such as heartworm.

According to the Centre of control of the Amur region the first cases of heartworm in the Amur region was registered in 2001.

According to the data of epidemiological anamnesis the case was considered as imported because the patient left Amur region to China.

### **PECULIARITIES OF THE GENEALOGICAL ANAMNESIS OF ADOLESCENTS SUFFERING FROM OBESITY**

G. Guseinli - the 5<sup>th</sup>-year student

Supervisors - and.Med.Sc. E.A. Sundukova, N.A. Subacheva

Obesity in children and adolescents is one of the urgent problems of modern health care. The number of sick children is growing and doubling steadily every three decades all over the world. According to the Russian epidemiological study (2007), excess of body weight (BW) is registered in 11.8 % of cases including overweight in 2.3% of children. The increase of in the number of obese people is not always due to external factors and the characteristics of the child's lifestyle (lack of

exercises, poor nutrition) but in many cases it can be caused by hereditary influence. The studies of some researchers show the role of heredity in the development of obesity. On the base of clinical- genealogical analysis a significant prevalence of obesity (50% of cases) was noted in families of obese women both in vertical and horizontal branches of family blood line. There was determined the tendency to inheritance of obesity mainly through the female blood line. Interrelationship between the formation of the over weight of the BM and metabolic peculiarities of adipose tissue was also determined.

There was also confirmed direct correlation of BM and the amount of subcutaneous fat in the baby at birth from the mother's degree of obesity. Considering the above mentioned the present study had been carried out with the purpose of elaboration of the influence of hereditary and individual anamnestic information on the formation of progressive forms, of the 1st and the 2<sup>nd</sup> degree of obesity in childhood adolescence.

#### **ORGAN-PRESERVING METHODS OF SURGICAL TREATMENT OF ECTOPIC PREGNANCY**

Ya. Kirillova – the 5<sup>th</sup>-year student

Supervisors - Can.Med.Sc. O.A. Sharshova, N.A. Subacheva

An ectopic pregnancy occurs when the fertilized egg unfortunately attaches to a place outside the uterus - usually in a fallopian tube, which is why ectopic pregnancies are also referred to a tubal pregnancy. The frequency of ectopic pregnancy has a strong tendency to increase in many countries of the world, in our country it is from 1.3 to 6.0% of the total number of patients in the gynecological hospital and in the structure of causes of maternal death takes 7.4% of cases. Special importance is noted to the increased frequency of "first" ectopic pregnancies and ectopic implantation in nulliparous women because after surgical treatment of more than 50% of patients develop persistent infertility, and repeated ectopic pregnancy is noted in 7-17 % of cases. The increase in the frequency of the "first" ectopic pregnancy among young women, who had no previous pregnancy and / or childbirth, requires the development and improvement of organ treatment of ectopic pregnancy (surgical and medical), as well as developing more effective ways to restore reproductive function after ectopic pregnancy.

Objective: to study the methods and effectiveness of organ treatment of women with ectopic pregnancy using minimum of invasive surgical procedures.

We have studied the basic methods of organ-laparoscopic treatment of tubal pregnancy: Salpingotomy (making an incision on the tube and removing the pregnancy), Segmental resection (cutting out the affected portion of the tube), Fimbrial expression ("Milking" the pregnancy out the end of the tube).

Long-term results of treatment of patients with tubal pregnancy convinced that organ-preserving methods have high potential fertility preservation - 34.4% of cases.

### **MARFAN SYNDROME**

M. Alekseev – the 6<sup>th</sup>-year student

Supervisors - Assoc.Prof. O.N. Siviakova, E.A. Volosenkova

Marfan syndrome – autosomal dominant genetic diseases manifesting as pathological connective tissue, caused by the mutation of the gene coding for the synthesis of the glycoprotein fibrillin – 1, is a pleiotropic.

Marfan syndrome is caused by mutations in the gene FBN1 (chromosome 15), which encodes glycoprotein fibrillin-1. This protein is essential for the proper formation of the extracellular matrix, plays a role in the biogenesis and affects the functioning of the elastic fibers.

### **DUCHENNE'S MUSCULAR DYSTROPHY**

O. Vasilyeva – the 5<sup>th</sup>-year student

Supervisors - Doc.Med.Sc. O.S.Yutkina, E.A.Volosenkova

Duchenne's muscular dystrophy - one of the most common neuromuscular diseases. It is caused by mutations in the dystrophin gene. It is inherited by recessive type, meshed with the X-chromosome.

Clinically divided two diseases – Duchenne's muscular dystrophy and myodystrophy of Becker – are genetically unified form.

The disease usually is evident between the ages of 3-5 years as progressive muscle weakness. By the age of 5, muscle weakness is revealed during the examination. As a rule, legs are thickened, true hypertrophy of the calf muscles is replaced by pseudohypertrophy- muscle is replaced by fat and connective tissue. By the age of 6 contractures of Achilles tendons and tibial iliac tracts are formed gait significantly alters. The process of muscle atrophy gradually acquires an upward trend: the thigh muscles - pelvis - shoulder girdle - arms. From 8-10 years patients need crutches.

By 12 years, patients are confined to a wheelchair. Contractures become irreversible and scoliosis often develops and causes pain. At 16-18 years, severe pneumonia often develops, often with fatal outcomes. Other causes of death - the aspiration of food and acute gastric dilatation. Atrophic process develops in the heart. Patients die on the 2-3 rd decade.

Becker muscular dystrophy is a benign form. Onset of the disease is not earlier than

10-15 years, the course is soft, patients keep working at the age of 20-30 years. Intellectual disabilities and cardiomyopathy are not marked. Heart failure occurs in case of severe concomitant diseases, such as pneumonia. Characteristic feature is intellectual impairment, but not progressing; verbal functions suffer more. The mechanism of reduction of intelligence is not fully studied.

### **NEUROFIBROMATOSIS**

E. Kolobova – the 5<sup>th</sup>-year student

Supervisors – Doc.Med.Sc. O.S.Yutkina, E.A.Volosenkova

Neurofibromatosis (NF) refers to several genetically inherited conditions that are clinically and genetically different and carry a high possibility of [tumor](#) formation. This disorder is divided into Neurofibromatosis (type 1), Neurofibromatosis (type 2) and [Schwannomatosis](#).

In terms of signs the individual might have the following: six or more light brown dermatological spots ("[café-au-lait spots](#)"); at least two [neurofibromas](#); at least two growths on the eye's iris; abnormal growth of the spine ([scoliosis](#)).

Neurofibromatosis is an [autosomal dominant](#) disorder.

The types of neurofibromatosis are: [Neurofibromatosis type I](#), in which the nerve tissue grows into tumors (neurofibromas) that may be benign and may cause serious damage by compressing nerves and other tissues. [Neurofibromatosis type II](#), in which bilateral acoustic neuromas (tumors of the vestibulocochlear nerve or cranial nerve 8 (CN VIII) also known as schwannoma) develop, often leading to hearing loss.

[Schwannomatosis](#), in which painful schwannomas develop on spinal and peripheral nerves.

The pathophysiology of neurofibromatosis (type 1) consist of the NF1 gene protein. This protein is a tumor suppressor and therefore serves as a signal regulator of cell proliferation and differentiation. A dysfunction of neurofibromin can affect regulation, and cause cell proliferation that is non-controlled. Schwann cells in neurofibromas have a mutation in the NF1 alleles.

In some extreme cases the pain will be severe and disabling.

## **ENDOCRINE GLANDS**

V. Prygunov – 2<sup>nd</sup>-year student

Supervisors – L.G. Zherepa, E.A. Volosenkova

Man is the most complex biological system. The regulation of the vital processes of the body is provided by two related subsystems:

- 1) humoral-hormonal (endocrine);
- 2) nervous regulation subsystem.

Anatomically, the endocrine doesn't constitute a single system. They are separated topographically and have different sources of development. Endocrine glands have a number of features.

All glands are small in size. The biggest of them - the thyroid reaches a maximum of 35-40g.

There are no ducts and hormones are secreted directly into the blood (sinusoidal) and lymphatic vessels.

All are richly supplied with blood, have multiple sources of blood supply and intraorgan dense network of blood vessels, so they are called "bloody glands".

All endocrine glands have rich vegetative innervation.

Hormones are essential for the full activity of the body. Hormones delivered to the organs with blood, have a selective function, between the various endocrine glands there are correlative relations and interactions.

Common characteristics are typical for all hormones:

- Specific action;
- Action only under certain physical, chemical and biological conditions;
- Hormones may circulate in the blood in a free state, and directly affect the cell receptors;
- Most of the hormones are excreted from the body through the kidneys.

### **CRASH IN EGYPT**

O. Eremina, V. Kadeneva, I. Khnykina, A. Kutynkina - the 2nd-year students  
Supervisors - Assoc.Prof. L.A. Guba, E.A. Volosenkova

On October 31, 2015 the passenger Airbus-321 liner of «Kogalymavia» airline which made flight 9268 from Sharm el-Sheikh to St. Petersburg, crashed in Egypt. In total on board of an airliner, including crewmembers, there were 224 persons. Everybody who was aboard was lost.

Airbus-321 was wrecked in the central part of the Sinai Peninsula in Egypt. The plane took off from Sharm el-Sheikh to St. Petersburg at 06:51 Moscow time. At 07:14 it disappeared from a radar. On Saturday morning in mass media, there were first messages that the liner of «Kogalymavia» airline disappeared from a radar. The staff of the airport reported that the liner sharply lost height 1.5 kilometers, and before communication loss the pilot requested a landing clearance at the airport of Cairo. Long time contradictory information came, however later terrible fears were confirmed - the plane crashed. During plane crash, there were 217 passengers aboard, 214 were citizens of Russia, and seven were crewmembers. To the place of crash there arrived rescuers who reported that there were no the survived.

It is known that the plane collapsed on two parts. Representatives of Russian aviation did not call the cause of accident, but nevertheless the main version of crash of the Airbus-321 liner is technical malfunction of the aircraft.

The Investigative Committee of Russia brought two criminal cases under articles: 263 "Violation of safety rules of traffic and operation of a railway, air, sea and inland water transport and the subway" and under the 3rd part of 238 articles "about rendering the services which aren't meeting safety requirements". Searches in offices of «Kogalymavia» airline and tour operator of «Brisko» are carried out. Heads of the Ministry of Emergency Situations and the Ministry of Transport of the Russian Federation personally took off to a plane crash site in Egypt.

### **CARDIOEMBOLIC STROKE**

Y. Sozonova, E. Shalagina - the 4<sup>th</sup>-year students  
Supervisors - Assoc.Prof. V. N. Kharnaukh, E. A. Volosenkova

Determination of cardioembolic stroke. The causes of its appearance. Risk factors. Clinical manifestations of cardioembolic stroke. Diagnostics. Treatment. Prevention.

## **INDICES OF HUMORAL AND CELLULAR IMMUNITY IN ALLERGIC AND MIXED FORMS OF BRONCHIAL ASTHMA IN THE AMUR REGION**

V. Nagrebelnaya, S. Yusibov - the 6<sup>th</sup>-year students

Supervisors - Assoc.Prof. E.L. Lazutkina, E.A. Volosenkova

Objective: To assess the state of humoral and cellular immunity in allergic and mixed forms of bronchial asthma (BA) in patients of Amur region compared to patients living in Western Siberia and Yakutia. Materials and Methods: features of allergy tests with all standard allergens were considered prick tests with fungal allergens were performed. Results: Pollen and fungous sensitization was typical for the population of the Amur region, occupational and pollen – for Novosibirsk region, fungous and epidermal –for Yakutia. The high intensity of humoral immunity in patients with asthma living in the Amur region was determined in comparison with patients in Western Siberia and Republic of Sakha (Yakutia). The most pronounced changes in cellular immunity were found in patients with asthma living in the Republic of Sakha (Yakutia). Less Significant disorders of the cellular immunity were revealed in patients of the Amur region and Western Siberia.

## **LOCOMOTIVE ACTIVITY AND WEIGHT**

V. Moseikina – the 2<sup>nd</sup>-year student

Supervisors – F.S. Mironov, E.A. Volosenkova

There is an opinion, that it is typical for a mature person to gain weight. However, it is flawed opinion because person's weight during the whole life should remain at about the same level as it has established in adolescence. A prevalent cause of overweight among middle-aged people is loss of physical activity. The body has no way to get rid of surplus and gradually accumulates it as fat.

The obesity has a harmful effect on his health and general well-being. Physical inactivity damages the normal activity of the body, people with overweight suffer from physical and mental stress and they are more susceptible to various diseases. The most favorable way out of this situation is to maintain an active lifestyle, which contributes to the normalization of the body weight. As for the optimum weight, 350-400 g of the body weight should match per one centimeter of man's growth, 325-375 g for one centimeter of woman's growth.

In order to maintain metabolism and muscle tone at an acceptable level, there are effective physical exercises from morning hygienic gymnastics, jogging, cycling till popular nowadays fitness, pilates, yoga practices and others forms of activity.

It is important to highlight a couple of issues, which can not be ignored during any physical exercises. Before starting training, you should have time for a preliminary «warming» of the whole body with the help of some simple exercises. Pay attention to the strengthening of muscles and ligaments of the joints, muscles of the abdomen, back and chest. All exercises should be combined with the correct breathing. The intensity of the exercises should be adjusted according to human's physical state and overall well-being.

It is important to remember that the measure should present even in the active

lifestyle, do not misuse the amount of exercises.

### **THE POSITION OF A HUMAN IN NATURE**

V. Moseikina – the 2<sup>nd</sup>-year student

Supervisors – L.G. Zherepa, E.A. Volosenkova

The man (*Homo sapiens*) - Kingdom: animals, type: chordal, sub-type: vertebrals, class: mammalian, subclass: theria, order: primates, suborder: anthropoids, superfamily: hominoid, family: hominid, species: *Homo sapiens*.

Features of man as a representative of the hominid family are:

1. The vertical position of the body;
2. The lower limbs, which are accommodated for supporting and locomotor function (long, strong muscles, convex foot, inability to oppose the thumb);
3. The upper limbs. One of their roles is to grab objects and make tools;
4. The powerful brain, which provides existence of the second signal system;
5. The dominant prevalence of the cerebral part of the skull;
6. S-shaped vertebral column.

The human's body is built by the type of bilateral symmetry, it has an internal skeleton. Inside the body is divided into segments. Homogeneous formations are located in sequential order along the longitudinal axis of the body (vertebrae, ribs, and nerve and muscle segments). Human has two pairs of limbs, his Central Nervous System is closer to the dorsal surface, the digestive system is closer to the abdominal surface.

The man is biological and social wight. This fact is proved by the factors of human's formation, such as:

### **FEATURES OF STRUCTURAL CHANGES OF THE DIGESTIVE SYSTEM IN THE PERIOD OF PRENATAL DEVELOPMENT**

L. Lukashova - the 2<sup>nd</sup>-year student

Supervisors - L.G. Zherepa, E.A. Volosenkova

During the fourth week the embryo's body is separated from the yolk sac, rising above the germinal flap. Entodermal plate located under this flap, all along, except the yolk duct, changes into the tube. Primitive gut is partially inside the embryo and the yolk sac is outside. At the front end of the primitive gut the oral cavity appears and breaks in the fourth week forming a hole. From the sixth week the intestinal tube enters the abdominal stalk, forming a thin V-shaped loop, at the top of which the small intestine extension appears-the future cecum. In the second month of embryonal development the primordium of large intestine is already observed (there is splenic flexure and descending colon). In the third month a short transverse intestine is formed, in the fourth month, hepatic flexure and ascending colon are observed. Fetus of 170-185 mm in length has the total intestines length of 350 mm (16-18 loops).

Stomach as an extension of the primitive gut is marked by the end of the first month of development. A greater omentum in the embryo begins to develop 20 mm

in length, the other connections of the stomach are formed later. With a length of embryo of 37 mm the esophagus takes a strictly middle position and the stomach is located in the center. Its turn to the right is carried out only in the third month, and the greater curvature of the stomach to the fifth month remains turned to the left. Primarily cardiac part and the stomach body are formed and the pyloric and lower parts grow vigorously in the second half of embryonic development.

The liver develops from the ventral diverticulum of the duodenum, which moves apart leaflets of mesentery, which make serous covering of the liver in the future. In embryos of 4 mm in length the left *vena umbilicalis* already gives branches to the hepatic plexus.

### **STIGMAS OF DISEMBRYOGENESIS IN CHILDREN WITH DIFFERENT PHYSICAL DEVELOPMENT**

A. Bakhmet'eva – the 5th-year student

Supervisors - Can.Med.Sc. O.S. Yutkina, E.A. Volosenkova

Individual development of the child is a common characteristic of the growing organism and obeys general biological laws.

Impaired physical development of children, including prenatal, has a significant effect on homeostasis of ontogenesis at different stages; It causes disintegration of functional systems.

All this hinders the full implementation of the genetic program of growth of the organism, promotes health deviations.

Objective: to reveal signs of dismorphogenesis in children depending on physical development

Materials and Methods: The sampling for the evaluation of CMV included 320 children (145 boys and 175 girls) from 7 to 18 years, I and II health groups.

To reveal CMV clinical and morphological examination, was conducted with filling in the card of phenotype, where 87 clearly recognizable symptoms were recorded.

### **FEATURES OF CHANGES OF CARDIO - VASCULAR SYSTEM IN CHILDREN WITH OVERWEIGHT AND OBESITY IN THE CITY OF BLAGOVESHCHENSK**

V. Fomin , S. Galaktionova – the 5<sup>th</sup>-year students

Supervisors - Can.Med.Sc. V.V. Shamraeva, E.A. Volosenkova

Objective: To determine the characteristics of changes in the cardiovascular system in children with overweight and obesity in the city of Blagoveshchensk.

Materials and methods: The study included 105 children with overweight and obesity. The first group included children with overweight: 60 persons between the ages of 5 to 17 years (mean age  $-16.75 \pm 0.4$  years). The second group included - obese children of the 1<sup>st</sup> degree of severity: 45 children aged 5 to 17 years (mean age  $9.21 \pm 1.5$  years). To estimate the index of Kettle in children there were used Russian methodical recommendations "Prevention of cardiovascular diseases in childhood

and adolescence", Moscow, 2012. Also, data of examination, evaluation of vegetative status by scoring tables, ECG, daily Holter monitoring, data of monitoring blood pressure, including daily, CIG, ultrasound examination of the heart with Doppler echocardiometry were used. Children with defects of the cardiovascular system and thyroid dyscrasias, were excluded from the study. Data processing was carried out using the "Microsoft Excel" and "Statistica 6.0".

Results: According to the monitoring of blood pressure hypertension occurs in one child (1.7%) with overweight and in 14 (31.1%) children with obese of the 1<sup>st</sup> degree.

In the 1st observation group, in 82% of patients various rhythm and conduction disturbances were recorded. In the second group - in 97.3% of patients. Most often processes of conduction disturbances (80%), repolarization (35.6%) were marked. In comparison, it was found that in group 2 percent of abnormalities on the ECG is significantly higher than in group 1 ( $p < 0.05$ ).

In 30 children of the 1<sup>st</sup> group (50%), dystonia was revealed (mainly sympathicotonia), but in 27 children of the 2<sup>nd</sup> group (60%) it was revealed mainly on the mixed type.

Myocardiodystrophy was found - in 37% of children of group 1 and in 68.9% of children of the 2 group ( $p < 0.05$ ). Hypertrophy of the left heart in children of the 2 group was found significantly more often ( $p < 0.01$ ): 22.2% vs. 0%.

Conclusions: In the majority of children with overweight and obesity pathological deviations from the cardiovascular system were observed, which progressed with increasing body weight. All children with overweight, especially with obesity should undergo a complete cardiac examination (including ultrasound examination of the heart and blood pressure monitoring) for the purpose of early detection and treatment of abnormalities.

## **THE MASS SPECTROMETER AS A METHOD OF LABORATORY DIAGNOSTICS**

S. Eroputko, Sh. Tursunbayev – the 3<sup>rd</sup> -year students

Supervisors - Doc.Med.Sc., Prof. G.I. Chubenko, E.A. Volosenkova.

Mass spectrometers are vacuum devices which determine the masses of atoms (molecules). The devices use physical laws of motion of charged particles in electric and magnetic fields to produce the mass spectrum. In clinical microbiology, this device allows accurately to determine the quantity and quality of a material, its structure, physical and chemical reactions. In particular, the mass spectrometers are used for: identifying microorganisms in biological samples - filamentous fungi, yeasts, gram-positive and gram-negative bacteria; the species of bacteria typing – identifying their genera and species of origin; determining the sensitivity of microorganisms to antibiotics; making human genetic passport. Modern mass spectrometers consist of several devices: 1) an ion source - converts the components of an inorganic or organic substances - neutral atoms and molecules in relieved particles-ions; 2) Micro Organic Analyzer - separates ions by time of flight in mass spectrometer of a certain distance; 3) detector states a signal of the ions. MALDI (Matrix-assisted laser de-

sorption / ionization) is the "soft" way of ionization. Auxiliary matrix reduces the destructive properties of the laser radiation to the ionization of large biomolecules without degradation. TOF (Time of Flight) - principle of operation of the analyzer of the mass spectrometer. It records the time of flight of a particular distance by infectious particles and separates ions by this factor.

Advantages of the new method of mass spectrometry: the speed of the study, accuracy and reliability of results. Such mass analyzer has certain advantages: it has very high characteristics, the range of measured masses is very wide, it can analyze the ions produced by all means.

### **PATHOGENESIS OF CIRRHOSIS**

O. Menovshikova, Sh. Tursunbayev – the 3<sup>rd</sup>-year students  
Supervisors - Can.Med.Sc. Prof. V.A.Maksimenko, E.A.Volosenkova

Pathogenesis of cirrhosis is closely connected with its etiology that explains the nature of morphological changes in a liver. Etiologicheskyy factors (alcohol, viral infection, defect of a metabolism, etc.) cause a necrosis of hepatocytes. Thus, autoimmune reactions to a hepatic lipoproteid have a certain value. At massive, submassive necrosis, and also at distribution from the center of a lobule to a portal path (bridging port – and central necrosis) under the influence of intra hepatic pressure there comes lobule collapse - loss of space which early was occupied by a parenchyma. Restoration of hepatic tissue in this case becomes impossible. As a result portal paths and the central veins approach, growth of connecting tissue begins. The escaped hepatocytes or fragments of hepatic lobules regenerate and form knots – regenerators which together with the remains of the remained parenchyma form pseudo – lobules. Pseudo – lobules represent the parenchyma sites deprived of usual radial orientation of trabecular to the central vein. In the center of pseudo - lobules unlike normal lobules the central veins are not found and on the periphery portal paths are not revealed. The centers of the regenerating parenchyma and the expanded connective tissue band squeeze blood vessels, especially thin - walled hepatic veins, microcirculation is broken, and there is an obliteration of venous vessels. Intra hepatic pressure increases (2-5 times higher than norm), the speed of a portal blood - flow is slowed down, the volume blood - flow in a liver decreases by 30-70%. Along with it connective tissue band, gradually growing deep into parenchyma, connect portal paths to the central zone of a lobule. As a result the hepatic lobule is fragmented, portal vessels connect to branches of a hepatic vein, forming arteriovenous anastomosis (shunts). On these anastomoses by blood from a portal vein goes directly to system of a hepatic vein, passing by a liver parenchyma that sharply breaks oxygenation and nutrition of hepatic cells and inevitably leads to emergence of new necroses. Thus, the progressing of cirrhosis goes as chain reaction: necrosis-regeneration-reorganization of the bloodstream - parenchyma ischemia - a necrosis.

### **STAGNANT CIRRHOSIS**

Sh. Tursunbaev – the 3<sup>rd</sup>-year student  
Supervisors - Can.Med.Sc. Prof. N.V. Menshchikova, E.A. Volosenkova

Stagnant cirrhosis on a clinical picture significantly differs from all other forms of these diseases and can be ranked to them only conditionally. In patients the phenomena of the general disorder of blood circulation prevail. The liver is increased, dense. The edge of it is blunt, because of the blood overflow of the organ, it is sharp more rare. Despite growth of connective tissue, functions of a liver are a little broken. Despite possible portal hypertension, collateral blood circulation isn't expressed as congestion of blood extends all over the system of a venous blood flow.

Special case of stagnant cirrhosis is the Peak "pseudo-cirrhosis" developing in constrictive pericarditis ("stone heart") in case of squeezing by healing tissue of the orifice of hepatic veins at their return to the inferior vena cava. Owing to stagnation and a thickening of a Glisson capsule, the sizes of a liver increase, its consistence becomes dense. Its functions, as a rule, aren't broken. The diagnosis is based on radiological revealing a calcified pericardial sac, the increased venous pressure and other signs of this damage of the heart. Timely surgical treatment prevents similar changes of a liver.

The forecast in various forms of cirrhosis is always serious. Recovery doesn't happen. At effective treatment life expectancy can significantly be extended.

The great role in treatment of cirrhosis of a liver belongs to medical diet which has to be full, high-caloric, with the increased content of proteins, carbohydrates and vitamins; fats are given only in the form of fresh creamy and vegetable oil. The food modes applied earlier with restriction of proteins and rich with carbohydrates were not approved. The most part of proteins of food has to be presented by dairy products (cottage cheese). Restriction of proteins is shown only at the expressed disorder of the neutralizing function of a liver (hepatargia).

## **AGE PECULIARITIES OF THE MALE GENITAL ORGANS**

A. Osintseva – the 2<sup>nd</sup>-year student

Supervisors – L.G. Zhrepa, E.A. Volosenkova

Under normal development conditions the neonatal boys' testicles must be descended into scrotum. Newborn's testicle weight is 0.2g, and to 14 years it is 2g; right testicle is located higher than the left one. After the period of puberty increase of the size and weight is insignificant. Newborn's testicle epididymis has a relatively large size. For 10 years, its size changes slowly however, there is a more intensive development of the epididymis at juvenile age. Newborn's testicular canaliculi (twisted, straight, network of testis) have no gaps; for the first year slit gaps appear in the twisted tubules. By the age of 16, there are all cells of spermatogenic line in these tubules, and gaps appear in all others. In comparison with newborns, at youth the diameter of the seminiferous tubules doubles, and triples in adulthood. Newborn's testicular appendage, epididymis of testicular appendage and testicle epididymis appendage have a relatively large size, grow up to 10 years, and then reduce. Newborn's deferent duct is very thin; a longitudinal muscle layer is absent in its wall. Funiculus, and its constituents develop slowly, and its development accelerating is observed at the age of 14 - 15 years. Newborn's cremaster muscle is underdeveloped.

Newborn's and child's seminal vesicles have a small number of diverticula, located relatively high, and covered by peritoneum intraperitoneally. For the 2nd year they descend, and are located retroperitoneally. Acceleration of its development begins at juvenile age. Newborn's prostate gland is located relatively high, and has a spherical shape. After 10 years, prostate growth accelerates. By juvenile age, a prostate gland has lateral lobes, and resembles the chestnut shape. Newborn's foreskin is long, and covers the glans penis fully, its opening is so narrow that under certain conditions can trap it (paraphimosis). Such condition requires an urgent medical attention. The scrotum is small, and its skin is wrinkled in connection with good development of fleshy shell. Cremasteric reflex is well developed.

### **ABNORMALITIES OF THE ORGAN OF VISION**

V. Kadenyova – the 2<sup>nd</sup>-year student

Supervisors - Can.Med.Sc., Assoc.Prof. Y.A. Shakalo, E.A.Volosenkova

Anomaly - is a set of deviations from the normal structure of the body, arising during antenatal or post-natal development.

Causes of anomalies are combined into four groups:

1. anomalies caused by inherited mutations only;
2. anomalies associated with a genetic predisposition to malformations when exposed to certain environmental factors;
3. defects arising under the influence of environmental factors preventing from the development of genetically normal zygote;
4. spontaneous mutations leading to ocular abnormalities;

Congenital ectropion – is eversion of the edge of an eyelid. Lower eyelid usually is turned inside out a second time due to the insufficient size of skin in the eyelid vertically. In mild cases, lateral tarsorrhaphy may be necessary. In severe cases, the transplant of a skin graft is advisable

Sclerocornea – is a congenital disease in which the cornea is cloudy and resembles the sclera, while the limb is not clinically differentiated. In almost all cases the center of the cornea is more transparent than the periphery. Corneal stroma consists of a mixture of scleral and corneal collagen.

Microphakia - is reduction of the lens in size. As an independent anomaly is rare. In such cases, there is bilateral lesion, it is often combined with microphthalmia, vascular bursa of lens megalocornea, signs of mesodermal dystrophy. Congenital glaucoma is often found, the cause of which is the underdevelopment of the structures of the anterior segment of the eye.

### **HARTNUP DISEASE**

V. Kadenyova – the 2<sup>nd</sup>-year student

Supervisors – Assoc.Prof. L.G. Tertychnaya, E.A.Volosenkova

Hartnup disease (by the name of the first patient - E. Hartnup) - genetically determined disorder of transport of tryptophan and neutral amino acids in the kidneys and intestines, is inherited in an autosomal recessive manner.

One of the mechanisms of disease is disorder of membrane transport of neutral amino acids in the renal tubules. Hereditary defect of reabsorption mechanism leads to an 8-10 fold increase in the clearance of such amino acids as tryptophan and also alanine, serine, threonine, valine, asparagine, glutamine, leucine, isoleucine, phenylalanine, tyrosine, histidine, citrulline, at their normal levels in plasma of blood. Another mechanism of pathogenesis is in intestinal malabsorption of tryptophan which accumulating in the small intestine undergoes bacterial cleavage to products able to suction. Cleavage products of tryptophan are indole derivatives (indoxyl sulfate, indole acetic acid, indolilacrilglycine) providing after entering the blood toxic effects on the central nervous system and skin. Due to lower level of tryptophan in the body the synthesis of vitamin E is disturbed, which leads to appropriate clinical symptoms (the change of the skin, mucous membranes, disorders of the digestive system). Mostly Hartnupa disease develops in childhood.

Clinically it is characterized by pellagropaform rash, peeling, photodermatitis reversible cerebellar ataxia, headaches, mental disorders, ranging from emotional instability to the typical delusions and hallucinations, as well as constant aminoaciduria. Except pathognomonic for the disease of Hartnup aminoaciduria, none of these symptoms is typical, and the disease manifests itself in different combinations of them in varying degrees of severity. Diagnosis is based on clinical picture and the results of chromatography of urine amino acids.

#### **RIGHT BUNDLE BRANCH BLOCK**

V. Kadenyova – the 2<sup>nd</sup>-year student

Supervisors – T.A. Batalova, E.A. Volosenkova

A bundle branch block - a cluster of cardiac conductive system cells about 20 mm in length, which is located under the atrioventricular node and interventricular septum, and divided into the left and right legs.

Bundle-branches block may be caused by various causes. Right bundle branch block occurs in cases involving overload and right ventricular hypertrophy - mitral stenosis, atrial septal defect, tricuspid valve insufficiency, coronary heart disease, pulmonary heart, hypertension, acute myocardial infarction and others. The rhythmic impulses can be generated only by special cells of pacemaker and cardiac conductive system. Thus it is a pacemaker or sinoatrial node, which is located in the wall of the right atrium. The excitement of the sinoatrial node spreads over atria, and then along conducting system impulses are transmitted to the atrioventricular node. In His' bundle impulse is transmitted from the AV node to the ventricles.

Cardiac conduction system has a unique feature - each cell is able to generate its own activation. The main source of activation (a pacemaker of the first order rhythm) - is atrionector that generates impulses at a frequency of 60-80 per minute, respectively, the heart rate is 60-80 beats per minute. If this portion is blocked or fails, then the pacemaker is the atrioventricular node, and the impulse frequency is reduced to 40-50 per minute. In cases when the function of generating activation the bundle of His begins to fulfill, the heart rate will not exceed 30-40 beats per minute. Sometimes, during the blockade of the overlying parts, the activation can arise spon-

taneously in cells of Purkinje fibers, and then the rhythm of the heart will be very rare - about 20 beats per minute- right bundle branch block.

During the blockade of the right branch activation along the left branches is transmitted to the left side of the interventricular septum and then spreads from left to right along the left branches - on the left ventricle with a delay of 0.04-0.06 seconds on the right ventricle. On ECG broad S wave and a high, wide R wave with an increased amplitude can be seen. QRS complex is in the form of qRS or rSR and its broadening is to 0.12 seconds or more.

### **NATUROTHERAPY IN PROFESSIONAL PATHOLOGY**

I. Antonova, E. Efremova - the 4<sup>th</sup>-year students

Supervisors - Doc.Med.S ., Prof. T.A. Savinova, E.A.Volosenkova

Naturopathy is a science-based treatment by means of natural mineral, organic and herbal resources. Phytotherapy is a treatment by herbal medicines which contain complexes of biologically active substances extracted from a medicinal plant or its parts. General principles are nature prevention, naturopathy, nature rehabilitation of working people. During annual physical examination the list of recipe free medicines can be offered for working people. These medicines have a protective action when people have hard professional activity. Approximate list of medicines for a month: mineral substances, trace elements and mineral water; essential drugs and dietary supplements; preferred food plants, essential nutraceuticals, spices in the diet; teas and phyto-formula from 150 to 450 g of dry plant materials or 30 - 90 filter bags (49 % of the urban population prefers filter bags); vitamin complexes - Undevit, Glutamevit, Aerovit, Geksavit, Geptavit, Kvadevit in accordance with the regulations. Naturopathy of immunopathology caused by influence of harmful factors during biotechnological processes.

Immunomodulation is recommended for majority who contact with allergens. It is the complex of actions directed to optimize healthy people's immune processes. Phytotherapy: In secondary immunodeficiency adaptogens are effective - ginseng, Siberian ginseng, aralia, devil's-club. In case of phagocytosis disorder medicinal plants are useful: 1) containing polysaccharides - arnica, aloe, coltsfoot, plantain; 2) containing silicon - clover, lungwort, equisetum; 3) containing zinc - anise, arnica, barberry, black elderberry, knotgrass, ginger, corn silk, laurel, lemon balm, potentilla, sage, fig and currant leaves; 4) containing polyphenolic complexes - tustan, lemon balm, juniper, violet, beddarts. In order to correct impairments of T Cell-Mediated Immunity the following plants are used: nettle, sweet marjoram, birch leaf, sage leaf, myrtle, knotgrass. In order to correct impairments of humoral immunity coltsfoot, Siberian ginseng are used. In case of reducing the number of natural killer cells extract of garlic, extract of the mushroom fungus are effective. In the treatment of dermatitis and eczema in individuals with severe allergic history local herbal medicine is applicable. Microelements and vitamin therapy: F99 (mixture of esters of linoleic and linolenic acids); A, PP, E, DB (pantothenic acid); trace elements selenium and zinc. Pantothenic acid.

## **CREATIVITY OF SCHIZOPHRENIC PATIENTS**

I. Antonova, A. Mironenko, E. Efremova - the 4<sup>th</sup>-year students  
Supervisors – N.G. Brush, E.A. Volosenkova

For creative people with schizophrenia stereotypes, the tendency to symmetry (ornamentalism), a combination of incompatible ideas, sketchiness, unfinished works are typical.

E. Kraepelin noted in patients with catatonia desire to endlessly repeated drawings of fabulous creatures. The monotony in paranoid form of schizophrenia was found by W. Morgenthaler. During the disease one and the same plot predominated in the works of patients. A case where an artist who suffered from delusion of jealousy within schizophrenia for more than 20 years, portrayed on his canvases plot of the death of Desdemona from the play by William Shakespeare's "Othello" is known.

Many psychiatrists also noted that people with schizophrenia can't stand empty places, paint strokes, are prone to agglutination of images and symbols. Their works are rarely completed.

According to well-known specialist in the field of creativity of insanes PI Karpov, drawings of schizophrenic patients can be classified into four groups: a) with inexplicable forms; b) stereotypes; c) symbolic; d) with breaking the association unit. PI Karpov also noted the tendency of patients with schizophrenia to the image of animals with unusual shapes. Statics and static images of patients with schizophrenia were pointed by H. Burger-Prinz.

The lack of gradation of color shades, the rejection of the integrity of the composition of products, the pursuit of endless tweaking the smallest details of drawing were also typical. According to SA Boldyreva in children with schizophrenia, especially with malignant course an interest in the fine arts is absent, or there is a craving for drawing with filling albums with pictures of the same content.

## **EFFICIENCY OF CYTOFLAVIN DURING ADAPTATION OF THE ORGANISM TO COLD**

I. Antonova, A. Mironenko, A. Chirkova - the 4<sup>th</sup>-year students  
Supervisors – Doc.Med.Sc., Prof. V.A. Dorovskikh, E.A. Volosenkova

Cold stress creates favorable conditions for radical formation and contributes to the depletion of the antioxidant capacity of the system in warm-blooded organisms. During adaptation to cold there is a deficiency of bioenergy and tissue hypoxia, which is based on the discrepancy between tissue oxygen demand and delivery. A promising thing from this standpoint is the use of drugs containing succinic acid, which is one of the metabolites of the Krebs cycle, which exogenous supply restores the energy exchange processes.

Succinic acid represented by the body in the form of anion (succinate) is contained in the product "Citoflavin" (LLC "NTFF" POLYSAN ", St. Petersburg), detoxification, anti-hypoxic and anti-oxidant effect was proved in clinical trials. 1 liter of solution "Citoflavin" contains active ingredients: succinic acid, nicotinamide, ri-

boxinum, riboflavin. Thus, all the components of the drug "Citoflavin" are the major inducers of metabolic pathways in cells, energy activators forming processes promoting free oxygen utilization, thereby reducing the level of peroxide processes and ischemia of various organs and systems.

The experiment was conducted on white outbred male rats weighing 150-200 g for 21 days. Cooling animals was carried out daily within climatic camera «Fentron» (Germany), keeping a temperature range -15°C. Citoflavin administered to the animals directly before cooling (exposure time - 3 hours) daily intraperitoneally at a dose of 100 mg/kg.

The results of studies have shown that the effect of low temperatures on rats is accompanied by activation of peroxidation and the accumulation of peroxidation products in blood of cooled animals. It is proved that activation of LPO during cold exposure in rats is developing against stress and exhaustion of AOC of blood characteristic changes of that include a decrease in the activity of catalase and glucose-6-phosphate dehydrogenase, as well as the decrease in the content of vitamin E and ceruloplasmin. Citoflavin increases the conversion of succinic acid in the body necessary for life support in extreme conditions, increases the release of heat during muscle contraction, allowing at a reduced level of thermoregulatory tone to increase heat production in the cold, stabilizes the lipid peroxidation in the cold experimental model, as it is proved by a significant decrease in content of products of LPO: lipid hydroperoxides by 12%, 21%, 20% on the 7th, 14th and 21st days of the experiment respectively, conjugates diene to 19%, 23% and 17%, MDA by 28%, 33% and 20%. Investigation of activity of the basic components AOC reflected increase of ceruloplasmin level with administration of cytoflavin by 15%, 19%, 20% on the 7th, 14th and 21st days of the experiment respectively, the content of vitamin E when using cytoflavin in the experiment was significantly increased by 14% by the end of the first week of study, by 20% - by the end of the second one and by 15% - by the end of the third week. In turn, the investigation of the activity of antioxidant enzymes has allowed to ascertain a slight increase in the level of glucose-6-phosphate dehydrogenase (on average by 7%) and catalase (by 8 - 18%).

Thus, the possibility of correcting cold stress with the introduction of succinate-containing drug "Citoflavin" was confirmed experimentally for the first time.

#### **RHEUMATIC ENDOCARDITIS**

Y. Belyaeva, E. Terentyeva – the 3<sup>rd</sup>-year students

Supervisors - Can. Med.Sc. S.S. Perfilieva., E.A. Volosenkov

Rheumatic diseases - a group of diseases characterized by systemic lesion of connective tissue and blood vessels, due largely to immune disorders. Cardiovascular endocarditis is a form of rheumatism.

Rheumatic endocarditis –is inflammation of the endocardium, tendon chords may be involved in the process - chordal endocarditis and mural endocardium or atrial ventricular - parietal (parietal) endocarditis. Mitral valve is most commonly affected (65-70% of rheumatic heart diseases). The combined lesion of mitral and aortic valve (25%) is at the 2<sup>nd</sup> place in frequency, the lesion of the aortic valve is

at the 3rd place. When rheumatic endocarditis degenerative and necrobiotic changes of endothelium, mucoid, fibrinoid swelling and necrosis of the connective basis of endocardium, cell proliferation (granulomatosis) in thickness and endocardial thrombus formation on the surface are observed. The combination of these processes may be different, allowing to identify several species of endocarditis. There are 4 types of rheumatic valve endocarditis: Diffuse or valvulitis; Acute warty; fibroplastic; back and warty.

Diffuse endocarditis, or valvulitis characterized by diffuse lesions of valve cusps, but without changes in endothelial and thrombotic overlays. Acute warty endocarditis is accompanied by damage of the endothelium and the formation on the closing edge of the cusps (in the damaged parts of the endothelium) of thrombotic overlays in the form of warts. Fibroplastic endocarditis develops as a consequence of the two previous forms of endocarditis at a special penchant of process to fibrosis and scarring. Return-warty endocarditis is characterized by repeated disruption of connective tissue of valves, change of their endothelium and thrombotic overlays on the background of sclerosis and the thickening of the valve cusps.

At the end of endocarditis sclerosis, hyalinosis and deformation of valve cusps develop. Often they are fused with each other, and sclerosis petrification of fibrous ring may also develop. Atrioventricular orifice is usually narrowed sharply, it has a kind of "fish mouth" - heart disease is formed. The tendon chords are thickened, shortened and fused with each other.

#### **ATHEROSCLEROSIS. MODERN VIEW AND MECHANISMS OF DEVELOPMENT**

Y. Belyaeva, E. Terentyeva - the 3<sup>rd</sup>-year students

Supervisors - Prof. A.P. Matytsin., Prof. V.A. Maksimenko.,

E.A. Volosenkov

Atherosclerosis is systemic disease of large and medium arteries, accompanied by the accumulation of lipids, proliferation of fibrous fibers, a vascular wall endothelium dysfunction leading to local and general disturbances of hemodynamics. For the first time the term "atherosclerosis" was proposed by FJ Marchand in 1904 and meant the morphological changes of the arteries, which are characterized by a combination of fat accumulation in the intima of arteries and cases of sclerosis. Gradually, the idea of atherosclerosis meant nosologic unit, special disease. Works of Russian scientists and especially NN Anichkov and SS Khalatov were essential in the study of nature of the disease. They opened the cholesterol theory of atherogenesis. The new discoveries allowed to add to it, to explain the contradictions, to reconcile with other theories. Moreover the main idea was preserved, there is no atherosclerosis without cholesterol metabolism disorder. This hypothesis is now transformed and is as follows - lipid metabolism disorder leading to an increase in number of atherogenic or a decrease in number of lipoproteid antiatherogenic classes, as well as a qualitative modification of lipoproteids are basic pathogenetic mechanisms of atherogenesis.

It is believed that in the development atherosclerosis goes through several

stages:

Stage I - the lipid (or fat) spot. For the deposition of fat in the vascular wall microdamages of walls of arteries and slowing blood flow locally play an important role. Areas of branching vessels are the most susceptible to atherosclerosis. Vascular wall is loosened and swells. Enzymes of arterial wall tend to dissolve lipids and protect its integrity. Stage II - liposclerosis. It is characterized by the growth of young connective tissue in the areas of fat deposits. There is the formation of an atherosclerotic plaque, consisting of fat and connective tissue fibers. It is still a liquid and can be dissolved. But it may be dangerous because loose surface can be torn, and fragments of plaques - clog the arteries lumen. The wall of the vessel loses its elasticity, cracks and ulcerates, leading to the formation of blood clots. Stage III - atherocalcinosis. It is connected with induration of a plaque and deposition of calcium salts in it. Atherosclerotic plaque can behave stably and gradually grow, distorting and narrowing the lumen of the artery, causing a progressive chronic disorder of blood supply of the organ fed by the affected artery. At the same time a high probability of acute blockage (occlusion) of the vessel lumen with thrombus or fragments of the broken plaque with the development of myocardial site (necrosis) and gangrene in a limb or organ perfused by the artery.

#### **A COURSE OF ACUTE CORONARY SYNDROME IN WOMEN**

Y. Belyaeva, E. Terentyeva, V. Belukhin – the 3rd-year students  
Supervisors - Doc.Med.Sc. I.G. Menshikov, E.A. Volosenkov

Cardio - vascular diseases occupy a leading place in the structure of adult mortality in Russia and 55% of the total number of deaths. It is known that acute coronary syndrome (ACS) develops in women 10-15 years later than in men, which for a long time has been associated with cardioprotective effect of female hormones. However, in recent years there has been increased incidence of acute coronary syndrome in women, including child-bearing age.

According to WHO, myocardial infarction (MI) is the cause of death of 45% of men and 55% of women. According to the Framingham study, the debut of coronary heart disease (CHD) in women is often angina, in men - MI in 46% of cases. At the same time, women have more likely the development of silent myocardial ischemia. According to some authors, 63% of women who died of myocardial infarction did not have the typical symptoms of the disease. This raises the question of the timeliness of diagnosis of ACS in women and to identify the most significant risk factors for coronary artery disease.

The aim of our study was to investigate the clinical course of acute coronary syndrome in women.

A retrospective analysis of 130 medical records of women aged from 41 to 93 years treated in the emergency department of cardiology SBEH AO "Blagoveshchensk city Clinical Hospital" was made. 57.6% of patients were diagnosed with unstable angina, 42.4% - myocardial infarction, including myocardial infarction with Q wave in 73.5% of the patients, without Q- wave in 26.5%. All patients, both young and elderly, had risk factors (RF) for coronary heart disease

(CHD) such as: arterial hypertension - 97%, family history - 89%, dyslipidemia-79%, obesity - 64%, Smoking - 42%, diabetes - 43%. It should be noted that in women under 55 years of age, more often combination of 3 or more risk factors was noted (79.5%), in elderly patients - a combination of 2 risk factors.

An analysis of the social situation showed that in 78.3% of women with ACS the work was associated with psycho-emotional stress. In 42% of patients anxiety and depressive events were frequently observed. In 69% of cases acute coronary syndrome was diagnosed in women over 65. In 18% of patients re-infarction developed, recurrence of the disease was observed in 27.5% of cases. Anterior widespread infarction was observed in 47.2% of patients anteroseptal MI - 9.8%, posterodaphragmatic MI - 39%, circular – 4%. In older women MI was complicated with the rhythm and conduction disturbances in 79%, over 75 years, in women aged up to 55 years – in 15% of cases.

Thus, the in ACS patients under the age of 55 a combination of risk factors such as hypertension, obesity, dyslipidemia, smoking was noted. In older women, diabetes and hypertension were often identified. In elderly patients atypical ACS and silent myocardial ischemia were often observed.

#### **CURRENT APPROACHES TO THERAPY OF HIV INFECTION**

Y. Belyaeva – the 3<sup>rd</sup>-year student

Supervisors - Can.Med.Sc. A.V. Prokopenko., E.A. Volosenkov

The main objective of treatment is to slow down the HIV virus from replicating in the body. For this purpose a number of antiviral drugs was developed. HIV is a retrovirus, so these drugs are called antiretrovirals. These drugs affect the virus in human cells by blocking the action of its enzymes and thereby not giving the virus to multiply. Depending on the operating principle of anti-HIV drugs are divided into several classes: reverse transcriptase inhibitors (lamivudine, zidovudine, abacavir, tenofovir, etc.), Protease inhibitors (ritonavir, indinavir, amprenavir, nelfinavir, etc.), Fusion and penetration inhibitors (enfuvirtide), integrase inhibitors, and others. Some medications include just two or three antiviral drugs of the same or different classes. As a rule, simultaneously several different classes of antiretroviral drugs are applied. Combination therapy reduces the risk of developing resistance. In addition to antiviral therapy in the treatment of HIV infection and AIDS, attention is paid to the prevention and treatment of complications (infectious diseases, neurological disorders, changes in blood parameters, tumors).

#### **CONCEPT OF SCHOOL MATURITY, CRITERIA**

Y. Belyaeva – the 5<sup>th</sup>-year student

Supervisors - Doc.Med.Sc., Prof. N.V. Korshunov ., E.A Volosenkov

Currently, before entering school the so-called school maturity is being tested. School maturity - is the degree of morphological and functional readiness of individual organs and systems of a child to meet the requirements of a school. At the age of 6 years examination of children in the kindergarten or poly clinic is carried

out. Biomedical commission, which includes: a pediatrician, teacher, speech therapist determines school maturity. Criteria for school maturity: child health (including psychological status), establishing the biological age, check-up of the development of speech (paraphrase), carrying out the work during 2 min, psycho-physiological test of Kern-Irrasek. Using the test it is possible to determine the school maturity to 70 %. This test consists of three tasks: to draw a person, copy in writing short phrase copy 10 points in the form of a rectangle. Each task is evaluated separately. The highest mark- 1, the lowest - 5. Children who have 3-5 marks- mature, 5-9 points - moderately mature, more than 10 - immature. The first and second ones are taken to school.

### **MORPHOLOGICAL ASPECTS OF THE INTRAPELVIC BLOCK ACCORDING TO SHKOL'NIKOV-SELIVANOV-TSODYKS**

Y. Belyaeva, E. Terentieva – the 3<sup>rd</sup>-year students  
Supervisors - Prof. S.I Piskun, E.A. Volosenkova

Injuries of the pelvis in peace time constitute 3-18% of the total number of injuries. The disease is usually accompanied by severe hemorrhagic shock. Mortality in these lesions is 14%

Taking it into account the need for simple and reliable blockade increases.

The most common method of anesthesia is the intrapelvic blockade on Selivanov-Shkolnikov-Tsodyks.

Intrapelvic anesthesia is a reliable way to deal with pain and reflex disturbances in fractures of the pelvis. It shows a long analgesic effect for the entire period of treatment, allowing the carrying out of medical gymnastics in the first days after the injury.

Technique of anesthesia. The patient is usually, on the back. The skin in the area of the anterior superior iliac spine is treated with tincture of iodine. 1 cm of skin medially from the anterior superior spine is anesthetized with fine needle with 1-2 ml of 0.25% solution of novocaine. Then, the needle with length of 14-15 cm, fitted on a syringe with Novocaine is injected through the anesthetized area of skin under the spine from front to back with cut to the inside surface of the ilium. Introducing novocaine solution, the needle is advanced posteriorly to a depth of 12-14cm. Advancement of the needle should be preceded by the introduction of novocaine. All the time you need to feel the closeness of the ilium. When performing this technique the end of the needle is in the internal iliac fossa, which is administered 0.25% solution of novocaine.

When unilateral fracture novocaine solution is administered on the side of the fracture in the amount of 400-500 ml, in bilateral the solution is to be administered at 250-300 ml per side. In open fractures, fractures with damage to the pelvic organs it is advisable to add 200 000 to 400 000 units of penicillin to the solution of novocaine.

To prevent leakage of novocaine out of the needle at the next syringe filling it is necessary to close the opening in the pavilion of the needle pressing the ball or displacing the needle before removing the syringe. After the cessation of anesthesia

needle is removed, and the place of injection is smeared with tincture of iodine.

For the first time the authors have published a description of this anesthetic in their monograph "The damage of the pelvis and pelvic organs" (1966).

Lev Grigor'evich Shkol'nikov (1900-1994) is a soviet orthopedic traumatologist., Ph.D., associate professor of the Minsk Medical Institute. Editor in Chief of the All-Union journal of Traumatology and board member of several All-Union medical societies. Author of 125 scientific papers and several books.

Valentin Petrovich Selivanov (1921-1989) – is Honoured Doctor of the RSFSR (1966). The surgeon, osteopath, traumatologist. The creator of the school of traumatology in Novokuznetsk. He worked on the creation of improved methods of diagnosis and treatment of patients, it has made a significant contribution to the various sections of medicine. The author of scientific publications on Traumatology.

Vladimir Moiseevich Tsodyks - MD, PhD. Representative of Novokuznetsk School of Traumatology and Orthopedics, the founder and first head of the department. The author of 119 publications, two books and 25 inventions.

In 1966, Shkol'nikov, Selivanov and Tsodyks were awarded N.I. Pirogov Prize. This Prize for the best monograph was awarded once every four years.

## **EPIDEMIOLOGICAL FEATURES OF METABOLIC SYNDROME**

E. Salomatova, E. Apyrshkina - the 4<sup>th</sup>-year students

Supervisors - Assoc.Prof. O.A Tanchenko, E.A. Volosenkova.

Metabolic syndrome is a combination of hormone and metabolic disorder: abdominal (visceral) obesity, carbohydrate metabolism disorder and dyslipidemia, sleep-disordered breathing and hypertension. All of these symptoms have pathogenetic connection.

The main signs of metabolic syndrome are abdominal (visceral) obesity, insulin resistance or prediabetes that causes carbohydrate metabolism disorder, dyslipidemia, purine metabolism disorder and hypertension. However, the individual disorders that compose the metabolic syndrome are treated separately.

At present metabolic syndrome may be considered as a kind of epidemic – 25-30% of the world's adult population suffers from it, and in the 20-49 year age group. Metabolic syndrome more affects men but in the 50-69 year age group prevalence rates are similar in men and women. Each 10 years the number of people who suffer from obesity increases by 10%.

## **HUNTINGTON'S DISEASE**

E. Salomatova, E. Apyrshkina - the 4<sup>th</sup>-year students

Supervisors - Assoc.Prof. V.N. Karnaukh, E.A. Volosenkova

Huntington's disease (HD) is a neurodegenerative genetic disorder that affects muscle coordination and leads to mental decline and behavioral symptoms. Symptoms of the disease can vary between individuals and affected members of the same family, but usually progress predictably. The earliest symptoms are often subtle problems with mood or cognition. A general lack of coordination and an unsteady

gait often follow. As the disease advances, uncoordinated, jerky body movements become more apparent, along with a decline in mental abilities and behavioral symptoms. Physical abilities gradually worsen until coordinated movement becomes difficult. Mental abilities generally decline into dementia. Complications such as pneumonia, heart disease, and physical injury from falls reduce life expectancy to around twenty years from the point at which symptoms begin. Physical symptoms can begin at any age from infancy to old age, but usually begin between 35 and 44 years of age. The disease may develop earlier in life in each successive generation. About 6% of cases start before the age of 21 years with an akinetic-rigid syndrome; they progress faster and vary slightly. The variant is classified as juvenile, akinetic-rigid, or Westphal variant HD.

#### **PHELLODENDRON AMURENSE**

E. Salomatova, E. Apryshkina - the 4<sup>th</sup>-year students

Supervisors – Doc.Biol.Sc., Assoc.Prof. N.V .Simonova, E.A. Volosenkova.

*Phellodendron amurense* Rupr. is a species of tree in the family Rutaceae, commonly called the Amur cork tree. It is a major source of huáng bò (Chinese: 黄柏 or 黄檗), one of the 50 fundamental herbs used in traditional Chinese medicine. The Ainu people used this plant, called shikerebe-ni, as a painkiller.

Native to eastern Asia; northern China, Manchuria, Korea, Ussuri, Amur, and Japan, the Amur cork tree is considered invasive in many parts of North America. The State of Massachusetts lists it as a noxious weed.

It has been used as a Chinese traditional medicine for the treatment of meningitis, bacillary dysentery, pneumonia, tuberculosis, and liver cirrhosis.

It is used orally to treat abdominal pain, diarrhea, gastroenteritis and urinary tract infections. Berberine has been indicated for the effective treatment of bacterially-induced diarrhea and ocular trachoma and cutaneous leishmaniasis, *Phellodendron amurense* may protect cartilage against osteoarthritis progression. It may prove to be a potentially important chemopreventive agent for lung cancer.

#### **COMPUTER VISION SYNDROME**

E. Salomatova, E. Apryshkina - the 4<sup>th</sup>-year students

Supervisors – Doc.Med.Sc., Prof. T.A Savinova, E.A. Volosenkova.

Computer Vision Syndrome (CVS) – is an ophthalmopathy associated with the long focusing the [eyes](#) on a [computer](#).

Computer users who suffer from the occupational ophthalmopathy may experience the “visual” and “ocular” symptoms. The “visual” symptoms include visual fatigue, trouble in changing focusing between near and distance objects, blurred vision, and diplopia. The “ocular” symptoms include burning of the eyes or gritty eyes, headache, usually an ache surrounding the eyes and a forehead ache, red eyes, painful when you move your eyes. It’s the so-called “dry eyes” syndrome. Also computer users have problems with drowsiness, headache, usually a brow ache and a

forehead ache, occipital lobe pain and parietal lobe pain, dizziness, numbness in the extremities; rapid fatigability; low back pain; liability to flue and acute respiratory disease, neuroses, osteochondrosis; heart pain; xeroderma and xerosis, specially xeromycteria and xerostomia.

Computer Vision Syndrome affects 40-60% of the people who work with computers. Refractive errors and myopia play an important role in eye diseases (24-46%); great attention is paid to functional changes of visual system of people who have normal visual status.

The changes in refraction-accommodation system are identified objectively. The accommodation value is reducing after excessive eye work. The spasm of accommodation caused by systematic excessive eye work results in myopia.

### **ETHANE, PROPANE, BUTANE. OXIC EFFECTS ON THE HUMAN ORGANISM**

E. Ryzhov, D. Plusch – the 4<sup>th</sup>-year student

Supervisors – Doc.Med.Sc., Prof. T.A. Savinova, E.A. Volosenkova

Russia is among three leading countries extracting oil and natural gas. The oil industry is highly developed in our country and most of Russians are involved in it, so this topic is very relevant today.

Ethane, propane, butane are products of natural gas processing and petroleum refining, they are commonly used as a fuel for engines, oxy-gas torches, portable stoves, and residential central heating.

Oil and its vapors, gases, and by-products are highly toxic substances, mainly affecting the nervous system, have skinresorptive effect. They enter the body primarily through the respiratory tract, skin.

The acute effects during inhalation include dizziness, hypertension (increased blood pressure), tachycardia (increased heart rate), impaired coordination, disorientation, temporal distortion, confusion, indistinct speech, delirium, hallucinations, assaults and suicide attempts.

Cognitive abnormalities can range from mild impairment to severe dementia. Other effects may include difficulties in coordinating movements, spasticity, and loss of feeling, hearing, and vision. Inhalants also are highly toxic to other organs. Chronic exposure can produce significant damage to the heart, lungs, liver, and kidneys.

### **CLINICAL FEATURES OF DRUG ALLERGY TODAY**

I. Starostin, S. Vorotilov - the 6<sup>th</sup>-year students

Supervisors - Assoc.Prof., Doc.Med.Sc. O.B. Prikhodko, Can.Med.Sc.

I.V. Kostrova, E.A. Volosenkova

Allergic reactions make up 25% of all adverse reactions when using drugs.

The aim of the work was to analyze the clinical features and the structure of allergic diseases, including cases of drug allergy, according to data of pulmonology department of the «Amur Regional Hospital» for the 2010 – 2014.

The predominant structure of allergic diseases included: cutaneous allergic reactions such as urticaria toxicoderma, and allergic contact dermatitis – 76%, angioedema – 13%, anaphylactic shock – 11%.

The structure of allergic diseases was as follows: in 2010 – urticaria – in 0.3% of patients, angioedema – in 0.4%, anaphylactic shock – in 0.1%; In 2011 these figures were, respectively: 0.2%, 0.3%, 0.2%; in 2012 – 0.4%, 0.3%, 0.1%; in 2013 – 0.6%, 0.3%, 0.4%; in 2014 – urticaria – 0.2%, angioedema – 0.3%, anaphylactic shock – 0.3%.

The most common causes of drug allergy were antibiotics, nonsteroidal anti-inflammatory drugs, radiopaque substances, local anesthetics, vitamins.

It is necessary to note the high incidence of multidrug allergy. 22% of patients had a history of allergic reaction to 3 or more drugs.

#### **DYNAMICS OF OCCUPATIONAL INJURIES IN THE RUSSIAN FEDERATION IN THE YEARS 2009-2013**

A. Miroschnik, M. Bondar – the 2<sup>nd</sup>-year students

Supervisors – Can.Biol.Sc., Assoc.Prof. L.A. Guba, E.A. Volosenkova

An occupational injury - is an injury received by the worker in the workplace and caused by failure of labor protection requirements. All employers are required to take measures to prevent industrial accidents and occupational diseases (p.p. 4, p. 2, Art . 17 of the Federal Law of 24.07.1998 125 -FL "On compulsory social insurance against industrial accidents and occupational diseases").

The dynamics of industrial injuries (per 1000 employees) in the Russian Federation in 2009-2013.

The number of patients with disability by one day or more and with a fatal outcome per 1000 employees.

The number of fatal victims per 1,000 workers.

Group number of accidents at work.

Fatal occupational injuries.

The number of identified hidden accidents.

According to the Labor Agency in the period from 2009 to 2013, the dynamics of injury is reduced. The number of occupational deaths in the first half of 2015 decreased by 11% compared to the same period in 2014. During this period, as a result of industrial accidents 765 people died (for six months in 2014 - 860 persons).

#### **EPIDEMIOLOGY OF TICK-BORNE ENCEPHALITIS**

T. Markova - the 3<sup>rd</sup>-year student

Supervisors - Doc.Med.Sc., Prof. G.I. Chubenko, E.A. Volosenkova

The tick-borne encephalitis virus was isolated in 1937 in the Far East by L. A. Zilber. This is the first pathogenic virus, discovered in the territory of Russia, with it in Russia the study of arbovirus infections began. The carrier and the main long-term reservoir of the virus are icedove ticks: taiga-I. persulcatus, forest – I. ricinus. The mechanism of transmission – vector-borne. Man usually becomes infected through

the alimentary, or vector-borne ways. Mainly adult ticks attack people. The tick begins to inoculate the virus with the first portions of saliva. The incubation period is about 8-23 days.

In 2015 in the Amur region it was planned to inoculate 104148 people against tick-borne encephalitis, including 24839 children. Coverage of population immunization against tick-borne encephalitis is 85.6%, including 95 % of child population. For the current week from 10.08.2015 to 16.08.2015 4 ticks taken of victims suffered from a tick bite were studied infected ticks were not found.

Since the beginning of the epidemic season of 2015, 65.4% (106) ticks infected with *Borrelia*; 8.64% (14) ticks with encephalitis virus; 11.7% (19) ticks with a granulocytic anaplasmosis; 9.2% (15) with monocytic ehrlichiosis and 4.9% (8) with *Rickettsia*, were revealed.

For the same period in 2014 by 9.3% (7) ticks infected with tick-borne encephalitis virus; to 89.3% (67) ticks infected with *Borrelia* and 1.4% (1) mite with monocytic ehrlichiosis, were revealed.

One of the nonspecific prevention of tick-borne infections is acaricide treatment of hazardous site where there are ticks. Conducting educational conversations among the population, spreading information through leaflets, brochures and notes in the media are necessary. During the reporting period, 258,8 ha were treated with acaricides, including to 162.5 hectares of the territory of outdoor health-improving facilities.

Conclusion: the Main measure to prevent the spread and infection of tick-borne diseases is immunization of the population and conducting acaricide treatment of areas, which are the most dangerous because of ticks.

#### **APPENDICITIS**

M. Cherenkova, E. Alexandrova – the 3<sup>rd</sup>-year students  
Supervisors - Doc.Med.Sc., Prof. V.V. Grebenyuk, E.A. Volosenkova

Appendicitis is acute inflammation of the vermiform appendix, typically resulting in abdominal pain, anorexia, and abdominal tenderness.

Appendicitis is thought to result from obstruction of the vermiform appendix lumen, typically in case of lymphoid hyperplasia coprolite foreign body. The obstruction leads to distention, bacterial overgrowth, ischemia, and inflammation. If untreated, necrosis, gangrene, and perforation occur.

Additional appendicitis signs are pain felt in the right lower quadrant with palpation in the left lower quadrant (Rovsing sign), an increase of pain caused by passive extension of the right hip joint that stretches the iliopsoas muscle (psoas sign), or pain caused by passive internal rotation of the flexed thigh (obturator sign). Low-grade fever (rectal temperature 37.7 to 38.3° C [100 to 101° F]) is common.

Laparoscopy can be used for diagnosis as well as definitive treatment of appendicitis; it may be especially helpful in women with lower abdominal pain of unclear etiology. Laboratory studies typically show leukocytosis (12,000 to 15,000/ $\mu$ L), but this finding is highly variable.

Treatment of acute appendicitis is open or laparoscopic appendectomy; be-

cause treatment delay increases mortality, a negative appendicitis rate of 15% is considered to be acceptable. Occasionally, it is difficult to find the appendix. In these cases, it usually lies near the cecum or the ileum and mesentery of the right colon.

### **EPIDEMIOLOGY OF VARICELLA AND MUMPS**

E. Alexandrova, M. Cherenkova - the 3<sup>rd</sup>-year students

Supervisors - Doc.Med.Sc., Prof. G.I. Chubenko, E.A. Volosenkova

Chicken pox and mumps are diseases of childhood and are highly contagious infections. The causative agent of varicella is zoster virus (Herpes zoster), which once got into the human body, remains there for life. Postinfectious immunity is resistant. The only exception is considered to be a manifestation of such diseases as herpes zoster, which is caused by the same pathogen and may develop in patients with lesions of the nervous system and in the elderly. Chickenpox is a childhood disease, but those people who have not had it as children, have all chances to get sick in adulthood. It is believed that the older the person is, the harder he suffers from the symptoms of chicken pox.

Mumps is an acute infectious disease. It is caused by paramyxoviruses of Rubulavirus kind, affects mainly the salivary glands of man and often affects the digestive and reproductive glands. The source of infection can be a sick man. And he becomes contagious since the first two days of the disease, while not having any external signs, confirming the presence of mumps. Transmission of the virus occurs mainly by airborne way, however, there are rare cases of contact and domestic way of infection. Boys get sick with mumps 1.5 times more often than girls. Adults are rarely faced with mumps, and newborns are protected from it as long as they are breastfed.

In 2014, in the Sakhalin region 4340 cases of chickenpox were registered, it means - 389 cases more than in 2012 (9.1%) and 1257 cases more than in 2013 (31%). The incidence of chickenpox in 2014 is higher by 9.1% and by 31% higher than in 2012 and 2013. In 2014 the rise of the incidence of chickenpox is observed.

The majority of patients who suffered from chickenpox were children under 17 years. So the percentage of morbidity in children under 17 years of the total number of patients who had been ill in 2012 totaled 93.7%, in 2013 - 93.6%, in 2014 - 93.6%, the incidence of child morbidity remains at a high level.

The main rise in incidence in 2014, listed on the entire territory of the Sakhalin region took place in the autumn period, associated with the mass visiting kindergartens and schools (crowding children) and had a small epidemic rise, typical for this disease.

In 2014, 1 case of mumps was registered, in 2013 1 case, and in 2012- two cases. The incidence rate in 2014 remained at the level of 2013 and was 0.2 per 100 thousand of populations.

Thus, the incidence of mumps in the region was recorded at the level of morbidity indices in the Russian Federation.

According to the literature, immunization coverage of children under 1 year against mumps in 2014 amounted to 98.9% (in 2013 - 98.4%, in 2012 - 99.0%). Cov-

erage index with age revaccination at 6 years on average for the region is 98.8% (2013 - 98.7%, 2012 - 98.3%).

As a result of organized in the region immunization of children over 7 years and adolescents without revaccination against mumps, since 2007 all children have two inoculations against mumps.

### **VICTOR NIKOLAEVICH SHEVKUNENKO. CONTRIBUTION TO THE DEVELOPMENT OF SCHOOL OF TOPOGRAPHICAL ANATOMY**

M. Zakharchuk, A. Goncharskaya – the 3<sup>rd</sup>-year students

Supervisors - S.I. Piskun, E.A. Volosenkova

Victor Nikolaevich Shevkunenko (17 February, 1872 — 3 July, 1952) — the lieutenant general of a health service, the doctor of medicine, extraordinary professor, the academician of the USSR Academy of Medical Sciences, the honored worker of science of RSFSR, the laureate of the Stalin award.

In 1925 there was a brochure "Typical and age anatomy" of Professor V. N. Shevkunenko. Concepts of typical and age anatomy were introduced. All variety of variants of a structure and arrangement of organs was reduced to three types:

Perfect (Corresponds to late stages of an embryonal development. It is defined, as completeness of formation.)

Imperfect (Corresponds to early stages of ontogenesis.)

Transitional (Combines perfect and imperfect type.)

Victor Nikolaevich drew a conclusion that there are external signs of types of a structure, a form and an arrangement of internals. Sex and external shapes of a skeleton - signs of character of an embryonic nature of a type; age, fatness and habits — external signs of its post-embryonic evolution.

In 1935 V.N. Shevkunenko and A.M. Geselevich published monograph "Typical Anatomy," which summarized 300 studies. An anatomical term "norm" has been reviewed. The researchers observed the frequent discrepancy between the topography on the operating table and the topography, which is set out in the guidelines. Average norms did not coincide with the actual position and shape of the organs, so the old interpretation of the "norm" as the total for all has been replaced by a new one.

When analyzing the external differences of the physical organization of individuals the similarity of different traits that describe the individual as a whole is revealed. This similarity of traits and regularity of their emergence allowed to reduce all variants of individual variability in types:

Brachymorphic type

Dolichomorpnic type

Mesomorphic type

Thus, the "norm" is suggested as an individual mobile value that is not accompanied by disorders of physiological reactions.

## **CLINICAL AND ANATOMIC FEATURES OR THE NOSE AND NASAL CAVITY IN NEWBORNS**

K. Slobodyanskaya, S. Serzgenko - the 2nd-year students  
Supervisovs - A.E. Pavlova, E.A. Volosenkova

The external nose is relatively short and wide, the nose wings are small, the nostrils are oval, placed horizontally. The bones of the nose are formed, but the cartilages are developed poorly, the vomer is relatively small. The height of the nasal cavity is 17-18 mm, formed by part of the ethmoid bone (10-11 mm.) and part of the upper jaw (6-7 mm.). The length of the nasal cavity is 20-24 mm. nasal passages are narrow due to the relatively thick turbinate's. In the early days of a child's life in connection with physiological swelling of the mucous membranes nasal breathing may be difficult. Sometimes there is an additional upper turbinate, which is subsequently is subjected to reverse development. Under it underdeveloped and more curved nasal passage is determined. The upper nasal passage is poorly developed, middle nasal meatus is almost straightforward. The bottom turbinate is thicker than others, the free edge nearly touches the bottom of the nasal cavity, so there is almost no way here. Nasal septum is very low and often distorted. Choanae are closer to rounded or triangular shape. Special feature of mucosa is that the erectile tissue has not yet developed, therefore nosebleeds in newborns are very rare.

## **CLINICO-MORPHOLOGICAL FORMS OF ATHEROSCLEROSIS**

D. Gubchik, R. Maretskiy - the 3<sup>rd</sup>-year students  
Supervisors - Can.Med.Sc. S.S. Perfilieva, E.A. Volosenkova

Atherosclerosis (AS) is a chronic systemic disease associated with damage of large and medium arteries of muscular type. Great social health value of the atherosclerosis is determined by its pathogenetic role in the development of cardiovascular disease, which is the main cause of death in most countries. Atherosclerosis is a sequence of associated pathological changes of all layers of the vessel wall, leading to hemodynamic disturbances in the area of responsibility of the affected vessel segment, which leads to various clinical manifestations. Depending on the preferential localization of vascular changes 6 clinico-morphological forms of the disease are determined: 1) atherosclerosis of the aorta; 2) atherosclerosis of coronary arteries (cardiac form, ischemic heart disease); 3) atherosclerosis of the arteries of the brain (cerebral form, cerebrovascular diseases); 4) atherosclerosis of the arteries of the kidneys (kidney form); 5) atherosclerosis of the arteries of the intestine (intestinal form); 6) atherosclerosis of the arteries of the lower extremities. Knowledge of clinic and morphological forms of the disease, allows specialists to carry out not only competently localized and pathogenetically based treatment, but also to determine the nature of the preventive measures.

## **FEATURES OF COURSE OF LIVER CIRRHOSIS**

D. Gubchik, R. Maretskiy - the 3<sup>rd</sup>-year students  
Supervisors - Can.Med.Sc. I.V. Sklar, E.A. Volosenkova

The morbidity and mortality rate of the working population because of liver cirrhosis (LC) is an actual medical and socio-economic problem. In recent years there has been a steady increase in the number of chronic liver diseases. The aim of study was to investigate the peculiarities of liver cirrhosis. There was a retrospective analysis of case histories of 59 patients with liver cirrhosis who were treated in the city hospital. Among the examined patients there were 38 (64%) males, 21 (35%) women - aged 28-68. In 68% of cases, alcohol was the leading cause of LC. In 33.3% of cases alcohol-viral etiology was identified: in 12.5% of cases there was a combination with hepatitis B virus, in the 18.8% of cases with hepatitis C. The manifestations of asthenic and dyspeptic syndromes was marked in all 59 (100%) patients. Pain syndrome was diagnosed in 51 (87.5%) patients. Syndrome of portal hypertension was observed in 52 (88.3%) patients of whom in 15 (25%) patients ascites was accompanied by the development of right-hand hydrothorax, in 26 (43.7%) patients it was combined with edema of the lower limbs in 18 (31.2%) patients free liquid was defined only in the abdominal cavity. Half of the patients (50.1%) showed a decrease in body weight. In evaluating the clinical and laboratory data in 48 (82%) patients there was moderate anemia, thrombocytopenia - in 40 (68.5%) patients. Leukopenia was noted in 37 (62%) patients. Observed ESR acceleration, increased levels of bilirubin and activity of cholestasis was in patients. Hemorrhagic syndrome was observed in 48 (82%) patients. In general, in the analysis of urine leukocyturia, hematuria, bacteriuria were determined. Among them, 15 (25%) patients were diagnosed with exacerbation of chronic pyelonephritis. 11 (18%) patients had signs of bacterial peritonitis. 15 (25%) patients had a history with bleeding from varicose veins of the esophagus. Thus chronic alcohol intoxication was the main etiological factor of LC in the studied group of patients. More rapid progression of the LC with the alcohol-viral etiology was established. The progressive course of the LC is due to late patients seeking medical help.

#### **LAPAROSCOPIC APPENDECTOMY IN TREATMENT OF APPENDICITIS IN CHILDREN**

D. Gubchik, R. Maretskiy, P. Ovchinnikov - the 3<sup>rd</sup>-year students

Supervisors - Doc.Med.Sc., Prof., G.N. Marushchenko, E.A. Volosenkova

Laparoscopic appendectomy is the removal of the appendix (appendectomy), using laparoscopic method. The first experience of laparoscopic appendectomy in children was published in 1991 by the French surgeon Valla J. S. In the same year the first performed laparoscopic appendectomy in the USSR performed by pediatrician Kotlobovsky. Since 1993, laparoscopic appendectomy in clinic is an alternative method of treatment. Laparoscopic appendectomy can be performed in two ways: a fully laparoscopic appendectomy (FLA) and transumbilical laparoscopic appendectomy (TALA). FLA is performed using three trocars. First is introduced through the navel. First at it is used for telescope and then to introduce instruments and staple and finally for the removal of a process. The second trocar is placed in the left iliac region - for the telescope and instruments, the third - in the right iliac region - to cap-

ture process. Isolation of the appendix is performed using a bipolar tool or monopolar hook. Large vessels are ligated using clips or sutures. The base of appendix is sutured with stapler or ligated with two preformed loops. TALA is performed using a 10 mm telescope with an operating channel through the navel. Appendix is captured and removed through the navel. The operation is completed outside using access through the navel. Benefits: full intraoperative exploration of internal organs, favorable postoperative course, reducing the time of hospitalization in appendicular peritonitis, an excellent cosmetic result. Laparoscopic appendectomy is the most effective method of minimally invasive surgery in the treatment of acute appendicitis in children, and it is to be preferred.

### **PETRIFILMS - INNOVATIVE TESTS IN MICROBIOLOGY**

D. Gubchik - the 3<sup>rd</sup>-year student

Supervisors - Can.Med.Sc. O.V. Bubinets, E.A. Volosenkova

Petrifilms are innovative tests for Microbiology, used as an alternative to the classical Petri dishes. Petrifilms comprises a ready nutrient medium, a gel soluble in cold water, which solidifies at room temperature. The composition of the medium also includes indicator of the tetrazolium that facilitates counting colonies and chromogenic substrates that identify specific biochemical activity. The determined parameters are: total microbial count, coliforms and E.coli, enterobacteria, yeasts and molds, Staphylococcus aureus, listeria. Analysis on petrifilm is carried out in three stages: inoculation (1 ml of the sample or its dilution is introduced) incubation in thermostat registration of result (counting the number of colonies manually or automatically using petrifilm™ Plate Reader). Advantages: ease of use, stability and reliability of results, acceleration of the study, inflected grid facilitates colonies record, chromogenic indicators provide a clear differentiation of the colonies, require less storage space, providing the saving of working time, increase productivity, they are compact and allow more space in the thermostat, long-term storage (1-1.5 years), automatic registration of results. Currently petrifilms proved to be as easy to use, they are, reliable tests to count the microorganisms that allow to get fast and accurate results.

### **SEGMENTAL ECTOMY OF A LUNG**

S. Eroputko, Sh. Tursunbayev – the 3<sup>rd</sup>-year students

Supervisors - Doc.Med.Sc., Prof. G.N. Marushchenko, E.A. Volosenkova.

Segmental ectomy (segmentary resection) – removal of a segment of a lung. Anatomic researches showed that the segment is an independent broncho-vascular unit therefore its removal is possible. As indications to removal the isolated segmentary cavities, limited tubercular lesion, limited purulent processes, benign tumors, a lung cyst serve. I. S. Kolesnikov for removal of any segment recommends anterolateral access, N. I. Gerasimenko – lateral and posterolateral accesses for removal of top segments of the lobe, the upper segment of the lower lobe and the basal of segments.

At the beginning, a segmentary artery, then the central vein, and then a bronchial tube are separated, tied up and crossed. The separation of a segment from the other parts of along of is recommended to make in the last turn. When separating a segment it is necessary to be quided by the interesegmental plane and atelectasis tissue of the removed segment.

Separation of a segment from a root to the perihery should be considered as a rule. After removal of a segment tissue of a lung is inflated. If from the damaged lobe only single vials of air exude it is n t necessary to undertake any measures. At great intake of air from pulmonary tissue it is taken by interrupted sutures. The pleural cavity is taken in, leaving one or to grainages depending on localization of a removed segment. While the patient is on the operating table (after mending of a chest wound) radiological control for the condition of a lung is obligatory. In the postoperative period active aspiration of contests from pleura within 24-48 hours is necessary for a lung straightenning. The patient need active respiratory gymnastics and antibacterial therapy which has particular importance in tuberculosis of lungs.

### **OBLITERATING ATHEROSCLEROSIS OF THE LOWER EXTREMITIES**

S. Eroputko – the 3<sup>rd</sup>-year student

Supervisors – Can.Med.Sc. N.V. Menshchikova, E.A. Volosenkova

Atherosclerosis of the lower extremities is chronic disease, with occlusive-stenotic lesions of the peripheral arteries of large and medium size because of deposits of lipids in their wall. It is evident as blood circulation failure in the limbs of varying severity. Currently there are 4 main mechanisms that can cause atherosclerosis typical vascular lesions: dyslipidemia, disorders of the vascular wall, changes in the functioning of the cellular receptor system, a genetic factor. In the course of atherosclerosis there are 4 stages of pathological changes: 1) the preclinical period of the disease. At the same arterial intima except expressed lipoidosis, rare lipid spots and stripes are observed; 2) bland atherosclerosis; 3) significantly expressed atherosclerosis; 4) pronounced atherosclerosis. Sometimes progression of atherosclerosis leads to ulceration of the plaque, formation of aneurysm at the site of ulceration, occurrence of erosive bleeding, the removal of atheromatous masses and their migration to the distal parts of extremity. As a rule, there is thrombi formation on the plague surface due to deposition of fibrin and thrombocytes. The outcome of the processes is an acute or chronic disturbance of blood circulation in the limbs. In atherosclerosis of the lower limbs the femoral arteries are affected more often. The process is asymptomatic for a long time due to the development of collaterals. However, the increasing lack of collateralization leads to atrophic changes of muscles, cold limbs, there is pain when walking, claudication. If atherosclerosis is complicated by thrombosis gangrene of limb-atherosclerotic gangrene develops.

### **THE PATHOGENESIS OF GASTRIC ULCER**

T. Lapanik, S. Eroputko – the 3<sup>rd</sup>-year students

Supervisors – Doc.Med.Sc. V.A. Maksimenko, E.A. Volosenkova

Peptic ulcer disease is a chronic relapsing disease, characterized by a limited ulceration of the mucosa of the upper digestive tract, penetrating through the muscle plate, in the pathogenesis of which acid-pepsin factor plays an important role. According to most researchers, imbalance between factors of aggression and protection of the gastric mucosa, by increasing the first and reducing the second ones has great importance in the pathogenesis of peptic ulcer. Aggressive factors include: 1) the hypersecretion of hydrochloric acid and pepsin, due to hyperplasia of the fundic mucosa, vagotonia, the overproduction of gastrin and hyperactivity of parietal cells; 2) disorder of evacuation from the stomach and duodenogastral reflux; 3) retrodiffusion of hydrogen ions; 4) activation of peroxide oxidation; 5) *Helicobacter pylori*. Protective factors include: 1) the resistance of the gastroduodenal mucosa, due to continuous protective layer adjacent to the epithelium of the mucosa; 2) the ability of epithelial cells to rapid regeneration after any damage; 3) adequate blood flow; 4) the alkaline secretions produced by the epithelial cells containing bicarbonate; 5) the prostaglandins, which provide cellular protection; 6) immune protection. A decrease of resistance of the gastric mucosa is the main thing in pathogenesis of peptic ulcer. Hypersecretion takes place only in the digestive phase of secretion. The acidity of gastric juice is more often normal and even lower. Tone and gastric peristalsis are reduced. When the ulcer, in the first place the regenerative processes in the mucosa are damaged.

### **SCHIZOPHRENIA AMONG FAMOUS PERSONALITIES**

A. Alisina, E. Velchenko - the 4<sup>th</sup>-year students

Supervisors - N.G.Brash, E.A.Volosenkova

In 1860, Professor of criminal anthropology Cesare Lombroso explained the origin of genius and schizophrenia by the same reasons. The strangeness of geniuses brought Lombroso to idea that genius is a kind of schizophrenia.

Many individuals had abnormalities in the genital area. Michelangelo was a bachelor, and kept saying that art replaces his wife. Leonardo da Vinci loved men. Newton died a virgin. Crazy Rousseau suffered from incontinence of semen, was extremely depraved, suffered delusions of grandeur, believing himself equal to God. However, the most striking personalities are considered to be N.V. Gogol, Friedrich Nietzsche and Van Gogh.

### **STENTING OF CORONARY ARTERIES**

A. Alisina - the 4<sup>th</sup>-year student

Supervisors - M.V.Sulima, E.A.Volosenkova

Coronary heart disease - a disease that affects the coronary arteries of the heart. The blood supply to the myocardium is disturbed. Atherosclerosis is one of the main causes of myocardial ischemia.

Treatment. Stenting of coronary arteries with angioplasty is a modern minimally traumatic surgery on the blood vessels having atherosclerotic changes. It is aimed at restoring the lumen of the artery.

The stent is a thin metal tube, which consists of a wire of cells, inflating with a special balloon. It is injected into the affected vessel, expands and the lumen increases.

The procedure is performed in the operating room under x-ray control. At the beginning of the operation, to gain access, the doctor makes a puncture of a major artery in the limb. Into the artery through a puncture a short plastic tube is placed (Introducer), which serves as a gateway for all other tools.

Catheter, which is applied to the damaged coronary artery is put through the Introducer. The catheter is placed and the stent, put on a balloon in a deflated form, is introduced to the site of atherosclerotic plaque.

At the site of injury of vessel the balloon is inflated under high pressure, destroying the plaque and pushes it into the vessel wall. When a balloon is delivered to the location of the plaque, it is inflated, a stent is disclosed along with it, after that the balloon is deflated and removed from the artery and the stent remains in it forever.

#### **ANTIBIOTIC-ASSOCIATED DIARRHEA**

M. Zorina, T. Semina – the 6<sup>th</sup>-year students

Supervisors – Can.Med.Sc., Assoc.Prof. E.L.Lazutkina, E.A. Volosenkova

Prescription of antibiotics of broad - spectrum action is accompanied by the development of such side effects as diarrhea. Antibiotic-associated diarrhea (AAD) is diagnosed in case an unformed stool (5-7- type on the Bristol stool form scale) coupled with an increase in stool (assessed by the patient) for 2 or more consecutive days on a background of antibiotics or 8 weeks after their intake. Risk factors for diarrhea include the use of broad-spectrum antibiotics and the patient's individual characteristics: older age, chronic illness, contact with nosocomial pathogens.

#### **“ACT OF WAR”**

T. Palachik, I. Tsyrenzhapova - the 2<sup>nd</sup>-year students

Supervisors - Can.Biol.Sc. L.A. Guba, E.A. Volosenkova

“Act of War” - in these words French President Francis Hollande described terrorist attacks in Paris on the night of Friday to Saturday, the bloodiest in the history of modern France. The same words were used in 2001, by US President George W. Bush in relation to the September 11 attacks, followed by the US intervention to Afghanistan and then Iraq. On Monday, Hollande will address the French parliament and announce what policy against terrorism will be led by France, including in the Middle East. On Friday evening, November 13, three groups of terrorists almost simultaneously attacked the Parisian stadium "Stade de France" (where a match was attended by Hollande), the concert hall "Bataclan" and street passers-by and visitors of the cafe (the difference between the first and last attacks was about half an hour). On Sunday, the French authorities have specified the data on casualties: 129 persons were killed and 352 wounded, 99 of whom were in critical condition. The bodies of seven terrorists were found: two came from Belgium, as the Brussels prosecutor's

office suspects, and at the place of suicide bombing near the stadium a Syrian passport was found in the name of the refugee, who entered France in early October. On Sunday, in Paris, a car with three Kalashnikovs was found, these sub-machine-guns were used by terrorists who were shooting at passers-by. One terrorist killed in the concert hall was identified. He turned out to be a French citizen of Algerian origin. Hollande blamed "Islamic state" in the attack (IG- banned organization in Russia), but IG issued a video in which France is threatened by new attacks. The terrorist attacks in Paris resemble the terrorist attacks in Mumbai (Bombay) in India, where in 2008 nine suicide bombers shot 166 people using automatic weapons, said an expert political Islam Yegor Engelhardt. In Paris, the overwhelming number of victims also died from small arms. Yegor Engelhardt said That French secret services should clear up the fact of organizing the whole group of terrorists in Paris.

### **PROPHYLAXIS OF THROMBOEMBOLIC COMPLICATIONS IN PATIENTS WITH PROSTHETIC VALVES**

A. Popov – the 6<sup>th</sup>-year student  
Supervisors - E.A. Volosenkova

Prosthetics of heart valves occupies a significant place in the treatment of valvular disease. It is carried out in those cases when the plastic reconstruction of damaged valves can not be done for some reasons. The main indications for prosthetics are gross changes of a valve (often with severe calcification and fibrosis of the cusps) that lead to disorder of systemic hemodynamics.

For replacement of valves mechanical and biological prostheses may be used.

The majority of patients with prosthetic valves belong to the group with high risk of thromboembolic complications.

Today in most developed countries of the world for determining optimal strategies for prevention and treatment of thromboembolic complications in patients with artificial heart valves, doctors are guided by the recommendations of ESC of 2007 year (European Society of Cardiology) or ACC/AHA of 2008 year.

Modern therapy consists of the use of indirect aggregants (today in Russia there is fenilin, sinkumar and warfarin) and antiplatelet agents (in Russia aspirin and enteric-soluble forms such as Cardio aspirin, TromboASS are used)

One of the most significant problems for managing these patients in terms of national health care is the inability to adequately control of parameters of blood clotting on the background of continuous use of anticoagulants.

Indicator of INR (international normalized ratio) is required for ensuring safety and effectiveness of therapy and recommended by all international manuals.

### **URINARY SYSTEM IN THE ANTENATAL PERIOD**

E. Dolgova, A. Golub' - the 2<sup>nd</sup>-year students  
Supervisors - L.G. Zherepa, E.A. Volosenkova

In the early stages of embryogenesis three buds consistently develop: pronephros, primary (mesonephros) and final (metanephros). The first two are in

mammals, including humans give rise to certain structures of the reproductive system, the kidneys are from germ metanephros. The glomeruli, convoluted tubules and loops of Henle, are formed of its undifferentiated, nephrogenic tissue. Ureter, pelvis, its cups and collecting tubes are formed from the out growth of the primary ureter (mesonephros duct). Connecting with tubules arising from the nephrogenic germ collecting tubes form a single functional – structural unit of the kidney – the nephron.

By the 9-10-th week of fetal life the main features of the structure of the future kidney are already observed. However in most mammals and a person formation of new nephrons continues after birth.

The kidneys of the embryo begin to function relatively early. Admission of liquid to the pelvis cup that does not contain protein is registered already on the 11-12-th week. Cystic urine of a 6-month-old fetus in the prenatal period is usually hypotonic to blood plasma, although in individual cases in the human fetus and other mammalian urine may be slightly hypertonic. Formed urine is excreted in the amniotic fluid. Quantitatively renal function during the prenatal period is very limited mainly due to the low power of glomerular filtration. It depends on the immaturity of the structure of the glomerulus as well as on the fact that arterial pressure that creates a motive force of filtering in utero is much lower than that after birth. Function of embryonic kidney is actually performed by the placenta. If the urinary tracts are not passable, uremia in the fetus does not occur. Its signs appear only after a few days after birth.

### **ENDOGENOUS REGENERATION OF THE THYMUS**

E. Dolgova, A. Golub' – the 2<sup>nd</sup>-year students

Supervisors - V.S. Kozlova, E.A. Volosenkova

Endogenous regeneration of the thymus – an essential function that allows you to restore the immune system after stress, infectious diseases and other impacts, depleting resources of immune cells. However, the mechanisms that control this regeneration are still poorly studied.

US researchers from Memorial Sloan-Kettering Cancer Center in New York studied in detail the mechanism for endogenous regeneration of the thymus and found that it is based on the action of interleukin-22 (IL-22), and signal to the beginning of its work is the depletion of CD4(+) CD8 (+) thymocytes.

In experimental studies, it was found that after stroke of thymus the content of IL-22 increases in it. In genetically modified mice with IL-22 deficiency thymus restoration was greatly suppressed. Introduction of the IL-22 enhanced the regeneration of the thymus after total radiation exposure.

It has been shown that IL-22 acts primarily on thymus epithelial cells, stimulating their proliferation and increasing their survival during damaging effects. Expression of IL-22 after thymus injury increases in resistant to radiation ROR (t) (+) CCR6 (+) NKp46 (-) cells inductors of lymphoid tissue, that is regulated by IL-23.

Thus, in this work endogenous recovery mechanism of thymus is found,

which provides the basis for developing new strategies for regenerative medicine to improve the function of the immune system.

### **PROBLEMS OF PREHOSPITAL THROMBOLYSIS IN MYOCARDIAL INFARCTION**

E. Velchenko - the 4<sup>th</sup>-year student

Supervisors - M.V. Sulima, E.A. Volosenkova

Thrombolytic therapy is a type of pharmacological therapy aimed at restoring blood flow in a vessel due to the lysis of a thrombus within the vasculature. There are two methods of reperfusion – thrombolytic therapy (TLT) and angioplasty with subsequent stenting of coronary arteries. These methods today are not mutually exclusive and can supplement each other. The determining factor in reperfusion is time, not method. Pharmacological reperfusion is the most simple and quick way to restore blood flow in myocardial infarction. To the thrombolysis in myocardial infarction each ambulance, including a paramedic must be prepared. Absolute contraindications to thrombolysis are intracranial hemorrhage or stroke of unknown etiology of any age, diagnosed tumor of the Central nervous system, changes of intracranial vessels or ischemic stroke within the last six months, traumatic brain injury, a serious injury or surgery in the last 3 weeks, gastro-intestinal bleeding within the last month, suspected aortic dissection and diseases of the rolling system. Relative contraindications are – refractory hypertension (systolic BP over 180 mmHg, diastolic more than 110 mmHg.) or transient ischemic attack within the past six months, traumatic resuscitation, and resuscitation, which lasts over 10 minutes, constant use of indirect anticoagulants, pregnancy or the first week after birth, the aggravation of gastric ulcer or duodenal ulcer, infectious endocarditis, a serious disease of the liver.

### **NOBEL PRIZE IN PHYSIOLOGY AND MEDICINE IN 2015**

S. Barannikov – 2<sup>nd</sup>-year student

Supervisors – Cand.Biol.Sc. G.K. Doroshenko, O.I. Katina

The report deals with the Nobel Prize in Physiology and Medicine in 2015. It is noted, that that it was awarded for preparations killing worms and for the anti-malarial medication created by old recipe. It is spoken in detail about how these discoveries were made, what is their importance. Some interesting facts, for example, that Satoshi Omura found the special type of bacteria on the golf field and Youyou Tu made her discovery basing on an old receipt from manuscript.

In the statement of the Nobel Committee half of the prize is awarded for the "new means of treatment of infectious diseases that cause roundworms." Totally human body was chosen by about 400 species of parasitic worms. But versus the banal worms many of them cause enormous symptoms of the disease. Africans most of them being lacked in access to clean water and suffer from onchocerciasis: filarial worms penetrate the human eyeballs and it ultimately leads to blindness. Philayriasis is another one terrible disease and it has no less serious consequences: worm parasite affects the limbs. And soon hypertrophic processes develop in the skin and subcuta-

neous tissue. It causes quick growth of connective tissue and bone thickening. As a result the patient's limbs swell to huge size.

Mechanism of Ivermectin action and its selectivity are stressed in the report. The target of Ivermectin is largely aimed at the microfilaria stage of various parasites. Ivermectin is active against various life-cycle stages of many but not all nematodes. It is active against tissue microfilariae of *Onchocerca volvulus*. The macrofilaricidal effect of Ivermectin is debatable but there is evidence for the macrofilaricidal effect of Ivermectin in *Onchocerca volvulus*. 3-monthly regimen appeared to cause increase adult female worm death due to a direct, anthelmintic, macrofilaricidal action of ivermectin or by increasing the prevalence and intensity of a potentially fatal pleomorphic ovarians neoplasm. There is also evidence in nematode studies particularly those in *Trichinella spiralis* that ivermectin may work by blocking signal transmission from interneurons to excitatory motoneurons that that GABA is the neurotransmitter being blocked. The fact that foundation of Campbell and Satoshi was made due to Merck & Co. in the United States and Canada is stressed. It is spoken in detail about malaria and what income Youyou Too made to eradicate it.

Until 2011, when the Tu Youyou won the prestigious Lasker Award, no one even thought of her (at least outside Chuna). An interesting fact is that Professor Youyou Tu is considered to be the "professor of three "no"": it does not have scientific degree, no experience or study abroad, and there is no membership in the Chinese National Academy of Sciences.

The given choice of the Nobel Committee has several interesting moments. The desire to award not theoretical studies in the field of the cell as in 2013 and as in 2014 biology, but discoveries that save a man, is understandable. Moreover, the method of Omura's work (search for new effective drugs among soil bacteria) is regarded to be the main direction of modern pharmaceutical: in conditions of declining effectiveness of new antibiotics components have to be searched in the most exotic areas. The award can also be explained by duty of scientific or political courtesy. Tu Youyou is the first Chinese citizen to be awarded a Prize in Physiology or Medicine. The Prize (for the first time) was awarded for the preparation found and created on the basis of traditional Chinese medicine, and not the European evidence-based one. Intrigue is that traditional Chinese medicine has been criticized for its lack of scientific basis, dubious effectiveness and use of toxic drugs. The works of the three winners of the Nobel Prize of this year are directly related to 650 million people each year, mainly in African countries. And if briefly what for scientists received the Nobel Prize "for the salvation of the poor population of the Black Continent, South East Asia and South America," for the rescue of the regions whose plague was these parasitic diseases for thousands of years.

## **LEPROSY**

Sh. Khuna – the 5<sup>th</sup>-year student

Supervisors – P.K. Soldatkin, T.V. Arsenova, O.I. Katina

The pathogen is *Mycobacterium lepreae*-obligate intracellular parasite. It's found mainly in macrophages. Leprosy is widely distributed in Africa, Asia and

South America. Leprosy is most prevalent in India (about 3 million). In Russia the incidence of leprosy has been sporadic. 14 patients were reported over the past 10 years. Transmission occurs through close and prolonged contact with the sick man. The sick man usually spreads the mycobacteria with secretions from the nose. Men suffer more often than women. The skin and mucous membranes of the upper respiratory tract are infection entry. Destructive processes are limited by the skin, peripheral nerves, anterior parts of the eye, testes, upper and lower limbs. The incubation period ranges from 6 months to 3-5 years. At the lepromatous form skin lesions are most pronounced, the nerves are affected less. In the tuberculoid form skin changes are less visible and lesions of the nerve trunk are more pronounced. There are border forms. The disease develops gradually. Some patients may experience increased body temperature, weakness and joint pain. Others have no fever but anemia, weakness, drowsiness, paresthesia, disorders of sweating may occur. A typical early manifestation of leprosy is the appearance of skin lesions. One or more hypopigmented spots or hyperpigmented plaques can arise in the area where the sensitivity is completely absent or paresthesia is marked. Sensitivity can be saved with the localization of lesions on the face. The lion's face is a characteristic feature of lepromatous leprosy. The thickened skin forms rough folds. It is easy to identify the pathogen in scraping of the skin. Erythema nodosum-painful multiple nodes of red color on the skin of the hands and feet. Clawed paw is a frequent manifestation of leprosy. Flexion at the metacarpophalangeal joints is disturbed with the defeat of the ulnar nerve; muscles of the eminences of the thumb and little finger are also atrophied. Often at leprosy ulcerative lesions occur on the skin of the feet. Ulcers tend to spread and heal very slowly with the formation of coarse deforming scar. Confirmation of the diagnosis-detection of mycobacteria from skin lesions by scraping-excision method; the histologic research, IFA, PCR. Patients are treated by Dapsone. The drug is prescribed from 50 to 100 mg once per day to adult patients. Treatment is prolonged. Rifampicin is also used.

The contribution of N.A. Torsuev.

The scientific orientation of N. A. Torsuev in the field of leprology was very diverse and varied, focusing on many issues of history, epidemiology, pathogenesis and clinic, histopathology, treatment and prevention. The activities of N.A. Torsuev as a major academic leprologist and his works received a wide acclaim and appreciation not only in the USSR but also abroad. He was elected as a member of the expert Committee of leprosy at The World Health Organization UN, he was a member of the editorial Board of the international journal of leprosy (International Journal of Leprosy). Also he was a member of the International leprosy Association. He organized perfect activities of experimental and clinical leprosarium in Rostov-na-Donu and did enormous practical work on leprosy. N.A. Torsuev with his students together has developed major research problems of leprologia, making a significant contribution to the world leprology and medical science.

#### **PROBLEMS OF SUDDEN DEATH IN INFANTS AND YOUNG CHILDREN**

Kolnauz T. Chibisova V., Borodin P. – the 5<sup>th</sup> year students

Supervisor - Ph.D. Voight L.N.

For many years, the problem of sudden infant death in infants engaged in a large number of researchers. There are many conflicting explanations of the subject nowadays.

In the 2011-2014 Amur Region takes the 4th place in the Far East (1,286.0 per 100,000 population) by sudden infant death after the Chukotka Autonomous Region (2184.1), the Republic of Tuva (1330.9), the Jewish Autonomous Region (1290.0) Sudden infant death usually occurs in the 1 year of life. In 90% of cases it occurs in the first 6 months, with a peak of mortality between the 2nd and 4th months. In 60-70% of cases boyish mortality is prevailing.

The main reasons of after-perinatal mortality in the Amur region in 2014 are: SIDS (64%), respiratory diseases (15%), accidents, trauma, surgery, criminal situation (13%), congenital malformations (6%), infections (2%).

First tries of explaining the cases of sudden and unexpected death of infants and young children were performed during the first scientific studies in medicine. The way of using the appropriate research methods is possible thanks to modern technological development and scientific knowledge in general.

At the present time, the sudden death of children is mortality of healthy children and mortality of children without any life-threatening diseases. There are also cases of mortality in sick children without adequate medical care and due to insufficient attention to the parents.

#### **MENKES SYNDROME (STEELY HAIR DISEASE) - COPPER DEFICIENCY DISORDER**

Kalita M., Borodin P. – the 5<sup>th</sup> year students  
Supervisor – Cand. med. sc. Yutkina O.S.

Menkes syndrome is caused by mutations in the ATP7A gene encoding ATPase, which participates in the absorption of copper and transfer the copper ions in the other cells.

Menkes syndrome causes malabsorption of copper. This leads to changes in the blood vessels and decreases the brain function.

It is quite rare pathology, about 1:50 000-1: 200 000 births. Usually it is targeted on men. Most children born with Menkes syndrome have a life expectancy of 3 to 5 years.

Copper is necessary for the normal growth of bones, nerves and other tissues. Children with Menkes syndrome have a genetic disease, which prevents the absorption of copper from the intestines and cause its excessive accumulation in the kidneys, whereas the liver and brain are damaged by its deficiency. That decreases the hair, brain, bone, liver, and arteries growth.

The disease is caused by a mutation of the gene encoding copper-transporting ATPase, alpha polypeptide (ATP7A; MIM \* 300011). The gene is located on the long arm of the X chromosome (locus Hq12-q13) and type of inheritance is X-linked recessive. There are individual descriptions of the disease in girls that can be explained by a phenomenon of lyonization.

Risk factors for Menkes syndrome are: male; the presence of family members with Menkes syndrome.

There are severe neonatal form or Menkes disease and milder form - the syndrome of neck "horns", characterized by a primary lesion of the connective tissue.

The disease manifests in the neonatal period, usually after a premature birth. The early neonatal symptoms are: hypothermia, neonatal jaundice, hyperbilirubinemia, malnutrition, untypical facial features: thick saggy cheeks, saggy lower jaw, sparse eyebrows. In the neonatal period hair may have normal structure, but sometimes with nodules in the hair (trichorrhexis nodosa) and spindle-shaped hairs (monilethrix). In three months there are growth and psychomotor retardation, loss of previously acquired skills, muscle convulsions. Since that time, the degenerative processes in the central nervous system become dominant in clinics. Trichomes dystrophy becomes obvious: hair are matted, dull, rigid, gray or ivory.

Complications of the vascular system are subdural hemorrhage, arterial ruptures and thromboembolic disease. In angiography of the brain, internal organs and limbs reveal elongated, twisted, arteries of various calibers with alternating areas of expansion and contraction. X-ray examination reveal osteoporosis and metaphyseal expanding, availability epactal bone in the skull.

#### Diagnosis of Menkes syndrome.

- X-ray of the skull and skeleton to detect abnormalities in bone formation;
- Blood test to measure the content of copper in blood plasma;
- Hair microscopy;
- Liver biopsy.

#### Treatment of Menkes syndrome.

There is no treatment for Menkes syndrome nowadays. Early treatment with copper oral medicines or intravenous copper acetate/gistidinate injections may cause palliative result. Other treatments are used to relieve pathology symptoms.

#### Menkes syndrome prevention.

- Medical and genetic consulting.

### **RETT SYNDROME**

Tirskich N. – the 5-th year student

Supervisor – Cand.Med.Sc. Yutkina O.S.

Rett syndrome is a degenerative disorder that exclusively affects girls. It is characterized by normal growth at the beginning and followed by a slowing of development, loss of purposeful use of the hands, distinctive hand movements, brain and head growth, problems with walking, paroxysm, and intellectual disability.

The disorder was identified by Dr. Andreas Rett, an Austrian physician who described it in a magazine article in 1966.

Most cases of Rett syndrome are caused by a mutation (change in the DNA) in the MECP2 gene, which is found on the X chromosome (one of the sex chromosomes), although mutations have been found in other genes where the symptoms don't quite follow the classic pattern described above.

The MECP2 gene contains instructions to make a particular protein (MeCP2) that is

vital for brain development. The mutation of gene prevents nerve cells in the brain from developing properly.

Although Rett syndrome is a genetic disorder, less than 1 percent of recorded cases are inherited or passed from one generation to the next. Most cases are spontaneous, which means that the mutation appears arbitrary.

Treatment for the disorder is symptomatic — focusing on the management of symptoms, requiring a multidisciplinary approach. Remedy (drugs) may be needed for breathing regulation and motional difficulties, and anti – convulsant drugs may be used to control accesses.

Despite the difficulties of symptoms, a lot of people with Rett syndrome continue living till middle age and beyond it. As far as the disorder is rare, there is known less about long-term prognosis and life expectancy.

## **FEATURES OF PNEUMONIA DIAGNOSTICS AND TREATMENT OF PATIENTS WITH CHRONIC LYMPHATIC LEUKAEMIA**

Kolnauz T. – the 5<sup>th</sup> year student

Supervisor: Ph.D. Voitsekhovsky V.V.

228 patients with a chronic lymphatic leukaemia of CLL were examined. The I group (48 people) are the patients with CLL in a stage A by the classification of J. Binet (1981). The average age of patients of the I group at the moment of disease diagnostics is about  $58,7 \pm 2,0$  years old. The II group (112 people) are the patients with B stage of CLL by the classification of J. Binet. The average age is about  $58,5 \pm 3,2$  years old. The III group (68 people) are the patients with CLL in a stage C by the classification of J. Binet. The average age is about  $61,2 \pm 5,5$  years old. The control group was made by 25 patients with pneumonia without [hemoblastosis](#), the age is corresponded to the patients of CHLL ( $58 \pm 2,5$  years old).

With the development of a [hemoblastosis](#) the cases of pneumonia increase. Many cases were noticed among the patients of the III group (58 patients), fewer cases were noticed among the patients of II and I groups (36 and 9 people respectively). Recurrence of pneumonia was registered with 16 patients in II and with 45 in the III group. Only 103 patients with CLL have 150 cases of pneumonia. Only 54 dead people from 95 (56,4%) had pneumonia as an immediate cause of death.

Many patients with CLL have nosocomial pneumonia (NP). 54 cases of pneumonia from 150 (36%) appeared in a hospital. They are the patients from II and III groups with significant increase in lymph nodes or/and a high [leucocytosis](#) had polychemotherapy courses.

A large number of patients with atypical (27,6%), heavy (60%) and long (53,4%) course of pneumonia is revealed. They are also the patients from II and III groups.

NP activators were S. Pneumonia, K. Pneumonia, E. coli, P. Aeruginosa, S. aureus. The patients with extra hospital pneumonia had S. Pneumonia, sometimes in a combination with Neisseria.

Speaking about laboratory manifestations of pneumonia with CLL, it should be noted that these diseases (lymphatic leukaemia, acute lymphatic leukaemia)

showed that in analyses of peripheral blood there isn't any neutrophilic shift in a [leukogram](#). The lack of neutrophils is corresponded by the absence of or doubtful radiological data of 10 patients because the dense inflammatory focus giving an accurate radiological picture isn't always formed. Only 10 patients have the center in a lung by a computer tomography. Deficiency of neutrophils is the important reason of an atypical course of pneumonia of the patients with a granulocytopenia.

Among pulmonary complications of pneumonia sharp respiratory insufficiency (45 cases), [exudative](#) pleurisy (40 cases), destruction of lungs (10 cases), lung abscess (10 cases), emphysema (38 cases) were diagnosed. Among extra pulmonary complications infectious and toxic shock (45 cases), sepsis (15 cases), [pericarditis](#) (11 cases), insanity (7 cases), meningitis (1 case) were diagnosed.

The patients of I and II groups of CLL groups have no essential distinctions in time of knocking over the clinical manifestations of pneumonia in comparison with patients with pneumonia without [hemoblastosis](#) (control group). The patients of the III group have cough, temperature increase, tachycardia, rattles, acceleration of erythrocyte sedimentation reaction (ESR) very long and the slowed-down radiological dynamics took place.

The atypical, heavy and long course of pneumonia of CLL patients were caused by the expressed secondary immunodeficiency, the courses of chemotherapy and hormonal therapy which lead to the immunodeficiency, microhaemo circulation with violation traffic of fabrics, a lymphoid infiltration of lungs and bronchial tubes, advanced age of most of patients, the existence of associated diseases (Chronic Obstructive Pulmonary Disease (COPD), ischemic heart disease (IHD), arterial hypertension, diabetes, etc.), a compression syndrome in a chest cavity of the patients with Richter's syndrome.

## **ROFLUMILAST IN THE TREATMENT OF COPD**

Morozevich Ju. - the 5<sup>th</sup> year student

Supervisors – Kulik E.S., Subacheva N.A.

Today, approaches to the treatment of chronic obstructive pulmonary disease (COPD) are constantly being improved. They are in search drugs that lead not only to bronchodilation, but also to the manifest anti-inflammatory effect.

Despite of the complexity and diversity of inflammation in COPD, it contains key links. The main cells that are involved in inflammation are neutrophils, macrophages and mast cells. They secrete biologically-active substances (mediators) that trigger a cascade of inflammatory reactions. Phosphodiesterase (PDE) of the 4<sup>th</sup> type regulates the metabolism of AMP cyclic (cAMP) in inflammatory and immune cells and also catalyzes the cAMP transformation in its inactive AMP form. PDE-4 inhibitors hamper the destruction of cAMP and help to maintain of high intracellular levels of cAMP. This reduces the activity of pro-inflammatory cellular functions.

Roflumilast is the first and only selective PDE-4 inhibitor approved for the treatment of COPD and registered in Russia in 2013. The drug is recommended for the treatment of patients with COPD of the C, D groups, which are characterized by severe obstruction, symptoms of chronic bronchitis and frequent exacerbations in

anamnesis, and also for patients with the disease that is refractory to treatment with long-acting bronchodilators.

Generally, the drug is well tolerated and safe. Roflumilast leads to the increase of glucose-insulin secretion, providing hypoglycemic effect. It is beneficial to patients with high blood glucose levels. The most common side effects in clinical trials are disorder of the gastrointestinal tract (nausea, diarrhea) and weight loss.

Roflumilast is successfully combined with standard facilities for the treatment of COPD such as prolonged  $\beta_2$  agonists and anticholinergics, and with inhaled corticosteroids.

The introduction of roflumilast in the complex therapy of COPD is aimed at solving the problems associated with the progression of the disease. COPD exacerbations are accompanied by increase in the severity of disease and mortality. They are able to accelerate the progression of respiratory insufficiency.

Chronic inflammation is universal in many diseases of the respiratory system, so it is hoped that the use of roflumilast will open up new possibilities in the treatment of sarcoidosis and some forms of fibrosing alveolitis.

## **CHORIOCARCINOMA**

Morozevich Ju. - the 5-th year student

Supervisors – Cand.Med.Sc. Lysyak D.S., Subacheva N.A.

Choriocarcinoma is a malignant, trophoblastic cancer, usually of the placenta. It is characterized by early hematogenous spreading into the lungs. It belongs to the spectrum in gestational trophoblastic disease (GTD). It is also classified as a genital tumor cell and may arise in the testis or ovary.

Choriocarcinoma can occur after any type of pregnancy – usually during the first year. The incidence of choriocarcinoma is approximately 1:50,000. The true incidence may actually be much higher as histology is often difficult to obtain, but it is interesting to know that choriocarcinoma after a full-term pregnancy is more often associated with aggressive disease.

A possible symptom of choriocarcinoma is vaginal bleeding in a woman who recently had a hydatidiform mole or pregnancy, but gynecological symptoms can be absent in a third of cases. The disease can metastasize to any site – lungs, brain, liver, skin, heart and cauda equina. Pulmonary metastases can be parenchymal, pleural or the result of tumor emboli in the pulmonary arteries. This leads to such symptoms as dyspnea, hemoptysis or pulmonary artery hypertension. Cerebral metastases are present by convulsions, focal neurological signs, intracerebral hemorrhage or signs of raised intracranial pressure. Liver metastases can cause local pain in the right upper abdomen. While these symptoms or features are not unique to GTD, it is an important to differential diagnosis during examination of women of child-bearing age who address with metastases of unknown primary origin – and can be easily confirmed by hCG serum and tumor biopsy. The high hCG level can also cause thyrotoxicosis and ovarian theca lutea cysts.

Since gestational choriocarcinoma (which arises from a hydatidiform mole) contains paternal DNA (and thus paternal antigens), it is very sensitive to chemother-

apy. The percentage of recovered people, even in metastatic gestational choriocarcinoma, is around 90-95% of cases.

Hysterectomy (surgical removal of the uterus) can also be offered to patients over 40 years or those for whom sterilisation is not an obstacle. It may be required for those with severe infection and uncontrolled bleeding.

### **DYNAMICS AND STRUCTURE OF MORBIDITY IN PREGNANT, LYING-IN AND POSTPARTUM WOMEN IN THE AMUR REGION FOR THE PERIOD FROM 2005 TO 2014 YEARS**

Voronina A., Gigolyan P. - the 5th year students.

Supervisors- Agarkova O.A, and.Med.Sc. Shulzhenko E.V., O.I. Katina

**Relevance** . The problem of women's reproductive health is one of the most important in modern medicine, because it directly determines the demographic prospects of the surrounding population and the health of future generations as well. An important indicator of reproductive health is a gynecological morbidity. The presence of gynecological diseases in women of reproductive age allows to assign them to the risk group of complications of pregnancy, childbirth, perinatal losses. There is currently a decline in reserves of reproductive health, deterioration in the quality of all parts of the reproductive cycle, fertilization, pregnancy, forming a complete family, the quality of children's health. The health status in women in the Amur region requires the increase of the effectiveness of health care for children and women at all its phases. This study shows the dynamics and structure of morbidity of pregnant, lying-in and postpartum women in the Amur region for the period from 2005 to 2014 years.

**Purpose of the work:** The aim of this study is to analyze the dynamics and structure of morbidity of pregnant, lying-in and postpartum women in the Amur region in the period between 2005 and 2014 years.

**Materials and research methods:** analysis of Federal Service of State Statistics on the Amur region statistical data, literature analysis.

**Results.** The incidence of women during pregnancy in the Amur region in 2013 is 917.1 (per 1,000 births) on average. In the structure of morbidity of pregnant women in the Amur region in 2013 anemia is prevalent (37.47%). It is higher than in all-Russian in the same year (33.1%). Diseases of the genitourinary system take 20.48%. This figure is higher than the all-Russian (17.4%). Edema, proteinuria and hypertensive disorders amount 15.4%, which is not much different from that through the country-15.9%. Venous complications - 3.12% which were lower than in Russia -4.7%. And diabetes was the lowest part of the structure of morbidity-0.37%, what was the best figure than in the country 0.7%. The highest level of general morbidity in pregnant women was registered in 2006 (13956). Irregular dynamics was detected through the analysis of morbidity. In 2007 (10795) there was a sharp decline in general morbidity of pregnant women that can be associated with improved quality of life and nutrition. Further, steady and progressive reduction of the morbidity from 2008 to 2013 due to increased funding for health care system and optimizing of medical institution.

**Conclusions.** Basing on the results of the research the following conclusions were made:

Thus, for the period 2005-2013 morbidity during pregnancy in the Amur region is 917.1 (per 1,000 births) on average.

Pregnant women in the Amur region fall ill with anemia the most frequently (19.5%). One-fifth of pregnant women suffer from diseases of the genitourinary system (20.48%). The lowest percentage was at diabetes mellitus (1.8%)

During the period from 2005 to 2014, the number of the cases of premature birth increased from 3.94% to 5.2%. Positive dynamics of in-time childbirth (from 91.79% to 94.8%) was marked. In 2013 the number of abortions and miscarriages decreased.

During the period from 2005 to 2013 in the Amur region indexes of diseases of the genitourinary system and gestosis fell by half. During the period from 2005 to 2014 the incidence of anemia sharply reduced, which can be attributed to well-conducted prevention and free provision of antianemic drugs.

Optimization of the medical facility will allow to provide all kinds of qualified high-tech and expensive medical inpatient care in obstetrics, gynecology, neonatology and neonatal surgery, and to perform outpatient, consulting-diagnostic medical rehabilitation assistance to women and young children. That will eventually lead to the improvement of health and demographic situation of the region's population.

#### **USE OF TIOITROPIUM BROMIDE IN PATIENS WITH COPD BASED ON CIRCADIAN RHYTHMS OF THE RESPIRATORY SYSTEM**

Vdovina S.—the 6-th year student; Vdovin D.—the 6-th year student

Supervisors – Cand.med.sc. Kostrova I. V; Dr. med. Sciences Prikhodko O.B.

Chronic obstructive pulmonary disease (COPD), hypertension, coronary heart disease and diabetes are major group of chronic diseases - they account more than 30% of all forms of human pathology of COPD is a global problem of world health [2]. According to various researchers, this disease affects from 4-6% up to 10-25% of the adult population and is characterized by steady growth of prevalence in both developed and developing countries [1, 3, 4].

Questions of temporal organization of respiratory function (ERF) remain poorly studied and its disorders in patients with COPD, and possible exposure to the drug in order to normalize chronostructure of ERF in these patients.

The aim was to study the dynamics of respiratory function parameters on the background of tiotropium bromide and comparative assessment of the effectiveness of various types of drug effects on the respiratory system in COPD patients.

Materials and methods. Patients were divided into 3 groups according to the severity of the disease (6 persons with moderate, severe and very severe disease). As a control, we used data of common standards, as well as those obtained in the control group, which was formed of 15 healthy individuals. Respiratory function was assessed by using spiograph «Fucuda» (Japan) 4 times a day (06.00, 12.00, 18.00 and 24.00) for two days. Statistical analysis was performed by using kosinor analysis to

estimate the parameters of circadian rhythms biomedical indicators (F. Halberg, 1969), the program Statistica v. 6.0. (StatSoft Inc., 1984-2001).

Results and discussion. In the analysis of individual parameters of circadian rhythms of respiratory function in healthy individuals it was revealed two types of biological rhythms of the respiratory system - day and evening. Day is the predominant type, which is consistent with literature data.

COPD patients identified three types of biorhythms of the respiratory system - daytime, evening and morning. In patients with mild COPD in 41.2% of cases it was registered daily biorhythm type of respiratory system acrophasespirographic indicators from 12.00 to 18.00, 35.3% - in the evening, and 23.5% - a morning type of jet lag with acrophase indicators of respiratory function in the morning.

In the group of patients with moderate disease severity in 31.4% of cases it was recorded the day type, in 45.7% - an evening in 22.9% of cases - a morning type of biorhythm respiratory system.

Patients with severe COPD it was were also characterized by three types of circadian rhythms of respiratory function: 22.9% - day type, in 40.0% of cases - an evening in 37.1% of cases - a morning type.

In patients with very severe COPD recorded the maximum number of patients with type morning biorhythm respiratory system - 41.2% and 29.4% of the day and evening types.

Minimum values ERF were recorded in patients with morning, pathological type of jet lag. In patients with severe and very severe disease on the background of lower median spirographic indicators revealed statistically significant differences in patients with daytime and evening types of biorhythms, which indicated a decrease of adaptive capacity of the respiratory system.

Next studied circadian rhythms of respiratory function in COPD patients receiving bronchodilator therapy 2-agonist, or short-acting anticholinergics (for the first two days) and during treatment with long-acting bronchodilators - tiotropium bromide (for the next two days). Use the drug Flomax («BoehringerIngelheimPharma GmbH», «Pfiser International Inc.»). TB administered once per day by inhalation at a dose of 18 mg / day via the device Handi Haller at 6.00 am once within two days of the study.

In the analyzed group, comparable in age and sex with the shutter, the severity and duration of the disease was evaluated clinical efficacy of the drug-lic, depending on the level of physical assets, leading to the development of dyspnea. To evaluate dyspnea during a normal daily activity it was used discriminative 5-point scale Medical Research Council (MRC). We found a significant greater reduction in the severity of apnea in patients receiving tiotropium at a dose 18 mg / day in patients with severe or very severe COPD than in those treated with salbutamol and ipratropium bromide, while in patients with moderate disease severity statistically significant differences in the influence of drugs were not revealed.

We have found that in the context of traditional bronchodilator therapy, including salbutamol and ipratropium bromide, marked as quantitative violations - reduced levels mezora and confidence intervals amplitudes spirographic indicators, both quantitative and qualitative - shift acrophase confidence intervals and lack of cir-

circadian rhythm of the respiratory system

Thus in patients with moderate severity, severe and very severe COPD in the first two days of the study there 3 types of biorhythm of the respiratory system - daytime, evening and morning. In the second phase of the study during treatment with tiotropium bromide there was changing of the type of biorhythm of the respiratory system in patients with the morning VA type in the evening and day type, which corresponds to the picture of biological rhythms of healthy people.

According to individual analysis and the analysis of distribution of individual acrophase in patients with mild COPD there was circadian rhythm misalignment parameters ERF. It manifested appearance among examined patients with morning biorhythm type respiratory system (23.5% of cases). Morning, different from the norm, increase of respiratory function parameters was seen as a pathological phenomenon.

Synchronization of 24 hours rhythms manifested as a coincidence of acrophasespirographic indices in 64.7% of patients. This allowed to use discovered phenomenon as an early diagnostic sign of the presence of functional pathology of the respiratory system.

In the analysis of individual parameters of circadian rhythms of respiratory function in COPD patients with moderate, severe and very severe it was found that with the growth of disease severity decreased the proportion of persons with daily biorhythm, the number of patients with the evening and then the morning biorhythm respiratory system was increased.

In patients with moderate and severe COPD there occurred not only quantitative but also qualitative abnormalities of ventilatory lung function, manifested in the displacement interval maximum patency of the bronchi in the evening, which was compensated by reflex reaction to the quantitative worsening of bronchial patency tree in the evening.

A comparative analysis of the impact of different types of broncholytic therapy on the parameters of individual patients, but it was revealed that treatment with short-acting drugs such as jet lag observed 3 types of the respiratory system - day, evening and pathological - a morning type. When using tiotropium bromide there was change of the type of biorhythm of the respiratory system in patients with moderate disease severity with the type of the morning to the evening and day types, corresponding to the picture of biological rhythms of healthy people.

Conclusions. Thus chronosensitivity bronchial tree to bronchodilators of different groups depends on the severity of the disease, such as jet lag and the respiratory system time of the drug.

Use of long-acting anticholinergic drug tiotropium bromide along with the achievement of control of clinical symptoms in patients with severe disease, allows to normalize circadian rhythms of the respiratory system in patients with moderate COPD severity.

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### **DEMONSTRATION OF THE ORIGINAL FEATURES SIMULATOR FOR DEVELOPING PRACTICAL SKILLS FOR TRAUMATOLOGY**

Vdovin D.; Vdovina S.; Kushnarev V.- 6th year students; Antonova I.- 4<sup>th</sup> year student

Supervisor - Dr. med. Sciences Borozda I.V.

Simulation training in traumatology is an essential component of training, aimed at studying the development of skills, abilities and competencies in accordance with the standards and procedure for providing medical assistance.

According to the stipulated in the Amur State Medical Academy, the two-level concept of a simulation training, we have created at the Department of Traumatology Level 1 simulator for testing standard medical protocols in injuries of the lower extremity.

The purpose of the invention is testing and fixing of practical skills perform surgical procedures in students, medical residents, and medical traumatology. In the simulator you can implement the following skills: technique novocaine blockade of the fracture of Beller, the imposition of skeletal traction for fractures of the lower limbs, puncture joints of the lower limb, bone fixation antishock lower extremities and applying Esmarch wisp to stop external bleeding from the wounds of the extremities.

The simulator (Fig. 1) is a full range of plastic bones connected to a skeleton of the lower limb which is enclosed in a polymer matrix that immitate the soft tissue and having the neurovascular bundle, arranged according to the anatomical and topographical areas of the lower limb with the ports in the medial and lateral regions of the knee and ankle joints for applying skeletal traction and puncture joints.

On the "vascular bundles" circulating fluid viscosity and color reminiscent of blood, joint cavity is simulated by a rubber capsules filled with colored liquid. The simulator is mounted on a standard install base Beller, where after selecting the methods of training in the work area of the simulator practiced appropriate methods. The main objectives of the simulator are:

1. Formation of students' persistent skills, abilities and competencies in the process of simulation of professional activity.
2. Formation of continuity between the different levels of organization of a simulation training at the Academy.
3. Certification of different categories of students.
4. Improving the quality of practical training.

Simulation training at the departments and in Simulation-Certification Center of

the Academy is constructed by studying the passage of standard simulation modules (ssm). It involves the formation of not only primary education programs in the ssm, but the development of secondary education programs in order improve the simulator.

The technical result of the use of the invention is to extend the functionality of manual working out practical skills of students, medical residents, and medical traumatology and improve techniques of urgent surgical procedures at the Department of Traumatology and Orthopedics.

Approbation of the invention is carried out in the educational process at the Department of Traumatology, Orthopaedics with the course of Dentistry Medical University Amur GMA Russian Ministry of Health.

### **MY MEDICAL PRACTICE IN TURKEY**

Mamedov S. – the 5-th year student

Supervisors – prof. Borodin E. A., Vdovin D. – 6-th year student, coordinator of international exchanges

Thanks to exchange program IFMSA this summer I went to practice in the capital city of Turkey - Ankara. June 31 I arrived Ankara city. In the Esenboga airport my curators Bahadur Azizagaoglu and Utku Kuyucu. They took me to university, university located outside of the city. There was campus in the university's territory, where I leaved during one month.

Campus was very comfortable. There were free wi-fi, free water, free tea. Thanks wi-fi I communicated on Skype with parents every day. Every day had free Breakfast and lunch, it was very delicious.

Room where I leaved was for two person. Every room had an air-conditioner. There were a jim, tennis court, football field, basketball field in the university's territory. And the most amazing there was a very big library, which work all day all night, without weekends. Also in the university's territory were training corps, kafes, mini market and free laundry. The whole territory of the University was protected. No stranger couldn't enter there.

My medical practice was in department of Cardio Vascular Surgery of Bashkent university's clinics. Every hour from university to clinic and from clinic from university ride bus. Bashkent university has eleven clinics all around Turkey. Clinics are equipped with ultra-modern equipment. Relationships between medical staff and students was very good. I met with the best doctors of Bashkent clinic (surgeons, cardio vascular surgeons, orthopedists, ophthalmologists), Met with anesthesiologist and resuscitator from Azerbaijan, with orthopedic surgeon from Iran, with russian doctor from Kazakhstan (cardio vascular surgeon) and with doctor from Kosovo (cardio vascular surgeon).

During my medical practice I met with clinic's specification, acquaintance with Bashkent University's history

I met turkish students and with another students from different countries: America, Greece, Denmark, Poland, Great Britain, Brazil, Kuwait. They were very friendly and sociable.

Turkish student took us to excursion. We visit a lot of sightseeng, met with turkish national culture, tryed traditional Turkish cuisine, it was very delicious and nourishing.

In Turkey medicine is very development, durind I was in Turkey all doctors with me and with another students was very kind. I am very happy that I went to my medical practice to Turkey. This is a great experience for me.

### **HEALTH OF THE NEWBORNS FROM SMOKERS MOTHERS WITH CHRONIC BRONCHOPULMONARY PATHOLOGY**

Fefelov A., Bereza K., Shpitsyna N. - the 6-th year students  
Supervisors – d.m.s. Prikhodko O.B., c.m.s. Smorodina E.I.

**Preview.** During the study researched the health of 94 infants born from smokers mothers with chronic bronchopulmonary pathology (chronic bronchitis and asthma). Proved the effect of chronic nicotine intoxication of pregnant women to exacerbation of the disease near a half of the patients with bronchial asthma and chronic bronhitis. Pregnant smokers often noted gestational complications (gestosis, chronic placental insufficiency) and disease of the fetus and newborn - chronic intrauterine fetal hypoxia, intrauterine infection, intrauterine growth retardation, cerebral ischemia, syndrome of respiratory disorders, impaired physical development, impaired adaptation period.

**Keywords:** newborn, pregnancy, smoking, chronic respiratory pathology

**Relevance.** According to statistics, the proportion of smokers among men is more than 60%, and among women older than 15 years - more than 24%, besides that women has more intensive negative effects of tobacco, particularly in relation to the development of chronic obstructive pulmonary disease (COPD), a much greater extent than men [12]. Tobacco is the basis of many respiratory diseases, both as one of the main etiological factors of COPD, lung cancer, and a factor for worsening bronchopulmonary pathology, and also, that is not unimportant, women smoking during pregnancy has adverse effects on the fetus [3,4,5] In Russia smoking is not less than a third of women of reproductive age, the number of smokers among pregnant women has increased to 52-55%, and all time of pregnancy smoking near 20-25% of women. [5] About the impact of active and passive smoking on the system "mother-fetus" we can see in the development of embriopaty, birth defects, reduced body weight in newborns from smoking mothers. Due to the increased prevalence of chronic bronchopulmonary diseases among the population, including women of reproductive age, we can explain interest in study of the dynamics of the flow of pregnant of smokers women and their effect on perinatal situation. The aim of study was to investigate the effect of nicotine intoxication during chronic bronchopulmonary process, bronchial asthma (BA) and chronic bronchitis (CB) on to the development of gestational complications of the fetus and newborn.

**Material and methods.** Analyzed the clinical and functional characteristics of the flow, the outcomes of pregnancy, childbirth and neonatal status for 26 pregnant women with asthma and 68 patients unobstruktiv HB. Among women with HB - I group consisted of 38 pregnant women with chronic nicotine intoxication, II

group - 30 nonsmoking pregnant. In comparison group (III group) included 30 healthy pregnant women in whom the clinical and medical history did not reveal respiratory diseases, and the average age of parity pregnancy corresponded to major groups.

We used clinical and medical history, integral monitoring of clinical syndromes, including daily self-assessment of patients of the main symptoms of the disease, the study of lung ventilation function. Observed patients were mature reproductive age -  $27,5 \pm 11,5$  years. Family history of chronic bronchopulmonary diseases traced for 3 (4.4%) women from II group; BA - 6 (23.1%). The duration of HB patients was, on average, 8 years, while in Group I - 1-19 years, in II - 1-15 years, with the BA-9.5 years. In the middle smoking history takes 7 years with BA and 9 years with HB; one-third of the patients had smoked all time of pregnancy. Newborn physical examination included: Apgar score, evaluation of physical development, neurological status, psychomotor development, clinical observation. All calculation was in Statistica 6.0 programm.

**Results and discussion.** Exacerbation of chronic bronchitis during pregnancy was observed in 34 patients (50%), while in group I at 28 (73.7%) in II - at 6 (20%). Repeated acute bronchitis during pregnancy observed in 7 (18,4%) cases in I group. Pregnancy complications was noted in 62 (91%) patients with HB. Early toxicosis was 20 (29.4%) of pregnant women with HB, wherein in group I - at 12 (31.6%), at II - 8 (26.7%) and being higher than the comparison group, respectively, 2.4 times and 2 times (group III - 13.3%). Threat of abortion - in 45 (66%) of patients with chronic bronchitis: group I - 29 (76.3%), in the II -16 (53,3%), whereas in group III - 8 (26.7% ). Chronic placental insufficiency - in 24 (35%) of pregnant women with HB: group I - 15 (39.5%), in II - 9 (30%) in group III - in 5 (16.7%). Chronic intrauterine fetal hypoxia (HVUG) at 50 (73.5%) of pregnant women: in group I at 32 (84.2%), in II - in 18 (60%), in group III - 4 (13, 3%), gestosis - in 14 (20.5%) of pregnant women with chronic bronchitis: group I - at 12 (31.6%), in II - at 2 (6.7%), in Group III - 5 ( 16.7%). Gestational complications occurred significantly more frequently in patients of I group. Most pregnant women have come in time delivery, premature delivery occurred in 14 (20.5%); of them in group I - at 11 (28.9%), in II - at 3 (10%). Morbidity birth observed in 30 (41.1%) of pregnant women, while in group I at 16 (42.1%), in II - 14 (47%). Caesarean section were 14 (20.5%) patients with chronic bronchitis: in group I - 7 (18.4%), in II - 7 (23.3%), whereas in III group - 2 (6.7%).

From 68 children born from mothers with chronic bronchitis, the condition was satisfactory in 47 (69.1%), while in group I - in 23 (60.5%), in II - in 24 (80%), moderate - 19 (27.9%) in group I - 13 (34.2%) in II - 6 (20%), heavy - in 2 (2.9%) in group I - 2 ( 5.3%), in II - none. In middle birth weight from pregnant women with chronic bronchitis was  $3231,4 \pm 110,5$  while in group I - 2951g, in II - 3360g, in III - 3530. In the structure of diagnosed diseases of newborns of mothers with chronic bronchitis marked: cerebral ischemia - in 42 (61.7%), while in group I at 28 (73.7%), in II - in 14 (46.2%), intrauterine infection (IUI) - 34 (50%) in group I at 25 (65.8%), in II - at 9 (30%), impaired adaptation period - in 44 (64.7%), while in group I - 37 (97.4%), in II - 7 (23.3%), intrauterine growth retardation (IUGR) - 13 (19.1%) in

group I - at 10 (26.3%), in II - 3 (10%), respiratory distress syndrome (SDR) - 3 (4.4%) in group I - at 2 (5.3%), in II - at 1 (3.3%).

With a comprehensive assessment of physical development showed that the average level of observed only at 65% of children. Low physical development were observed in the form of delays in symmetrical type (dysplastic optional) - 11%, according to the asymmetric type - 19%, slow fetal growth - 5%. In assessing neurological status often other symptoms observed hyper excitability, tremors when disturbed, vegetative disorders ( $p < 0.05$ ), which puts these children at risk of CNS pathology.

Among 26 women with asthma defined dynamics of disease during pregnancy: 13 (50%) - worsening the **lack of control** during gestation, 8 (30.7%) - without essential dynamics, at 5 (19.3%) - satisfactory flow. It is noted that the weighting of symptoms during pregnancy were in patients with non-allergic and mixed forms of moderate and severe asthma, especially who continue to smoke during gestation. Asthma exacerbations during pregnancy occurred in 13 (50%) patients. At the same time, uncontrolled asthma for over one trimester was at 8 (61.5%) of them in 2 trimesters - at 4 (30.8%) for all 3 trimesters - at 1 (7.7%), that is, in 5 of 13 (38.4%) of pregnant women marked repeated exacerbations of asthma during the gestational period.

Many patients develop gestational complications were observed. Thus, the threat of termination of pregnancy was noted in 1 (3.84%) case, the development of chronic placental insufficiency - 16 (61.5%), chronic intrauterine fetal hypoxia (HVUG) - 16 (61.5%), gestosis of varying severity - in 7 (26.9%) patients. Most gestational complications observed during uncontrolled asthma and in patients who continue to smoke during pregnancy. Most pregnant women have come in time delivery, premature delivery occurred in 1 (3.84%) of them, with a term of 32 weeks of pregnancy. Morbidity childbirth observed in 26 (100%) patients with asthma. Caesarean section were at 11 (42.3%) patients.

We saw the condition of 26 children born from mothers with asthma. The average birth weight was  $3175 \pm 110,5$ . In the structure of diagnosed diseases of newborns from mothers with asthma first ranking positions are occupied: cerebral ischemia - 10 (38.5%); cases intrauterine infection (IUI) (infectious diseases of the skin and mucous membranes Shells) - 8 (30.8%); impaired adaptation period - in 6 (23%); intrauterine growth retardation (IUGR) - in 2 (7.7%); respiratory distress syndrome (WBS) - 3 (11,5%); syndrome of motor disorders - 6 (23%).

Overall, among patients with chronic nicotine intoxication and chronic bronchopulmonary diseases often marked exacerbation of chronic bronchitis and asthma during pregnancy, including repeated exacerbations ( $p < 0,05$ ), 1.5 times more often observed complicated course of pregnancy and delivery: 1.5 times more often - early toxicosis, 1.4 times more often - chronic intrauterine fetal hypoxia, 5.7 times more often - preeclampsia, 2.4 times more often - prematurity ( $p < 0,05$ ). 1.5 times less often status of newborn was evaluated as satisfactory. In the structure of newborn diseases often marked: cerebral ischemia - 1.6 times, IUI - 2.2 times, impaired adaptation period - in 4.2 times, impaired physical development, intrauterine growth retardation - 2.6 times syndrome respiratory disorders - 1.6 times, hyperexcit-

ability, vegetative disorders ( $p < 0,05$ ).

**Conclusions.** Thus, pregnancy, asthma, chronic bronchitis, chronic nicotine intoxication mutually aggravates its clinical flow that has great influence for the development of the fetus, health of newborn. We found a clear relationship of smoking with the frequency of exacerbations of chronic bronchitis and asthma, with the development of gestational complications, with pathology of the fetus with diseases of the newborn, as intrauterine infection, growth retardation syndrome, respiratory disorders, leading to a breach of the adaptation period of newborn. In this way, smoking rejection is an important medical and preventive measure, which contributes both clinical improvement of chronic bronchitis and reduce the frequency of gestational and perinatal complications.

### **THE GENOME OF LINGUISTIC ABILITIES. ABILITY TO LEARN FOREIGN LANGUAGES**

G. Subonov – the 1<sup>st</sup>-year student

Supervisors – Prof. E.N. Gordienko, O. I. Katina

Language is the most important aspect in the life of all beings. We use language to express inner thoughts and emotions, make scene of complex and abstract thought, to learn to communicate with others, to fulfill our wants and needs. Language can be defined as verbal, physical, biologically innate, and a basic form of communication. Language is a set of signals used to communicate. Humans are not the only species that has ability of communication. Animals too have a well-defined system of communication. Bees communicate about place food or the sitting of hives; chips shout to communicate about danger. However, no other species show a capacity to use language as creatively as humans.

And here appears another question what caused human that appeared language, but not on animals. Researchers have found a gene that could explain why we developed language and speech, while our closest living relatives the chimps, did not.

The gene called FOXP2 is a transcription factor, meaning it regulates other genes. Past research was suggested this gene remained relatively unchanged a long mammal evolution until after humans and chimps diverged. And about 200 000 years ago, when modern human appeared on the scene. Scientists think two amino acids (blocks of proteins) changed in FOXP2. But the question is that whether that amino-acid modification had any real effect on us wasn't known. To find out, a term of this speech gene in neuronal cells that essentially didn't express the gene, or make proteins that carry out that gene's instructions. In addition to genes, past research has found the hyoid bone may have given us and possibly Neanderthals talking talent.

- Why are the languages different?

According to latest statistics estimate the number of living languages to be 7,106 in the world and 915 languages of this number are dying. A group of languages composes of a language family, which shows the genetic relation of each language to entire group. The best known among these language families is the Indo-European

family which includes more 200 languages. There are more than 140 language families in the world, about 75 isolated languages and more 47 languages that are not still identified. Already for two hundred years scientists tried to find the center of these languages in which Adam and Eva communicated. This center is considered to be the Central Africa. Gradually people spread all over African continent. About 100 000 years ago, when Homo sapiens began to emigrate from Africa to other parts of Eurasian continent. Due to this immigration new versions of the language appeared there. As people moved from place to place, their languages were deeply changed by process of time.

### **MOULAGE AS A TEACHING TOOL IN COURSE OF HUMAN ANATOMY**

S. Barannikov, A. Tkacheva – the 2<sup>nd</sup>-year students

Supervisors – L.G. Zherepa, O.I.Katina

It is known that nowadays seminars of anatomy are impossible without moulages. Vesalius, the founder of anatomy, said that the body is a main object of study. On the corpse we can see the location of organs, their topography, form, size, etc. No one artificial cast, however good it may be done, can substitute the corpse. Now we have hard time, when a number of intake corpses decreases every day. Lack of corpses puts the chair of normal anatomy in a very difficult position, as the need in corpses grows yearly. To solve that problem we have to create such moulages that will closely correspond the cadaverous material and if not substitute to it fully, would successfully imitate cadaver.

Many people may say that a moulage is not a corpse. It is true, but well-executed moulage is an exact copy of a cadaver with preservation of its natural color, shape, size and topography.

Gies is an author and founder of anatomical moulage-creation said that a well-executed moulage is difficult to differ from a natural cadaver; it even looks more alive and natural. Production of moulages must be in hands of our anatomists, because they are professionals who will work on the creation of the moulage as carefully and accurately as they make any anatomical preparation. Only after that the moulage will take the form and shape of the natural cadaver.

Moulage is an exact copy of the organ or area that it represents. A lack of it is that it captured only one point and it impossible to push the nerves, vessels, to observe the underlying layers. Glycerine preparations often look like lifeless gray body. At the same time, well-made under the supervision of anatomist-expert moulage will keep bright colors for a long time.

Once made and decorated moulage does not require special care and observation. It must be stored in a closet, protected from dust and very bright light. In the near future it will be the most valuable tool in the study of anatomy, particularly those areas that are hard to prepare and to show on a corpse.

Unfortunately, moulages usually do not show large areas such as the abdomen, the whole limb, the whole corpse. But it is possible. One can create moulage even from a whole corpse. It only requires the desire, perseverance, time, and some cash. Moulage replicates with photographic accuracy this preparation, because the

production of moulages is more technical work than an art that needs to be almost only in the coloring of the moulage. Well done moulage cannot be substituted by any well done drawing, table or diagram.

Students willingly use moulages during the course of normal anatomy in part due to esthetic motives, partly because of the convenience of using them.

We consider that to solve the cadaver crisis, we must add into the course of teaching the moulage-making of anatomical organs. Taking a copy from one well prepared corpse, we can make dozens of moulages of each area, and thus to resolve the crisis with the corpses. Moulages are valuable tools for teaching normal anatomy and can be used as decoration of our anatomical museums.

### **IRON-DEFICIENCY ANEMIA**

U. Nikolaenko, A. Tkacheva, T. Khlebnikova - the 2<sup>nd</sup>-year students  
Supervisors - V.S. Kozlova, O.I. Katina

The article reveals the problem of iron deficiency anemia.

It is the most common form of anemia worldwide. The article is devoted to the global nature of the disease, normal iron homeostasis and iron deficiency, clinical data, as well as the causes and treatment of iron deficiency.

Currently, the prevalence of iron deficiency anemia slightly decreased, iron deficiency continues to be a high-ranking cause of anemia worldwide.

The article reports that half of the world's population is infected; physicians should be aware of the possibility of infection and provide treatment to eliminate the source of iron deficiency anemia.

Internal restoration of iron consumption is the main administration for patients with malabsorption and genetic iron deficiency anemia. Introduction is also preferred when there is a necessity in rapid increase in the level of hemoglobin in iron deficiency anemia caused by chronic blood loss and impossibility of controlling the iron supplements, as it occurs in patients with hereditary hemorrhagic telangiectasia.

Iron injected intravenously is essential in the management of anemia in patients with chronic kidney disease who receive the diagnosis and treatment of erythropoiesis-stimulating agents.

This article is very useful for doctors and medical students. And the problem is most clearly illuminates the previously studied causes of the disease and methods to solve the most important problems.

### **THE PROFESSIONAL «BURNING OUT» AMONG SURGEONS**

D. Naumova, K. Gamylin - the 3<sup>rd</sup>-year students  
Supervisors - Prof. V.V. Grebenuk, O.I. Katina

The issue highlights the problem of the professional "burning out" among surgeons. 65 surgeons answered the questionnaire. It was shown that such factors as high work load, night duties, working on a week-end, increasing number of patients for the one doctor, scarce moral and material reward for the work, unsatisfactory

supply of hospitals, arise negative emotions in 50-100% of respondents and etc. Preliminary interviewing of applicants, preparing medical students for surgical realities and taking to the staff of medical institutions skilled psychologists may change the situation.

### **ANTIOXIDANTS IN PRACTICE OF OPHTHALMOLOGIST**

I. Kurilova, K. Kostenko - the 3<sup>rd</sup>-year students

Supervisors - Doc.Med.Sc. G.I. Chubenko, O.I. Katina

Antioxidants - big group of biologically active composites that are, widespread in the nature. The range of biological protective effect of antioxidants is quite various and is generally caused by their ability to neutralize negative action of free radicals. In ophthalmology such antioxidants as emoxypine, tocopherol acetate, vitamin C and A, dicinon and others are widely applied as inhibitors of free radical processes.

Now the productivity of the use of an emoxypin in complex treatment of an age macular degeneration, hemophthalmia, the occlusion lesion of retina vessels, vascular pathology of an eyeball, the highly complicated short-sightedness, in pre - and postoperative periods, a pigmentary retinopathy, amotia retinae, cornea pathology, etc. is proved.

Meksidol is widely used at chronic optical neuropathy of various genesis (on the background of vascular disorders, glaucoma, the complicated short-sightedness), an age macular degeneration, degenerate and dystrophic diseases of a back piece of an eye.

Gistokhrom- a new natural antioxidant was developed by the Pacific institute of bio-organic chemistry of the Far East office of the Russian Academy of Sciences.

Gistokhrom- is a water-soluble preparation of an echinochrome. Echinochrome is the hinoidny pigment of the marinae invertebrates (type of erinaceous), isolated from their armors and needles. Unlike other antioxidants it reduces the accumulation of toxic peroxides in ischemic muscular tissue, stabilizes the membranes of erythrocytes, possesses antiagregant properties, reduces cholesterol level in blood and shows antimicrobial and antiviral action. It was widely used at the diseases connected with violation of exchange processes of a retina, a vascular layer and cornea. The preparation promotes the improvement of eye tissues trophicity, the reduction of hypostasis and acceleration of an epithelization.

Thus, antioxidants protect an organism from negative effect of free radicals and products of peroxidation of lipids. Their common use in ophthalmologic practice allows to achieve considerable improvement of regenerative and metabolic processes in an eye.

### **STRUCTURE AND ANOMALIES OF THE RIBS AND STERNUM**

D. Vasil'ev, T. Khlebnicova, Y. Nikolaenko – the 2<sup>nd</sup>-year students

Supervisors – L.G.Zherepa, O.I. Katina

1. Aplasia of ribs. There are no XII or XI ribs in some cases.
2. Usually, the number of ribs (12 pairs) may increase with the development of the

extra rib on one or both sides. It is connected with the VII cervical vertebra (cervical rib) or with the first lumbar vertebra (lumbar ribs). Cervical ribs compress nerves, vessels and require surgical intervention. Sometimes the lateral masses of the sacrum are not fused with it, and this anomaly may be considered as the derivation of the sacral ribs;

3. The front ends of the ribs can coalesce with each other or, vice versa, split bifurcate;
4. Adhesion of the ribs with each other or with the spine;
5. There may be circular or oval openings in the body of the sternum and the xiphoid process;
6. Rarely sternum is splitted along: its conjugate bookmarks have no adhesion in one or another extention;
7. Sometimes there are 2 small suprasternal bones above the manubrium of the sternum;
8. Aplasia of sternum.

Chest forms

Human thorax has features associated with upright and connection with the upper limbs. Thorax is not compressed from sides, so it is flattened in the anterior-posterior direction. There are three forms of the chest: flat (in asthenic), normosthenics have cylindrical (intermediate) form and conical persons with brachymorphic (hypersthenic) habitus. Shape of the chest depends on the constitution of a person, his gender, age, muscle development, and social factors.

### **CLINICAL AND ANATOMICAL PECULIARITIES OF EXTERNAL BASE OF SKULL OF THE NEWBORNS**

G. Subonov, E. Murashov – the 1<sup>st</sup>-year students

Supervisors – A.E. Pavlova, O.I. Katina

The newborns' external base of the skull is relatively narrow and long. The hard palate anteriorly and laterally is bounded by cartilage torus that corresponds anterior alveolar edge of an upper jaw. The hard palate is flattened, its arch is not expressed, and the periosteum easily departs from the bone. The transversal and longitudinale sutures of palate are expressed well. The horizontal plates of the palate bone are in the form of depressions located transversely. In the large foramina of teeth cavities germs of first teeth are located. Incisor cavity is relatively wide.

The middle part of external base of the skull consists of middle section – pharyngeal fossa and the lateral sides that pass to infratemporal and pterygopalatine fossae. The foramen of the external base has definite peculiarities: oval foramen is relatively large, its length can be up 1 cm. Carotid canal is located more horizontally; its external foramen is about 4-6 mm. The external acoustic opening is located on the base of the skull and is downcast. Its diameter is 8-10 mm. Styloid process is in small size and completely consists of cartilage tissues. The canal of hypoglossal nerve is well expressed, has relatively large sizes. It is not closed in frontal part, due to incomplete accretion of separate parts of occipital bone. The foramen magnum has oval or piriform. It is bounded by still unaccreted parts of the occipital bone. Inferior temporal

fossa is comparatively large, but of little altitude due to incomplete development of alveolar process of an upper jaw.

### **THE BASIC THEORY OF ALZHEIMERS DISEASE**

Ju. Zhumikova, N. Kiselko, N. Logvinenko - the 4<sup>th</sup>-year students

Supervisors - N.G. Brasch, O.I. Katina

Alzheimer's disease (AD) is a progressive, terminal brain disorder. It is the most common form of dementia, affecting mostly people age 65 and older. Alzheimer's slowly steals the minds of its victims, leading to memory loss, confusion, impaired judgment, personality changes, disorientation, and inability to communicate.

Alois Alzheimer was born in June 14, 1864. AD is called after German doctor Alois Alzheimer. He described the symptoms of a patient known as Auguste D. in 1906. Those symptoms included memory loss, strange behavior, and shrinkage in the patient's brain. Psychiatrist Emil Kraepelin, Dr. Alzheimer's colleague, coined the term "Alzheimer's disease" in a medical book in 1910.

As the condition develops, memory problems become more severe and further symptoms can develop, such as:

- confusion and disorientation
- personality changes, such as becoming aggressive, demanding and suspicious of others
- hallucinations (seeing things that are not there) and delusions (believing things that are untrue)
- problems with language and speech
- problems moving around without assistance

The cholinergic theory is one of the oldest supported theories on the cause of Alzheimer's disease. This theory states that Alzheimer's disease begins as a problem with the acetyl choline levels in the brain. It has been found that there is a 40%-70% loss of cholinergic neurons in the brain of an Alzheimer patient. As well, the total amount of acetyl choline in the body has decreased. It is thought that this occurs because there is a shortage of two necessary enzymes. One enzyme is involved in the process of making the acetyl choline and the other is involved in breaking it down after its message has been sent. Having too little of these enzymes is also related to physical problems with the neuron. This will cause the neuron to have difficulty functioning normally. Pathways of neurons send messages all over the brain about what is going on in the outside world and in the rest of the body. These pathways become damaged when cholinergic neurons are lost or cannot function. As a result, certain areas of the brain will not receive messages and begin to shut down. The areas that are affected the most are the parts that control our ability to understand our world and remember what we experience

The Tau Theory. Another major theory of the cause of Alzheimer's lays the blame on tau. Tau is a protein whose role is to act like the skeleton of a cell and organise its shape and function. Unfortunately, during the progression of Alzheimer's the tau protein deforms losing its ability to support the cell and it eventually aggre-

gates and creates a tangle of nerve fibres. These aggregations are another hallmark of the progression of Alzheimer's disease.

The Amyloid Hypothesis. This theory seems to have the largest support. Amyloid precursor protein is a protein found throughout the body (although its function remains unclear) but in Alzheimer's disease there is a malfunction in the processing of it which leads to the formation of a protein "beta-amyloid" fragment. These fragments slowly aggregate or clump together forming amyloid plaques which are characteristic of the disease. These clumps continue to build causing nerve disruption and destruction.

No treatment can stop the disease. However, some drugs may help keep symptoms from getting worse for a limited time.

### **PROFESSIONAL ALLERGIES OF MEDICS**

E. Alexeeva, A. Poplavskaya – 4<sup>th</sup>-year students

Supervisors - S.A. Goryacheva, O.B. Prihodko, O.I. Katina.

Medical workers take the fifth place in the prevalence of occupational diseases, being even ahead of workers of the chemical industry. Allergic reactions began to appear more often in health care workers with the advent and introduction of new drugs and antiseptics into medical practice.

The cause of occupational allergies can be not only drugs, but also chemicals, disinfectants and detergents, as well as latex containing in gloves, disposable syringes and infusion systems.

When allergies systems that contact with allergic substances more are affected: skin, mucous membranes and respiratory system. Professional hypersensitivity includes: contact dermatitis, urticaria, erythema, bronchial asthma, farmer's lung (exogenous allergic alveolitis).

Occupational eczema is characterized by a prolonged course with alternating relapse and remission. Inflammatory symptoms develop directly on exposed skin and then spread over the entire surface of the skin with formation of vesicles and ulcers.

Feature of allergies (dermatitis, eczema, urticaria) - the appearance of a rash in sensitized individuals and their tendency to spread beyond the place of allergen effect on the skin.

Professional asthma is dangerous with its intensity and the rapid development of symptoms, especially if there is a predisposition. One of the types of occupational asthma is aspirin-induced asthma that is characterized by a combination of NSAIDs intolerance and recurrent upper respiratory tract polyposis.

Exogenous allergic alveolitis (hypersensitive pneumonitis) diffusely affects the lung tissue. It arises from the effects of antibiotics, chemotherapeutic agents, amiodarone, anesthetics and contrast substances. It is characterized by chronic inflammation of the lung in the form of granulomatosis and subsequent outcome in irreversible fibrosis complicated by respiratory failure and formation of pulmonary heart. It may also be an option oligosymptomatic disease with predominance of mild pronounced respiratory failure.

Allergies are more common in individuals with allergic history and often require

emergency medical care.

For the differential diagnosis with non-allergic reactions one should carefully examine the sanitary and hygienic characteristics of working conditions and clarify the allergen, which became the cause of the disease and its origin.

Early diagnosis of diseases is important even at the first sign of it. For infected persons the translation to work out of contact with sensitizing substances and irritants, as well as timely treatment is necessary. Patients are subjected to dynamic monitoring by a doctor with a mandatory examination a year later.

To reduce the incidence the measures of individual protection are used.

### **RISK FACTORS OF COPD**

T. Kanash - the 4<sup>th</sup>-year student

Supervisors - E.G. Kulic, O.I. Katina

Chronic obstructive pulmonary disease (COPD) is one of the leading causes of morbidity and mortality worldwide. About 3 million people die from COPD annually according to the World Health Organization. And this number is steadily increasing every year. Thus, the authors of studies of the global damage from the disease say that COPD being ranked the sixth among leading cause of death in 1990, by 2020 will be on the third place. This prognosis is associated with late diagnosis and delayed treatment of COPD in most cases.

COPD - a progressive disease, which development may be prevented (GOLD, 2013). So the identification of risk factors is an integral part of the treatment and rehabilitation of patients.

Tobacco smoking is currently the most common and important etiologic factor for COPD. In cigarette smokers there is an increased prevalence of respiratory symptoms and lung function abnormalities, a high incidence of mortality from COPD compared with nonsmokers. It is necessary to clarify the experience of smoking; number of cigarettes smoked per day by the patient and calculates the index of a smoker.

Occupational dusts and chemicals are underrated risk factor. It was found that the occupational hazards are the cause of all cases of violations of the symptoms or respiratory function characteristic for COPD. Indoor air pollution due to combustion of bio-organic fuels and heating in poorly ventilated living spaces is also an important prognostic factor, especially for women and children.

Low socio-economic status is inversely related to the development of COPD, since nutrition of the patient has an important role in the formation and progression of COPD - as excess, so as underweight can be a problem. Approximately 25% of patients with stage II-IV COPD have a decrease as in body mass index so as fat-free weight.

Viral and bacterial infections undoubtedly contribute to the progression of COPD, leading to frequent exacerbations, that impair not only the course of the disease but and quality of life of these patients.

Asthma is one of the endogenous risk factors. The study showed that in patients with bronchial asthma the risk of developing COPD is 12 times higher.

In addition a genetic predisposition to the disease is also important. A hereditary deficiency of alpha-antitrypsin, a major inhibitor of serine proteases in the systemic circulation is considered as the most proven genetic risk factor for COPD. Increased protease leads to the destruction of interalveolar septa. This defect is rare and is most common in people of Northern Europe.

Despite the social importance, identification the risk factors leading to COPD, is poorly made and requires a differentiated approach. A significant result in reducing morbidity and mortality from COPD can only be achieved through integrated impact on the major factors affecting the development of the disease.

### **ROLE OF BIOLOGY AT THE STUDENT'S CHOICE OF MEDICAL PRIORITIES**

E. Murashov E. – 1<sup>st</sup>-year student

Supervisors - Prof. E.N. Gordienko, O.I. Katina

Entry into medicine begins with theoretical - fundamental disciplines, among which Biology occupies a special place. We remember the words of Academician Igor Tamm - Nobel laureate physicist, who in the 60s of the twentieth century said: "If the twenty-first century will not be the century of biology, this will be the last century in the history of mankind". It turned out that this global science in higher medical schools can determine the prospects of studying not only theoretical biological and medical knowledge, but also the personal aspirations of the student in the selection of the clinical profile. My selected priorities relate to a powerful branch of modern medicine - Traumatology. Studying the biology is among this choice. I have identified for myself the following educational aspects:

- Regeneration - cell, tissue, and organism levels of implementation of mandatory physiological mechanisms of ontogenesis; reparative regeneration, its phylogenetic characteristics.
- A genetic bottom of osseous tissue development at the stages of human ontogenesis, the participants of this process are with positive and negative effects.
- The history of the study of reparative osteogenesis.
- Participation of national traumatologists in the development of unique technologies.
- The level of claims of traumatology department in the correction of bone pathology.

Summary: High Medical School in the system of theoretical knowledge affords a chance to accelerate our clinical choice.

### **THE ISSUE OF CHILD SUICIDE**

L. Buryak, D. Galagan, I. Maltseva - the 4<sup>th</sup>-year students

Supervisors – N.G. Brash, O.I. Katina

Suicide is a deliberate denial of life. Every year the problem of suicide becomes more global. And suicide attempts increasingly become a form of behavior that a person uses in a given crisis situation. Scientists divide the suicides into three

main groups: the hidden (thirst for risk or self-harm), true and demonstrative. According to the World Health Organization (WHO), over the last 30 years the number of suicides committed by children and adolescents in the world has increased in 30 times. Today, Russia is ranked 1st in Europe in the number of suicides among children and adolescents and 6 in the world in the number of suicides among all ages (after Lithuania, South Korea, Kazakhstan, Belarus and Japan). In Russia in recent years the number of child suicides and suicide attempts has increased in 35-37 %. Overall, there were about 800 thousand suicide, between 1990 and 2010. One of the commandments suicidology reads to any statements of the desire to commit suicide should be treated very carefully! There is a certain predisposition to suicide. A set of factors plays the role in suicide: heredity, genetics, character traits, personality type. If there were suicides and psychiatric disease in the family - the risk increases. Various types of stress, quarrels, bad company, under which influence is a kid, and love experiences are triggered (the reason). These factors are involved in certain circumstances. For example, in the absence of mutual understanding in the family, tragedy or death of a close family, social isolation, academic failure, fear of punishment or failure.

#### **THE DEVELOPMENT OF THE EAR**

. Goncharova, M. Nemtseva – the 2<sup>nd</sup>-year students  
Supervisors - A.E. Pavlova, O.I. Katina

According to scientists, the aggregation occurs one of the first in the vesicle. The static bubble is the prototype of a labyrinth in invertebrates that live in water. The semicircular canals appear in fish. The hearing aid is gradually brought about in land animals. The sound apparatus is formed and becomes more complicated in amphibians, reptiles, birds and mammals. The middle ear first appears in amphibians. The ear canal and auricle are sound-apparatus in terrestrial mammals. The rudiment of the inner ear occurs first in ontogeny, and then there is the rudiment of the middle and outer ear.

The inner ear. The membranous labyrinth is laid in the form of thickening of the ectoderm on both sides of the neural plate before all of the entities at the beginning of the 3rd week of development. The membranous labyrinth becomes the auditory tube and the auditory vesicle with the endolymphatic duct at 3-4 week. The tabs appear in the vesicle at the end of 6 week. This auditory vesicle is divided into elliptic and spherical saccules. Cochlear duct is formed at the 6-8 week. Differentiation of the spiral body, and formation of bony labyrinth and the development of perilymphatic space, which is filled with liquid, occurs on 3rd month of fetal development.

The middle ear. Anlage of the tympanic cavity arises from the distal part of the first branchial furrow in 2nd months. The Eustachian tube arises from the proximal part of the first branchial furrow. The ossicles develop from derivatives nucleosides and hyoid branchial arches.

The outer ear. Its development occurs from the mesenchyme surrounding the first branchial arch in the 2nd month of fetal development.

## **EPILEPSY, PATHOGENESIS OF SEIZURES OCCURRENCE**

. Nikishov, S. Couloir - the 4<sup>th</sup>-year students  
Supervisors – Doc.Med.Sc. V.N Karnaukh, O.I. Katina

Epilepsy (epilepsia; GK. epilepsia seizure, an epileptic seizure) is a chronic polietiologic disease manifested in convulsions and other seizures, mental disorders and characteristic personality changes.

Epilepsy as a disease may only be noted if in under the influence of a number of factors there is a constant focus of painful excitement the brain. Its main feature is high level of generated excitement. In the formation of epileptic focus a leading role is on a mechanism of periodically occurring hyper synchronization bioelectric potential in a defined population of neurons. As a result of experimental studies it was found that changes of excitability of the membrane of the neuron are associated with the occurrence of paroxysmal shift depolarization in the neuron membrane. It leads to a sudden increase in its activity and paroxysmal outbursts of discharges. It is proved that the basis of the occurrence of such an abnormal depolarization shifts in the membrane of a neuron is not only synaptic mechanisms, but ionic shifts. These are changes in the ion concentration on both sides of the membrane, regulating the excitability of cells, in particular the increase in the concentration of potassium ions in the extracellular environment of the brain. That may contribute to the depolarization of the membranes of neighboring neurons. Violation of intracellular metabolism of neurons leads to a change in reactivity of the brain to external stimuli and, eventually, to lower seizure threshold.

Significant improvements were also found in the metabolism of the brain, reduced tissue content of noradrenaline, serotonin, GABA, taurine, glycine, macroergic compounds (inhibiting the nerve impulses), and increased the contents of acetylcholine, glutamate and aspartate in the mechanism of start of epileptic seizures. Changes in metabolism can be as the result of genetically caused or acquired disorders of it is relevant links. There is a decrease in glutamic acid and GABA in the focus of epileptic activity. The latter has a pronounced anticonvulsant effect. Seizures as a component of hypovitaminosis B6 (pyridoxine) are due to a lack of GABA.

The emergence of the epileptic focus disrupts the integrative activity of the brain. With the development of the disease the focus may change its localization; the formation of new foci- "mirror" may occur. Leading epileptic focus creates and induces the activity of others. The formation of secondary independent foci, which are also capable of generating hypersynchronous discharges, is one of the factors of progression of epileptic process, the emergence of the polymorphism of the clinical picture.

In addition to cerebral mechanisms in complex epilepsy pathogenesis various of somatic mechanisms, are also involved, e.g. disorders of different types of metabolism: water-salt, nitrogen-protein, carbohydrate, mineral, and exchange of microelements. Changes of acid-base balance, decreased excretion of epinephrine, norepinephrine, DOPA, dopamine, serotonin are characteristic. However, these violations are not specific to epilepsy. The main feature is their high variability. Thus epilepsy has a

complex pathogenesis and involves many pathological mechanisms.

### **THE IMMUNOSTIMULATING HERBS**

Sakhratulaeva A. – the 4<sup>th</sup>-year student

Supervisors – Cand.Med.Sc. R.A. Anohina, O.I. Katina

Immune system is the system providing constancy of anti-gene structure of an organism and elimination of alien substances. The main function of immune system – is the protection of an organism against genetically alien substances basing its ability to distinguish "nich" and "alien". At the same time, not only the immune system, but also not immune mechanisms participate in protection of an organism against harmful agents.

The factors negatively influencing the immune system are: stresses and negative emotions, lack of a sleep, unfavorable ecology, addictions, sunshine, physical activity, temperature loading.

Stimulation is required at the weakened immunity. For this purpose immune stimulators are used, e.g. aloe – a century plant, species of a licorise, echinacea purple.

Actually it is more convenient to divide plants-immunotracks into the following groups.

The plants containing substances with the immune stimulating and immunosuppressive action - iris lacteal, a candock, a mistletoe white, a glycyrrhiza.

The herbal remedy without immunosuppressive properties, but, as a rule, with anti-hypoxemic effect - echinacea medicinal (purple).

Ginseng (*Panax ginseng*) of kind araliae (*Araliaceae*). Chemical composition. The root contains tetraterpenic saponina, panaksozida. Effect of a ginseng is explained by its exciting action on cortex and subcortical formations of a brain. Preparations of a ginseng have the stimulating and toning effect. That's why it is applied at physical and intellectual fatigue, after prolong diseases, at hypotonia and neurasthenia, the vegetative neurosis, depressions.

Snowdon rose (*Rhodiola rosea*) of kind crassula (*Crassulaceae*).

Pharmacological properties. Preparations of a snowdon rose possess the expressed stimulating property, significantly increase the volume of dynamic and static work, have the stimulating effect on intellectual efficiency of the person.

### **ACUTE AND CHRONIC POISONINGS WITH SODIUM CYANIDE**

V. Damaskina, A. Sakhratulayeva - the 4<sup>th</sup>-year students

Supervisors – Prof. T.A. Savinova, Cand.Med.Sc. S.A. Goryacheva, O.I. Katina

Cyanic compounds - chemical compounds which structure includes CN group. Cyanides -salts of hydrocyanic acid, in particular, concern to them.

Cyanic compounds is used in galvanotechnics at a metal covering with copper, brass, gold and silver, for extraction of gold and silver from ores, at a hardening and liquid cementation of metals, for steel cyanation. In agriculture cyanides are used to pest control. In the Amur region Na cyanide is used in gold mining open pit, so the possibility of poisoning retained.

The main way of penetration of cyanic compounds to an organism under production conditions is respiratory tract. Also they can get to an organism through a digestive tract. At the same time there is damage to the nervous and cardiovascular system, skin and gastrointestinal tract.

Action mechanism. Entering into an organism, cyanic compounds cause blockade of respiratory function of cells and tissues. Active compound of hydrocyanic acid with the oxidized form of a geminiferment interferes the cytochrome oxidation. The obstruction to restoration of iron of respiratory enzyme in a bivalent form and by that to transfer the oxygen on cytochrome is a result. Thus, toxic effect of cyanic compounds is shown in suppression, paralysis of oxygen consumption by cells.

There is acute and chronic poisoning with cyanic compounds. At acute poisoning, a person is almost immediately unconscious, paralysis of breath and heart occurs. At smaller concentration some stages are distinguished. Initial stage, dyspnea stage, stage of spasms, and paralysis stage. Chronic poisonings with various cyanides can develop at long influence of small concentration of cyanic compounds (millesimal of a milligram per 1 l). Thus the various and changeable symptomatology is observed.

Specific therapy (antidote) amyl nitrite inhalation (3-4 amps), sodium nitrite (10 ml of a 3% solution intravenously) sodium thiosulfate (25-30 mL, 25 % solution intravenously). Use the symptomatic treatment of glucose, with vitamin B12, C.

#### **AMUR HIGH PRIESTS OF INFECTOLOGY**

S. Galaktionova - the 5<sup>th</sup>-year student

Supervisors – P.K Soldatkin, O.I. Katina

Figurov Valentin was born on August 2, 1939 in Khabarovsk city.

In 1962 he graduated from Khabarovsk State Medical Institute. He began his career with the August 1, 1962. He worked as a general practitioner in the village of Troitskaya until January 1964. Since 1964 he had been engaging in the student circle of Biochemistry at HGMI for 5 years, combining it with the study of infectious diseases.

Academic title - professor, academic degree - Doctor of Medical Sciences; honorary title - Honorary Doctor of Russia, Honored Worker of Science. Medical category - higher.

He has been working in the department of infectious disease and epidemiology for 48 years. Since 1967 - assistant of the Department of Infectious Diseases. In 1968 he defended his thesis on "Violation of the exchange of electrolytes in patients with hemorrhagic fever with renal syndrome". In 1980 he defended his doctoral thesis on "Some features of the pathogenesis, clinical manifestations, diagnosis and treatment in patients with HFRS in the Amur region". Since 1973 - associate Professor of the Department of Infectious Diseases. 1982 – 2012 was the head of the Department of Infectious Diseases. He published more than 300 scientific papers, made 40 inventions. In 2015 he patented invention: 1. Diagnosis of hemorrhagic fever with renal syndrome; 2. Treatment of obstinate skin ulcers.

He devoted his scientific career to the study of one of the most serious diseases in the Amur region and all over Russia. The study of hemorrhagic fever with renal syndrome was started over 50 years ago. And in modern times it continues to play an important role in human pathology. Hemorrhagic fever with renal syndrome is a viral nontransmissible zoonosis. In Russia it is ranked the first in morbidity among natural - focus infections. Valentin has dedicated to it more than 25 works: articles, books, abstracts and scientific publications devoted to the study of HFRS. Scientific direction at this time: natural - focus viral and parasitic diseases of the Amur region, peculiarities of a blood clot in donors and patients with various infectious diseases.

He does a great constructive work in Blagoveshchensk and the Amur Region. His inheritance is severe patients with uncertain diagnoses. Several times he was invited to de live lectures in HFRS at US universities. He is a consultant in complex patients in a clinic «Family doctor».

He is active participant and the head of the Department of SSC. Organizer of joint meetings of SSC of departments: biology and infectious diseases.

In his lectures and speeches he appeals to the younger generation, encouraging us to use all available opportunities to raise the level of knowledge. After all, knowledge determines the essence of life!

#### **DISSOCIATIVE DISORDER**

M. Zubkova, T. Kanash, A. Sakhratulaeva – the 4<sup>th</sup>-year students

Supervisors – N.G. Brash, O.I. Katina

Dissociative identity disorder is a rare mental disorder that is characterized by the presence of multiple personalities in one person, one of which dominates the individual at any particular moment.

According to statistics this disease affects about 3% of all mental patients.

Presumably, the causes of the disorder are severe mental and emotional trauma experienced in childhood as well as the gross physical effects of sexual violence. In severe situations in child a specific mechanism of psychological protection is putted. As a result he loses a sense of reality and begins to perceive everything as if it is not with him. This mechanism of protection against damaging and intolerable impacts is in some sense useful. But with its strong activation dissociative disorder begins to appear.

Multiple personalities are very different from each other. They are not similar. They can be of opposite gender, character, age, intellectual and physical abilities, way of thinking and worldview, national identity; they behave oppositely in the home.

Memory is wasted in a phase of shift of ego-states. A dominant personality can't remember anything from the behavior of another person. The trigger for switching can be words, situations, certain places. For the patient an abrupt change of personalities is accompanied by somatic disorders — unpleasant feeling of knot is a throat, nausea, pain in stomach, increased heart rate and breathing, increased blood pressure.

American Billy Milligan was the most famous person with dissociative personality disorder. After his crimes Billy was examined and psychiatrists were confused. It

turned out that inside of that man 24 different personalities coexisted. Meanwhile Billy Milligan came in history as the first person acquitted by the court due to a split personality.

### **MALPOSITION OF A FETUS**

I. Maltseva, L. Buryak – the 4<sup>th</sup>-year students

Supervisors - Cand.Med.Sc. E.V. Shulzhenko, O.I. Katina

Wrong position of a fetus is the one in which the lengthwise of the axis of the uterus and fetus do not coincide. At the intersection of these lines at a right angle the fetus forms a transverse position (*situs transversus*), and when crossing at an acute or obtuse angle — an oblique position (*situs obliquus*).

Oblique or transverse position of the fetus is determined by the attitude of large parts of the fetus to a line joining the crests of the iliac bones. With the oblique position of the fetus one of the major parts (head or pelvic end) is located below the iliac crest. When the transverse position both the head and the pelvic end of the fetus are above the line connecting the crests of the iliac bones.

With great mobility the fetus can take lengthwise position and then again place obliquely or transversely. This state is called unstable position of the fetus.

One of the signs of malposition of the fetus is transverse-oval or obliquely oval shape of the abdomen of pregnant and low state of fundus of uterus.

Pregnancy at incorrect positions of the fetus can proceed without complications. When malposition one of the common complications (30%) are premature births. The other common complication during pregnancy and childbirth is delayed (early or premature) rupture of amniotic fluids that may be accompanied by loss of the umbilical cord, small parts (arms, legs). It contributes to fetal hypoxia and infection. The most threatening complication when the transverse position is the loss of mobility of the fetus — uncared transverse position. It is formed after the rupture of amniotic fluids and tight gripping of the fetus by the uterus. When uncared transverse position of the fetus, one of the shoulders may be impacted to the pelvis and the hand falls out of the cervix. As a result of labor the lower segment is overstrained. While at first there is a threat of uterine rupture. And then there is rupture, if a caesarean section is not performed timely. The fetus usually dies from acute hypoxia. At the small size of the fetus (prematurity, hypotrophy) and the large size of the pelvis spontaneous version of the fetus in longitudinal position can occur rarely.

When malposition timely diagnosis and correct choice of method of delivery helps to avoid complications and improve perinatal outcome.

### **ANTIBLASTOMA DRUGS**

I. Maltsev , L. Buryak, D. Galagan – the 4<sup>th</sup>-year students

Supervisors - Cand.Med.Sc. V.I. Tikhanov., O.I. Katina

Medicines take an important place in the treatment of malignant tumors. In medical practice there are many drugs that are effective not only in diseases of the blood (hematological malignancies), but in true tumors. Unfortunately, existing anti-

cancer remedies are not sufficiently perfect. As a rule, they provide only remission and only in some tumor diseases (for example, chorionepithelioma of the uterus, acute lymphocytic leukemia in children, Hodgkin's disease (Hodgkin's disease), and malignant testicular tumors) using a number of drugs it is possible to achieve a complete cure.

One of limiting moments in drug treatment of malignant tumors is the addiction of tumor cells to drugs. The process of addiction can be moderated to a certain extent by the combined use of drugs with different structure and unequal mechanism of action.

A significant disadvantage of most modern drugs is also low selectivity of action against tumor cells. Usually the use of cytotoxic drugs is accompanied by serious side and toxic effects. In this turn primarily proliferating tissues (bone marrow, mucosa of intestine) are actively affected. Many drugs have negative affect to the sex glands (can cause sterility). Number of antibiotics with antitumor activity possesses cardio toxic effect. The platinum drugs have pronounced nephrotoxic effect. Cytotoxic drugs often cause nausea and vomiting. However, when using drugs in therapeutic doses side effects are usually reversible.

Antiblastoma cytotoxic remedies have also immunosuppressive, mutagenic and teratogenic effects.

In some cases, to reduce toxic effects and improve the efficacy of drugs they are administered intraarterially directly to a tumor. It is reasonable to decrease venous outflow from the affected tissues. That increases the duration of contact of the substances with tumor cells and reduces the severity of adverse effects associated with the resorptive action of substances. From these considerations there is the use of perfusion with solutions of antiblastoma drugs of the area where the tumor is localized.

Contraindications to the use of most anticancer agents are blood oppression, acute infection, expressed violation of the liver and kidneys.

In recent years we have obtained more selectively acting antineoplastic drugs (antihormones, which block specific receptors), monoclonal antibodies and synthetic tyrosine kinase inhibitors. In addition, as components of combination chemotherapy of neoplastic diseases immune-boosting remedies (interferon, etc.), interleukins and other substances were included. In some cases it gives a favorable effect.

Modern chemotherapy of neoplastic diseases is based on the combined use (simultaneous or sequential) of antitumor drugs from different groups. Often chemotherapy is combined with surgical removal of the tumor and radiation therapy.

Substances used as antiblastoma remedy can be represented by the following groups: 1)Alkylating agents and drugs of similar action; 2)Antimetabolites; 3)Antibiotics; 4) Drugs of plant origin; 5)the Enzyme drug L-asparaginase; 6)Hormones and their antagonists; 7)cytokines; 8)Monoclonal antibodies trastuzumab (Herceptin), rituximab (MabThera), bevacizumab (Avastin); 9)tyrosine kinase inhibitors imatinib (Gleevec), gefitinib (Iressa), erlotinib (Tarceva).

Thus, the number of drugs with antitumor activity is very high. The task of the clinician is to select for each patient the most appropriate drugs and to determine the appropriate treatment course.

## **HORMONAL CONTRACEPTIVES**

S. Murashko, A. Velikanova – 4<sup>th</sup>-year students  
Supervisors - Prof. V.A. Dorovskih, O.I. Katina

According to statistics in the world about 55 million of women make abortions annually, i.e. 21% of all pregnancies are aborted artificially. In Russia 57% of all pregnancies end in abortion. Among adolescents they account more than 10% of abortions. According to estimations of both domestic and foreign researchers, 60% of first sexual intercourse "is not protected" with contraception.

The topic of contraception today is relevant because the consequences of abortion are numerous and extremely unfavorable.

Postcoital contraception is a single contraception aimed at preventing unwanted pregnancies. The main mechanism of action of hormonal postcoital preparations is intermittent release of high doses of hormones, desynchronizing physiological hormonal changes during normal menstrual cycle. That leads to the development of "menstrual chaos". Use of postcoital contraception is a means of emergency help at a single unprotected intercourse.

Antigestagens drugs: Ginepriston or Agest. It is a steroid antigestagen used within 72 hours after unprotected intercourse. It has a competitive antagonism with progesterone at the receptor level. In large doses it increases endometrial contractility, in small - prevents ovulation and implantation of the egg. It does not allow the necessary changes of endometrium for pregnancy to take place. The drug does not show progestin activity.

Progestogens drugs:

Eskapel. It inhibits ovulation and fertilization, if intercourse was in the pre-ovulatory phase, when there is the highest possibility of fertilization. It can also cause changes in the endometrium that prevent implantation. The drug is ineffective if implantation has already occurred.

Mifegin (Mifepristone) is modern preparation used for medical (non-surgical) abortion in a period from the first day of a missed period to 8 weeks. To perform this procedure one should consult a gynecologist who has a license to work with the drug.

Postinor - contains a very high dose of the hormone levonorgestrel. The earlier the tablet is taken, the more pronounced contraceptive effect it has. The more time has passed between sexual intercourse and drug intake, the lower its efficiency is (95% for the first 24 hours, 85% - from 24 to 48 hours, and 58% - from 48 to 72 hours). Thus Postinor is recommended to use as soon as possible (but no later than 72 hours) after sex, if no any protective measures have been used. The recommended dose of levonorgestrel has no significant effect on blood clotting factors, metabolism of fats and carbohydrates.

## **CLINICAL CASE OF PLACENTA INGROWTH - PLACENTA PERCRETA**

S. Murashko, E. Blokhin – 4<sup>th</sup>-year students  
Supervisors – Cand.Med.Sc. E.M. Mirlas, O.I. Katina

Placental pathology occupies a special place because of the wide polymorphism of morphological variants (tight attachment of the placenta, placenta accreta - ingrowth, the germination of the placenta).

Ingrown or placenta accreta may be complete or partial. The most frequent is tight attachment of the placenta. Its frequency in the structure of the placental abnormality is 78%. Placenta increta is found in 17% of cases. The severest case of the increment of the placenta - placenta percreta is detected in 5-7% of cases.

At present frequency of placenta ingrowth in multiparous women undergoing cesarean section increased. Degenerative changes of uterus endometrium, the implantation of the ovum in areas with endometrial hypotrophy, tumors and malformations of the uterus, reducing the enzymatic activity of the basal layer of endometrium are the causes of placental pathology.

Placenta ingrown usually occurs in attachment with the rumen, where the wall of the uterus has been subjected to changes. It is often combined with placenta previa. During placental germination chorionic villi penetrate the myometrium and perimetry with the invasion in the adjacent organs: bladder and rectum. In marked damage of myometrium uterine rupture with intra-abdominal bleeding and clinical hemorrhagic shock may occur. And during the germination of the placenta into the bladder wall it will manifest in the form of hematuria.

A clinical case of extremely severe increment placenta - placenta percreta is shown here. In the history of a woman the first pregnancy ended with delivery in time by scheduled cesarean section without complications. Second pregnancy is real. The course of I and II trimesters are normal. In the III trimester during the third term of screening for 32 weeks a complete germination of the uterine wall and the bladder wall by the placenta was noted. The woman was quickly operated on. The integrity of the bladder was restored and metroplasty was made.

Thus, due to the high professionalism of doctors, timely diagnosis and treatment, this woman has conserving surgery. This unique case demonstrates the possibility of sparing surgery in these states.

## **THE STRUCTURAL FEATURES OF THE SPINE IN THE NEWBORN**

S. Hovalyg, S. Mongush – the 2<sup>nd</sup>-year students

Supervisors – A.E. Pavlova, O.I. Katina

The length of the spinal column in the newborn ranges from 21-25 cm (about-40% of the length of the body of the newborn), cervical part 25%, thoracic- 48%, lumbar- 27%. The number of vertebrae at birth is 33-34 (38 in fetuses). The spine is almost straight. There is a minute kyphosis in the thoracic part and a little lordosis is in the lumbar. The spine is flexible and easy changes the shape at different positions of the body.

Vertebrae have typical age-related differences: the oval body, flattened in the arterial direction, transversal sizes is larger than longitudinal ones. There are the cartilaginous layers between the pedicle of the arch and body of a vertebra. The coccyx is entirely composed of cartilage. The front arch of the atlas, the spinous processes, the

ends of the transverse and articular processes are cartilaginous. The upper and lower surfaces of the vertebral bodies are covered with thick hyaline plates due to which the vertebrae grow in height. The intervertebral cartilage is in the form of lenticular lenses. Discs are composed of fibrous tissue. Intervertebral foramina are relatively wide. In the cervical part they are almost round and in the thoracic and lumbar parts they are oval.

### **ESTIMATION OF FOOD QUALITY OF STUDENTS IN ASMA**

T. Labyenko, . Garbarenko, . Bak - the 5<sup>th</sup>-year students

Supervisors – Cand.Med.Sc. E.A. Sundukova, O.I. Katina

Most people in our time are not interested in qualitative structure of food and diet. Therefore they do not receive the right amount of nutrients necessary for normal functioning of the organism. Students are the category of persons for whom the problem of a balanced diet is particularly the most acute. Lack of time does not allow to eat regularly 3-4 times a day and frequently leads to eat fast food and large number of different flavors, colorants, modified components. In combination with a hypodynamia and stress the improper feeding conduces to the serious disturbances in organism and becomes a basic risk factor for the development of different diseases: obesity, gastritis, ulcerous illness, diseases of the cardiovascular system.

In a period from 12.09.15 to 24.09.15 we made a social research. 40 students of ASMA participated in it. They are 25 girls and 15 guys at the age of 21- 26. Students were asked 20 questions of the questionnaire related to a balanced diet.

According to the survey, 45% of students surveyed appeared chronic diseases of the digestive tract. In 40 % chronic diseases of the digestive tract appeared after entering the academy.

However, 52.5 % fed 3 times a day, 25% four times. 12.5% of surveyed students comply with diet, 80 % - want but do not have the time, and 7.5 % - does not see the need to comply with the diet.

52.5 % have breakfast, 22.5 % do not eat breakfast at all, and 25 % of respondents do not always have time. 62.5 % of respondents eat more food in the afternoon. Every day 2.5 % of respondents eat chips, crackers, etc. 77.5 % - sometimes eat the same food and 20 % - do not eat it at all. 17.5 % of respondents often miss breakfast, lunch, dinner, occasionally - 52.5 %, almost never - 30 %.

Nutrition is one of the fundamental factors of a healthy lifestyle, and the extension of the active period of life.

Compliance with recommendations for a balanced diet is the main source to increase the body's resistance to various harmful agents of the environment and reduction of number of non-communicable chronic diseases among the population.

### **AUTISM**

N. Dementieva, O. Zeinalov, T. Bugreeva - the 4<sup>th</sup>-year students

Supervisors - N.G. Brash, O.I. Katina

Autism - a disorder that occurs as a result of developmental disorders of the brain. It

is characterized both by severe and comprehensive deficit of social interaction and communication and restricted interests and repetitive actions. All of these symptoms are manifested before the age of three. Autism is a developmental disorder of the nervous system which is characterized with various manifestations marked for the first time in infancy or childhood and sustainable course of the disorder usually without remission.

### **TREATMENT OF AMYOTROPHIC LATERAL SCLEROSIS**

O. Zeinalov, T. Bugreeva - the 4<sup>th</sup>-year students

Supervisors - Doc.Med.Sc. A.I. Karnaukh, Doc.Med.Sc. V.N. Karnaukh, O. I. Katina

The relevance of the study of this disease is primarily determined by the fatality of the disease. It is characterized by a steady progressive course leading to death. It is also an acute problem of socialization of patients with ALS. Man ceases to walk and move. He is confined to bed. It becomes difficult to swallow and breathe. He becomes totally dependent on others and is unable to communicate. Moreover, most patients are fully conscious. And the worst thing in this disease is that paralyzed person understands everything. To the feelings of powerlessness and inability to control his own body, the fear of hopelessness and inevitability is mixed, because there is no drug for ALS. Riluzole - is the first and the only drug that is approved for the treatment of ALS in the US and Europe. But in Russia this drug is not registered and can't be formally recommended to you by your doctor. This drug is not a cure for motor neuron disease, but it has an impact on the life expectancy of people with ALS. Riluzole helps to reduce the amount of glutamate (a chemical mediator in the central nervous system), which is released during neurotransmission. Observations show that the excess of glutamate is able to damage the neurons in the brain and spinal cord. Results of clinical studies show that those who took riluzole have their life expectancy increased for two or three months.

Antioxidants – is a class of nutrients that help the body to prevent damage of free radicals to itself. It is believed that people with ALS may be more susceptible to the harmful effects of free radicals. And currently some research aimed to identify the beneficial effects of supplements rich in antioxidants on the body taking place is made. Concomitant therapy can help to make daily life more convenient for people with ALS, helping to control the symptoms. It is believed that relaxation helps to reduce stress and anxiety. Massage, aromatherapy and reflexology can help to relax the muscles, normalizes blood and lymph circulation and help to relieve pain by stimulating the production of endorphins, the endogenous painkillers. ALS patients require maintenance therapy to relieve symptoms. Gradually, respiratory muscles begin to relax, respiratory failure is developing, and it becomes necessary to use the equipment to facilitate breathing during sleep. Then, after a total failure of the respiratory muscles, needs round-the-clock use of artificial lung ventilation is necessary. For each patient an individual nutrition program is composed; non-invasive breathing support, limbs massage, bracing means reception are also recommended. In addition, recently, Israeli scientists are actively engaged in developing treatments for ALS using stem cell transplantation. There is no effective treatment. The basis is a

symptomatic therapy. Depression occurs frequently and can be removed by using tranquilizers and tricyclic antidepressants, which also reduce salivation. Sleep disorders are corrected by benzodiazepines. If there are painful muscle contractions, relaxants are prescribed. Joint pain can be stopped by NSAIDs. In an end-stage opiate, opiates are used. Bronchopulmonary infections require antibiotics. Salivation can be reduced by atropine drugs. Special tools are applied to facilitate the movements of the patient (canes, chairs, adjustable beds, collars for fixing the neck). If there are expressed violations of bulbar functions, it is appropriate to use a nasogastric tube or gastrostomy imposition.

### **DVS-SYNDROME AT PREGNANT WOMEN AND WOMEN IN CHILDBRITH**

O. Zeinalov, T. Bugreeva - the 4<sup>th</sup>-year students

Supervisors - Cand.Med.Sc. E .V. Shulzhenko, O.I. Katina

DIC (disseminated intravascular coagulation, consumption coagulopathy, thrombotic hemorrhagic syndrome) - bleeding disorders due to the massive release of thromboplastic substances from tissue.

DIC in pregnancy often occurs as a complication of obstetric hemorrhage. The main causes of disease are: amniotic fluid embolism, premature placental detachment; hemorrhagic shock; diseases of the cardiovascular system, kidneys and liver; Rhesus conflict; incompatible blood transfusion, pre-eclampsia.

### **VOLANT CECUM**

A. Ostanin , O. Zeinalov, T. Bugreeva - the 4<sup>th</sup>-year students

Supervisors - Prof. V.V Semko, O.I. Katina

In 1904 F.O. Guzman singled out the volant cecum as an independent nosological unit. Cecum- the blank section of the colon located below the upper edge of the ileum at the place of its opening. Cecum is covered by peritoneum on all sides. Its length is 5-6 cm. Blood supply is received from the superior mesenteric artery.

### **ATYPICAL FORMS OF MYOCARDIAL INFARCTION**

A. Eretnova, T. Bugreeva, O. Zeynalov - the 4<sup>th</sup>-year students

Supervisors - Cand.Med.Sc. L.V.Kruglakova, O.I. Katina

Currently clinical picture of acute myocardial infarction occurs as a typical anginal attack. But there are also some atypical forms: abdominal, asthmatic, etc.

Peripheral type of myocardial infarction with atypical localization of pain is characterized by pain of varying intensity, sometimes increasing, not relieved by nitroglycerin. It is localized neither in the chest nor in the precordial region, but in atypical locations - in the throat, in the left hand, the tip of the left little finger, left scapula, in the cervical-thoracic part of spine and in the mandible. It may be accompanied by a weakness, sweating, acrocyanosis, palpitations, arrhythmia and drop in blood pressure.

Abdominal type of myocardial infarction occurs more frequently with diaphragmatic infarction. It manifests by intense pain in the epigastrium or in the right hypogastrium, in the right part of the abdomen. Simultaneously there is vomiting, nausea, bloating. The diarrhea, paresis of the gastrointestinal tract with a sharp expansion of the stomach and intestines may occur. On palpation of the abdomen the tension and soreness of the abdominal wall are marked. It is necessary to differentiate this form with pancreatitis, cholecystitis, appendicitis, intestinal obstruction, perforated gastric ulcer and foodborne diseases.

### **ANTIOXIDANT PROPERTIES OF REMAKSOL AND CYTOFLAVIN AT THE COLD STRESS**

E. Martynov, T. Bugreeva, O. Zeynalov - the 4<sup>th</sup>-year students  
Supervisors - Prof. V.A. Dorovskich, O.I. Katina

Cold exposure (stress factor) results in increased heat against reducing the synthesis of ATP, which is the basis for the formation of hypoxia, acidosis and accumulation of lipid peroxidation products. The prescription of antihypoxanth drugs, stimulants of gene-mediated initiation of erythropoietin production is an important aspect in the regulation of the effects of low temperatures on the organism. However, reducing the damaging effect of cold on the cell membrane and the formation of lipid peroxidation products, they do not significantly reduce the time of cold adaptation.

Perspective direction in correction of cold exposure is the use of drugs based on succinic acid as its oxidation plays an important role in the "output" of energy from the Krebs cycle due to succinate pronounced effect on the system of electrons reverse transport in the mitochondrial ATPases. That, in its turn, regulates the rate of phosphorylation.

### **CLINICAL AND ANATOMICAL FEATURES OF STRUCTURES OF EYEBALL IN THE NEWBORN**

E. Repyeva, N. Usupova – the 2<sup>nd</sup>-year students  
Supervisors – A.E. Pavlova, O.I. Katina

A newborn lid slit is much narrower. Lacrimal gland does not get complete development and is of small volume. Ducts are narrow and rectangular. About 5% of children are born with a closed opening of the osseous part of nasolacrimal duct. Tendon parts are poorly developed at the outer eye muscles. The size of the eyeball is relatively high: a characteristic feature of the eyes of the newborn is a shift of the visual axis, so they have shifted focus of view. The cornea protrudes forward in the form of a roller. The sclera is of dirty whitish color. Lens approaches the spherical shape and protrudes deeply into the anterior chamber, reducing its dimensions. Iris of the eye is poor of pigment. It is narrow, thin and movable. Pupil diameter is 2-3mm. Ciliary ligaments consist of many thin fibers. Ciliary body is of dark black color. Cilium muscle is short and thin. Choroid is relatively thick, contains a lot of pigment, rich with nuclei. So almost all children (especially preterm) fundus is albinotic. Vitreous has more uniform consistency. Blind part of retina is narrow. The central fossa is

tiny. The macula is different weak development of the interior part of the outer nuclear layer. The optic nerve is short and thin (diameter 0,8-1,2mm). To the time of birth it is made up of small myelinated fibers. Excavation of nerve papilla is expressed.

### **ENZYMES AND VITAMINS OF BREAST MILK**

N. Usupova, E. Repeva – the 2<sup>nd</sup>-year students

Supervisors – Assoc.Prof. E.V. Egorhina, O.I Katina

Newborns and sucklings have low secretion of digestive glands. In this period autolytic digestion plays a special – it is splitting of milk solids via maternal milk enzymes. Enzymatic activity of breast milk allows baby to overcome the critical period, while secretory function of the stomach and pancreas will not get a certain maturity.

Currently the composition of breast milk has 19 different enzymes. These are hydrolases, oxidases (catalases, peroxidases, lactoperoxidases, and various dehydrogenases) and enzymes involved in the protective reactions (RNase and DNase of milk). Digestive hydrolytic enzymes – peptidase (pepsinogen, trypsin), glycosidases (alpha-amylasa, lactasa), esterases (lipase, phosphatase), and other hydrolases synthesized in the mammary gland and secreted into the milk to blood have the most activity. Breast milk contains histaminase and arylsulfatase disrupting histamine and leukotrienes. Anions of trypsin and elastase – related to IgA were found.

Protective role of breast milk enzymes is associated with their participation not only in the antioxidant response but also in the antimicrobial action, antiproteolysis and other processes.

The most important characteristic of the mother's milk is a content of vitamins in it. There are both soluble vitamins – A, D, E, K and a complex of water soluble vitamins – C, group B.

### **PEPTIDES OF SLEEP**

S. Mongush, E. Repeva, N. Usupova – the 2<sup>nd</sup>-year students

Supervisors – Cand.Med.Sc. G.E. Cherbikova, O.I Katina

Despite the relatively long sleep study neither its mechanisms nor its physiological significance are completely understood till nowadays. It is found that sleep has several forms and stages and is totally characterized by a complex dynamics.

The Pieroni and Legendre theory is that various metabolic substances of tired body affect on the brain and induce sleep. And while in sleep they are neutralized. The continuation of their work was the discovery of “C factor” (sleep factor). Factor of sleep – peptide, that is also called a Pappengeymer's factor, Uchizono's factor, Nagasaki's factor and the Monnier's factor (peptide delta of sleep) were discovered.

Delta sleep peptide is composed of 9 amino acids and causes a prolonged sleep with a pronounced delta rhythm in the EEG. When research the laboratory animals were administered the peptide of delta sleep and they fell asleep more quickly than usual. The duration of a night's sleep increased. The level of fear in unusual

circumstances and threats decreased. The drug is effective in a narrow dose values. The increase of dose in several times eliminates the ability of the peptide to cause sleep, increasing the level of wakefulness. Monnier factor is also a powerful anti-stress factor. It has anticonvulsant effect, assists in motion sickness, and has a positive effect on memory and learning of laboratory animals, which have not slept for a long time.

Why was not it put in production? It would help people with insomnia? Peptides are very unstable formations, but their solutions are a breeding for germs. Peptides poorly penetrate biological membranes. Failure in following dosage may eliminate the effect or cause the opposite effect. Common neuropeptides may not be taken orally because they would be directly destroyed by enzymes of the gastrointestinal tract. Violation of these rules leads to the false date before the beginning of the study of its biological properties.

### **RETICULAR FORMATION**

. Barabash – the 2<sup>nd</sup>-year student  
Supervisors - Cand.Med.Sc. S.S. Siliverstov, O.I. Katina

The reticular formation is a complex of cellular and nuclear formations, taking the Central position in the brain stem and upper spinal cord. A large number of nerve fibers, running through the reticular formation in different directions, give it a kind of mesh which served as the basis for the name of this structure.

All the reticular formation can be divided into caudal, or mesencephalon, and rostral, or thalamic departments. The caudal division of the reticular formation determines the diffuse, non-specific system effects on relatively large departments and areas of the brain. Whereas the rostral division of the reticular formation — the specific system, providing a relatively local effect on certain areas of the cerebral cortex. So RF is a unique system determining the functional state of all parts of the brain and affecting all types of nervous activity, i.e. it can be thought of as "brain in brain".

Dysfunction of the reticular formation primarily develops due to lesions of the nuclei or afferent and efferent relations at various levels. It manifested in the form of movement disorders, sleep disorders, consciousness, and autonomic dysfunction.

One of the main manifestations of damage to reticular structures in humans is the loss of consciousness. It happens in traumatic brain injury, cerebrovascular disease, tumors, and infectious processes in the brain stem. The duration of syncope depends on the nature and severity of dysfunction of the reticular activating system and ranges from several seconds to many months. Dysfunction of the ascending reticular influences is also manifested by loss of energy, constant pathological sleepiness or frequent attacks of falling asleep (paroxysmal hypersomnia), restless night's sleep. There are also disturbances (often increased) of muscle tone, and various autonomic changes, emotional and mental disorders, etc.

## **SYSTEMIC LUPUS ERYTHEMATOSUS**

R. Lokonov, Z. Aydarkhanova – the 2<sup>nd</sup>-year students  
Supervisors – V.S. Kozlova, O.I. Katina.

Systemic lupus erythematosus (SLE) - type of disorders of the immune system known as an autoimmune disease in which the immune system perceives the body's cells as foreign and begins to fight with them. The body produces the substance in this case damaging many organs and tissue: blood vessels, skin, joints and internal organs (kidney, lungs, heart, liver, brain, etc.).

Under the influence of immune complexes the release of lysosomal enzymes occurs. They damage various organs and tissues. Immune inflammation develops in the damaged organs. It leads to the destruction of connective tissue. The products of this decomposition are new antigens. New antibodies are formed to them. This whole process is repeated in a vicious circle, providing chronic disease.

Collagenosis is a group of diseases characterized by lesions of connective tissue, including fibers containing collagen in its composition. Collagenosis belongs to the group of pathologies involving tissue rich with protein. They properly maintain the functioning of the organs and body parts. The result of collagenosis is violations of the muscles, joints and other organs, as well as the deterioration of the skin. The systemic lupus erythematosus and systemic sclerosis were included into this group of diseases. And later dermatomyositis and periarteritis nodosa, rheumatoid arthritis and rheumatic fever, serum sickness were added.

## **ABOUT STRUCTURE OF RIGHT LYMPHATIC DUCT**

N. Prokofyeva – the 2<sup>nd</sup>-year student  
Supervisors – A.E. Pavlova, O.I. Katina

One of the insufficiently explored issues in the anatomy of the lymphatic system is the right lymphatic duct (ductus lymphaticus dexter), that collects the lymph of the right half of the head and neck, right chest and right upper limb. It was described by Stenon (1662) as multiple stow of singular abducent lymphatics vessels of the lungs, heart, chest cavity wall in the right subclavian vein. In 1783 W.Hewson was the first who pointed out that four of the lymphatic vessels (of the right upper extremity, the right side of the head and the occipital region of the thyroid gland and the right lung) are connected before flowing into the vein in one trunk - right channel. In 1945 Zhdanov for the first time held a special study of the formation of the right duct in 82 human cadavers. Right flow was detected in 18.2% of cases, 58.7% fell into the veins of the two right lymph trunks, 15.8% - 3 trunks, and in 7.3% of cases mentioned plural confluence of lymphatic vessels.

Thus, as a result of investigations it was found that the right lymphatic duct is a vessel 10-12 mm in length. In 18.8% of the cases the right subclavian, right jugular and right bronchial trunks fall into. Right lymphatic duct with one opening exists rarely. In 80% of cases it has 2-3 or more column. This duct empties into the right venous angle formed by the merger of the right internal jugular and subclavian veins. In the absence of the right lymphatic duct (81.2%), outflowing lymph vessels and lymph

nodes of the posterior mediastinum, right jugular and subclavian bronchial trunks fall into right venous angle, in the internal jugular or subclavian vein independently.

### **ANOMALIES OF BRAIN DEVELOPMENT**

D. Gracheva, V. Krasilnikova – the 2<sup>nd</sup>-year students

Supervisors – Cand.Med.Sc. S.S. Seliverstov, O.I. Katina

These are congenital non-progressive structural deviations from normal brain development that occurs in utero. They can manifest in the form of small changes that are not diagnosed clinically even to gross malformations incompatible with life. The causes for these anomalies are various: disease of the mother during pregnancy, radiation, traumatic injury of a fetus, the exposure of a variety of toxic factors, such as alcohol and many medicinal drugs that have teratogenic effects on a fetus. Malformations of the CNS are the consequence of one or more basic pathological processes that violate the development of the brain: the formation of the neural tube, division of its cranial department to couple formations, migration and differentiation of cellular elements of nervous tissue. They can manifest in three levels: cellular, tissue and organ.

Anencephaly — is an absence of the brain, the bones of the cranial vault and soft tissues covering them. The place of brain matter is usually occupied with connective tissue, with blood vessels, cystic cavities that are lined by medullary epithelium, glial tissue; isolated nerve cells are the remains of the vascular plexus.

Hydranencephaly — is a complete or almost complete absence of cerebral hemispheres with preservation of the bones of the cranial vault and its integumentary tissues. Thus the head is of normal size or slightly enlarged. The cranial cavity is mainly filled with CSF. The medulla and cerebellum are sufficiently developed. Middle brain and other parts of the brain may absent or be represented by a rudimentary.

Microcephaly (syndrome Giacomini) — undevelopment of the brain, manifested at birth with the decrease of its weight and dimensions. Microcephaly is usually associated with reduced head circumference (not less than 5 cm from the averages) and further delay of growth of the cranial (macrocrania). Thus the sutures may remain open for a long time. Its morphological feature is hypoplasia and abnormal structure of the cerebral hemispheres at relatively normal architectonics of the cerebellum and the brain stem. A child with microcephaly usually lags behind in mental and often physical development.

### **FACTORS PROVIDING CALCIUM UTILIZATION IN HUMAN ORGANISM AND ITS ROLE IN NUTRITION OF SUCKLING-CHILDREN**

E. Makarova, A. Damchat, S. Barannikov - the 2<sup>nd</sup>-year students

Supervisors – Cand.Biol.Sc. G.K. Doroshenko, O.I. Katina

The work deals with studying the information about processes of Ca utilization in organism and its role in nutrition of suckling-children.

Calcium is known to be one of the most important minerals for human. It has

some important functions such as structural (defines normal growth and forming of skeleton), enzymatic (coenzyme blood-coagulation factors), signal (intracellular second messenger-intermediary), neuromuscular (controls of excitability, releases of neurotransmitters, initiates muscle contraction), metabolic (takes part in processes of glicogenelisis, glicogenolisis, lipolisis).

The report has valuable information on processes of Ca utilization from organism. Every day 35 millimoles Ca enters the organism with the food. In proximal part of intestines it connects with fatty and bile acids and enters through the portal vein in liver. Calcium outputs from an organism in main part through intestines and less through kidneys.

Process of Ca absorption in intestines is provided by vitamin D, ascorbic acid, lactose. It should be stressed, that availability of Ca for organism is improved by dairy products, animal proteins, vitamin D. But excess fats, caffeine, alcohol, phosphatases, oxalates reduce it. Also Mg and K inhibit the absorption of Ca because they compete with Ca for bile acids.

In suckling-children due to their rapid growth the processes of Ca assimilation occur quite rapidly. Recent researches of the effect of various macro- and micronutrients in the metabolism of Ca showed the relationship dimensions of the human body with the contents of Ca, Zn, I, Fe, vitamins D and A. If a child does not get these nutrients in sufficient quantities in-utero and during the first 2-3 years of life, it will break his growth and development both in childhood and in later life.

The basic idea of report is that without the full receipt of Ca in the body of infants it is impossible to complete the formation of organism in the future. Furthermore the article stressed that the utilization of Ca depends on several micronutrients. The article is of great interest to young doctors.

## **REGENERATION OF FEMALE REPRODUCTIVE SYSTEM**

S. Barannikov – 2<sup>nd</sup>-year student

Supervisors – V.S. Kozlova, O.I. Katina

The research was associated with the study of information about the processes of female reproductive system regeneration.

At present time the study of the problem of female reproductive system regeneration is especially important. One of the most common malignancies in women is cervical cancer. Each year more than half a million of new cases are registered all over the world. According to statistics there are approximately 14-16 of such cases per 100,000 population registered in Russia. It should be noted that this problem is interesting for scientists for many years. At the same time due to the rapid development of biology and stem cell industry, the question still stands in front of investigators worldwide.

The paper describes in detail the anatomical and histological structure of the female reproductive system and physiological processes taking place in it during the menstrual cycle. This knowledge helps to understand how difficult and important the female reproductive system is.

The main idea of the work is that cyclical changes in a woman's body are provided

not only by the five-level hierarchy system (the target organs, ovaries, hypophysis, hypothalamus, cerebral cortex), but also by the processes of physiological regeneration associated with the activity of stem cells. They play an important role in normal physiological processes of the uterus and the ovaries, take part in the reaction of the tissue injury or disease. In addition, stem cells play an important role in the pathology of the reproductive tract. They can cause cancer and endometriosis. The paper is of great interest to newly-qualified doctors.

### **VITAMINS - COENZYMES**

Sh. Azadov, A. Kunga – 2<sup>nd</sup>-year students

Supervisors - Cand.Biol.Sc. G.K. Doroshenko, O.I. Katina

Does our body need the vitamins? According to numerous studies of scientists, great part of population suffers the lack of vitamins. And this is characteristic as for healthy people so as for patients with various diseases.

Lack of vitamins in the body is one of the factors that increase the risk of diabetes and exacerbates its gravity, namely the lack of such vitamins as vitamin B1 (inhibits glucose utilization), B2, B6, and others. Consider the presented vitamins. The presence of vitamin D, C, B6, PP and K is also important because the musculoskeletal apparatus is particularly sensitive to the lack of these vitamins. And in case of their deficiency the processes of normal development of bones and formation of the skeleton will be violated.

Thus, we may assuredly say that the normal functioning of body systems largely depends on the correct balance of vitamins and vitamin dependent biochemical transformations.

### **CLINICAL AND ANATOMICAL VARIANTS OF DENTITION**

. Trebukhova, L. Marushko - the 2<sup>nd</sup>-year students

Supervisors - A.E. Pavlov , O.I. Katina

Today the problem of anomalies of dental system is very urgent. The oral cavity, being the anterior digestive tract, is very difficult way of development. Its studying is important not only for a proper understanding of the structure and function of various organs of the mouth, but it is important for the clinic. Various types of violations during the embryonic development of the field lead to deformities of face, mouth and neck. Surgeon dentist has to deal with them. Formation of the anterior part of the oral cavity and prospective nasal cavity occur between the 4th and 10th week of development. Mandibular appendages are fused together at 5-6-1 week of development. Within 6-7 weeks of embryonic development the formation of hard and soft palate, a separation of primary oral cavity into two departments begins.

Bite anomalies:

An anomaly of occlusion is a deviation from the normal relationship between dental arches of the upper and lower jaws. These deviations can be viewed in three ways:

-sagittal prognathism (distal occlusion) is characterized with mismatch ratio of denti-

tion due to an emergence of the upper teeth or the distal displacement of the mandible.

-progeniya (mesial occlusion) is characterized with mismatch dentition due to an emergence of lower teeth and the mesial displacement of the mandible.

-vertically overbite is a closing of dentition in which the front teeth to a large extent are overlapped by antagonists.

-open bite is characterized by a slit between the teeth in the central occlusion.

-cross bite is characterized by reverse closure of teeth of the right or left half of the bite.

The etiology: congenital structural features of the facial skeleton, child diseases, affecting the development of the skeletal system, inflammation processes, wrong way of artificial feeding, early loss of deciduous molars, shortness of nasal breathing.

Malformations of the palate - a congenital cleft palate (obsolete name- uranochisis). According to the accepted classification of malformations of the palate there are two main forms:

-through palate delitations are unilateral or bilateral;

- non-through palate clefts are divided into full and partial cleft.

Small high palate-hypsistaphylia. This defect is believed to be the result of regular breathing at hypertrophy of pharyngeal tonsil.

Congenital isolated hypoplasia of the soft palate.

Treatment: operation at the age of 6-7 months, 2-3 years, 5-7 years, and orthodontic treatment.

Malformations of the lips

--- congenital cleft of a lip;

--- acheilia –absence of lips. It exists in congenital atresia of the mouth;

--- synchilia-a fusion of lateral parts of the lips leading to a decrease of the mouth slit;

--- brachyilia-short middle part of the upper lip.

Treatment: surgical, rhinoplasty in the newborn child for 1-2 weeks of his life is performed.

These anomalies can develop when chromosomal abnormalities that occurs due to the use of teratogenic drugs, infectious disease, and hormone exposure. The critical period of the hazards correspond to the most active time of the formation of structures of the face and the rudiments of primary and permanent teeth.

## **SUICIDES OF WOMEN**

A. Rusakovich, O. Solodova, E. Geraskina – the 4<sup>th</sup>-year students

Supervisors - N.G. Brush, O.I. Katina

Most women that impose the hands are completely healthy mentally. Women's suicides are different from men's ones by soft ways and defiance.

The main causes of suicidal behavior are: a mental disorder; alcoholism and other forms of drug addiction; religious ideas; isolation, loneliness, loss of support; a suicide in the family; economic problems; problems with the opposite sex; stress and

stress factors; aggression and irritability; physical illness; family reasons.

There are cases when a woman begins to practice on the feelings of close people provoking them to feel a guilt complex. Phone calls, letters, notes, empty packs from the tablets, warning about the place and time of suicide - these are the usual demonstrative behavior of suicides.

Sometimes the only alternative means of helping to suicides is a hospitalization to a psychiatric hospital. Psychologists, psychotherapists or psychiatrists service in outpatient medical health centers.

The main criterion for the treatment and prevention of suicide is the formation of antisuicidal personality factors that subsequently hamper the forming of suicidal behavior or suicidal actions.

Among the famous women are those who attempted suicide and finally did it: Britney Spears, Patty Duke, Halle Berry, and Marilyn Monroe.

### **SURGICAL ASEPSIS**

K. Grichanovskaya – the 1<sup>st</sup>-year student

Supervisors – Cand.Med.Sc. S.V. Zinov'ev, O.I. Katina

Surgical asepsis provides an environment completely free from all microorganisms. This is very important as these microorganisms, if present in the environment, can lead to an infection in the patient.

Surgical asepsis is used in medicine to prevent an infection. Usually, asepsis is used during surgery when a foreign object is being introduced into a patient's body, thereby opening a possible way of transmission for an infection.

For surgical asepsis it is necessary that all the components involved in the procedure were free of all microorganisms.

The main things for asepsis are:

- 1) The proper content of the operating room;
- 2) Sterilization of materials and instruments;
- 3) Preparation of the surgeon and his assistants for the operation;
- 4) Preparation of the patient for the operation.

Equipment used in the procedure must be sterilized. This is accomplished by physical or chemical sterilization. Instruments are sterilized through autoclaving, or if disposable, they are used once. Irrigation is used in the surgical site. Suture material has been sterilized beforehand.

Next, a sterile work area free of all microorganisms must be created. A sterile drape creates a safe field being placed over a tray with sterile instruments. Also, for enhanced protection against microorganisms the patient is covered with a sterile drape.

The procedure room must satisfy specific guidelines and regulations concerning filtering and airflow, and be kept clean between surgeries. A patient who is brought for the procedure should be clean and wear a sterile gown. The surgical site is washed, possibly shaved, and skin is exposed to a germicide. In turn, members of the surgical team wash hands and arms with germicidal solution. Operating surgeons and nurses wear sterile gowns and gloves. Their hair is covered and a surgical mask is worn.

## **REGENERATION OF THE TESTES**

I. Volodina – the 2<sup>nd</sup>-year student

Supervisors – V.S. Kozlova, O.I. Katina

Article deals with the regeneration of the testes.

It is known that reducing power of testicles is weak. Testis is able to make up a part of the parenchyma, lost as a result of a minor injury. In these cases seminiferous epithelium cells, Sertoli cells, and Leydig cells participate in the regeneration body. When removing large areas of the testis or total unilateral castration the restore of the lost body weight does not occur. After considerable resection of the parenchyma of the testis the remaining part undergoes changes that eventually led to the complete atrophy of the spermatogenic cells.

The immune system plays an important part in the regeneration of the testis. The presence of a large number of mast cells in the testicular parenchyma assumes their regulatory role. The positive effect of the inactivation of mast cells in the regenerative processes in the testes may be attributed to the fact that these cells release specific granules containing mediators of inflammation that are able to initiate and maintain the inflammatory response.

Thus, inactivation of mast cells in the testis damage contributes to its reparative regeneration. The study of regeneration processes is necessary in order to prevent the occurrence of diseases in men that have an enormous impact on the male body.

## **RACIAL CHARACTERISTICS OF THE SKULL**

B. Kolesov, I. Volodina – 2<sup>nd</sup>-year students

Supervisors – L.G. Zhrepa, O.I. Katina

The article deals with race historical category. It is characterized by a set of hereditary transmission of morphological traits common to a group of people living in a particular area. Today's races were formed under different conditions, so the skull of representatives of certain races has some differences.

It should be noted that in Caucasians there is a significant protrusion of the nose with a high nose bridge and deep roots, canine holes are deep. Alveolar bone and the front teeth have a direct position. Zygomatic bone contours have not protruded from the overall size of the skull. The shape of the skull is similar with brachycephalic.

The fact that mongoloid skull characterized by a large facial angle as compared to Caucasians, is stressed. Flattening of the nasal and zygomatic bones is noticeable, the latter being set wider. Canine fossa is not clearly expressed. The skull is large. It has a brachycephalic form.

In Australian-blacks facial angle is less. It depends on the oblique position of the alveolar processes and incisors. The nasal bones are flattened, set wide, shallow root of the nose. The shape of the skull is often dolihotsefalic.

Anthropology proved that feature of the human race does not give special advantages in the fight for the life of the individual or the whole race. The article is of great interest to anthropologists.

### **REGENERATION OF THE THYMUS**

M. Kim, B. Kolesov – the 2<sup>nd</sup>-year students

Supervisors – V.S. Kozlova, O.I. Katina

A group of scientists from the University of Edinburgh for the first time managed to create a living organ. Research efforts are aimed at restoring the thymus - an organ located near the heart. It produces important hormones that are part of the immune system. Positive results show the way for new treatments for people with impaired immunity and genetic disorders that affect the development of the thymus.

The team reactivated a natural mechanism finishing the work with age. It rejuvenated the thymus in very old experimental mice.

The method of recovery is the activation of a protein called FOXN1. This compound helps to control the "inclusion" of important genes that control the development of the body. Increasing content FOXN1, the team of scientists was able to restore the thymus cells.

### **THE IMPACT OF COLD ON THE HUMAN RESPIRATORY SYSTEM**

K. Kliachin – the 2<sup>nd</sup>-year student

Supervisors – Assoc.Prof. A.N. Miroshnichenko, O.I. Katina

Due to the harsh climate in the Far East the whole body suffers inevitably. But along with the other functions in most cases it affects the respiratory system.

As a result of the cold there is a qualitative ventilator restructuring: limiting of respiratory volume; increasing the residual lung capacity; decrease in oxygen consumption and efficiency of breath.

The sharp cooling implies a competitive relationship between the protection of the airways from cold injury and the need to strengthening the gas transportation lung function due to the increase of heat production. The result of these changes is morphofunctional restructuring of the respiratory tract directed to adapt to deteriorating conditions of gas exchange.

The disease of the respiratory tract.

Pneumonia is an inflammation of lung tissue, usually of infectious origin mainly affecting the alveoli and interstitial lung tissue.

Every year about 450 million people sick with pneumonia throughout the world. And about 4 million cases are fatal.

Bronchitis is an inflammatory disease. This inflammation affects the mucous membrane of the lungs and bronchial tree.

Elderly people over 50 years old are known to suffer from bronchitis. Men suffer bronchitis 2-3 times more often than women.

## **SYRIAN MISSION**

A. Pushkov, A. Ageev - the 2<sup>nd</sup>-year students  
Supervisors - Cand.Biol.Sc. L.A. Guba, O.I. Katina

In some parameters the Russian air forces may lag behind their advanced Western counterparts. But they definitely can conduct an effective air campaign. So what is their mission in Syria? There, perhaps, are the most significant differences between Russian and American missions. The biggest weakness of the USA and its allies is the lack of compelling forces on earth. Aviation has much to achieve in the capture and retention of territory in alliance with the army. But in the absence of the latter, its effectiveness is limited. For the Russians things are different. Syrian government forces having suffered serious defeats and having lost some of its strength due to desertion probably are not those that used to be. But on a local level they still represent a force that should not be taken into account. With the new Russian equipment and now with the air support they can resist the forces of opposition. Russia does not have an expanded arsenal of recco data collection, owned by the US, but the most part of their targeting will be based on tactical reconnaissance produced by the Syrian units on the ground. This is the key to Russian strategy, namely: to strengthen the Assad regime, to take off the pressure from the pain points and to gain the promise that its ally will be included in any further diplomatic agreement. To achieve this – and this is seen in the first Russian airstrikes, Moscow will hit any opponents of the Syrian regime, wherever they may be. Russian aviation is in Syria not to crush opposition forces and help Assad to regain control of a considerable territory that he has lost. It is there to gain time for Assad and change rates in regional and the diplomatic game. And to achieve this goal the presence of the Russian air force may be a decisive factor.

The blows of the Russian air force

As reported in the Ministry of Defense of the Russian Federation, in the first day of operation the aircraft made over 20 sorties and had pinpoint strikes on eight objects of ISIL. As a result of air strikes stock of ammunition stores, weapons, fuel and lubricants, the accumulation of military equipment were struck. Command posts of managing the forces of ISIL militants in a mountainous area were completely destroyed. In addition, the SU-25 attack aircraft struck the field camp of ISIL militants in the district of Maaret Al-Nu'man, Idlib province. The Kremlin claimed that Russia strikes the location of specific extremist groups in Syria. According to the President's press Secretary Dmitry Peskov, these objectives are defined in coordination with the Syrian army.

## **ZAKHARYN-HEAD'S ZONE**

A. Pushkov – the 2<sup>nd</sup>-year student  
Supervisors – Cand.Med.Sc. S.S. Seliverstov, O.I. Katina

Nature has given us a unique ability to diagnose existing health problems and disorders in the organism on special signs located all over our body. There are special zones distributed over the skin surface, muscles, ligaments, pulse, eyes, shape and

color of the tongue, sensitivity of the periosteum, etc. They are called the zones of conformity. They are used to diagnose the condition of the patient. For the corresponding zones it is possible to monitor the progress of treatment and, if necessary, correct it. When properly selected treatment, a zone of compliance is reduced in area and their pain sensitivity decreases. A doctor should pay attention to the condition of these zones and then he will know everything that is actually happening with the patient. This method has long been used by folk healers and herbalists. They entrusted this knowledge from generation to generation. In the process of evolution some part of information was lost, some was re-opened, and something was improved. There was new knowledge based on practical experience. In 1889 G. A. Zakharyin (Russian Clinician scientist, 1829-1897) was the first who described and evaluated diagnostic significance of areas of increased hypersensitivity. In 1896 the Englishman Head (English neurologist N. Head, 1861-1940) found that when the disease of internal organs, the sensitivity of certain skin areas increased. Areas of correspondence were called the zones of Zakharyin-Head. Eastern medicine has complemented the old Slavonic therapy of belly and perfected the system of diagnosing the internal organs in the corresponding zones. Zakharyin — Head's zones are certain areas of the skin where reflected pain and increased sensitivity (hyperesthesia) appear in the disease of the internal organs. The occurrence of these zones is explained by the fact that the excitation of pain comes from internal affected organs along the autonomic nervous fibers in the spinal cord. From there they radiate into the corresponding innervation zones. Head revealed the exact ratios between internal organs and root skin innervation. For the detection of Head's zones one can use the following methods: by touching the skin of the patient with the head pins (just touch a pin area of Head's zone and pain occurs) or swab with warm water (the sensation of pain and burning appears only in Head's zone). Determination of areas of pain and hyperesthesia and comparison of their boundaries according to the Head's zone in some cases may help to establish the affection of one or another internal organ. The determination of Head's zones (especially in the torso area) often has diagnostic value. Increase or decrease of pain and hypersensitivity contributes to the solution of the question of deterioration or improvement of the disease.

#### **CLINICOANATOMIC FEATURES OF THE INTERNAL BASIS OF A SKULL OF NEWBORNS**

O. Miroshkina, A. Shatalova – the 2<sup>nd</sup>-year students  
Supervisors – A.E. Pavlova, O.I. Katina

In a newborn the internal basis of a skull is elongated due to anterior and posterior parts of a fossa. Bone sulci are flattened. There are wide cartilaginous plates between bones. The anterior cranial fossa - its middle part is presented by a cribrate plate of an ethmoid bone. It is rather big.

The cock's comb is presented by cartilaginous tissue. Orbital parts of frontal bones are thin. Middle cranial fossa is rather wide due to more horizontal position of big wings of a sphenoid bone and scales of a temporal bone. There is a fissura petrosquamosa between scales and a pyramid of a temporal bone.

The Turkish saddle is flat and wide - from 8-10 mm, the back is presented by a cartilaginous plate. There is no hypophysial fossa. In this place there is often an opening leading to blind deepening - a trace of the cranial and pharyngeal channel. The posterior cranial fossa is extended and superficial. The occipital bone consists of four parts: the main scales and lateral right and left one that are divided by wide cartilaginous layers.

Thus the incomplete and uneven growth of separate bones results in specific features of the basis of a skull.

### **3D-ROTATIONAL CORONARY ANGIOGRAPHY IN THE DIAGNOSIS OF CORONARY HEART DISEASE**

M. Lapteva – the 4<sup>th</sup> year student

A. Votyakov, V. Bashnyak - the 3<sup>rd</sup>-year students

Supervisors – Prof. G.N. Marushenko, O.I. Katina

Despite significant advances in the diagnosis and treatment of coronary heart disease, the disease remains to be the leading cause of death and disability in the working population in developed countries. With the rapid development of non-invasive methods of diagnosis of coronary heart disease selective coronary angiography, as the "gold standard", still occupies a leading place in the structure of all diagnostic procedures.

To reduce the risk of contrast-induced nephropathy during angiography, minimizing the dose of radiation exposure to the patient and medical staff, as well as the volume of contrast agent administered to a patient, the University of Colorado developed the newest kind of rotational angiography. During the 3D-rotational angiography decrease in the amount of contrast agent injected in 42%, reduced radiation exposure in 55% and reducing the time of the procedure in 31% was marked. It uses a high-speed method of isocentric C-arm rotation during one session of receiving video. Rotation images can then be analyzed in more detail that potentially gives much more information to specialist for the coronary arteries if compared with the images obtained by standard angiography.

In recent years, the method of 3D-rotational angiography is increasingly being used in clinical practice in foreign countries. In Russia there are no publications devoted to the 3D-rotational coronary angiography. 3D-rotational angiography of the coronary arteries with a double axis of rotation allows studying coronary arteries with the same efficiency, but with greater safety for patients by reducing the amount of injected contrast agent and the time of the procedure, as well as reducing the level of radiation exposure.

### **CORONARY ARTERY ATHEROSCLEROSIS IN ACUTE ISCHEMIC HEART DISEASE**

A. Votyakov, V. Bashnyak - the 3<sup>rd</sup>-year students

Supervisors – Cand.Med.S . N.V. Menshikova, O.I. Katina

Currently, clinicians and pathologists are interested in coronary atherosclerosis (CA)

due to a huge growth of the incidence of coronary heart disease, increased mortality from myocardial infarction among young and working age people in recent years.

There are identified more than 200 causes of coronary artery atherosclerosis. The main ones are: hypertension, high cholesterol, smoking, diabetes, sedentary lifestyle, obesity. Currently, to study the ischemic heart disease pathomorphology multiple assessments of coronary artery atherosclerosis were performed with visual planimetric method. Ratio of ischemic heart disease is approximately 21% of autopsies, including acute coronary insufficiency - 22%, myocardial infarction (MI) - 26%. Comparative analysis of the obtained results with those of similar studies conducted 40 years ago showed a significant dynamics in the incidence and prevalence of atherosclerosis in population of the country in the form of increasing the frequency and area of complicated lesions and calcifications. The frequency of coronary artery stenosis has increased in young patients. If 30 years ago persons under 50 years almost didn't suffer SC stenosis, now SC stenosis and myocardial infarction have been diagnosed in them since the age of 30. The frequency of stenosis for a 40-year period increased in 3-4 times.

Pathology of ischemic heart disease at the postmortem studies was presented mostly as acute and reinfarction, whereas in forensic ones - acute coronary insufficiency. Myocardial infarction often localized in the anterior, anterolateral and anteriorseptula walls of the left ventricle that corresponded to the primary lesion of the atherosclerotic process of the descending branch of the left coronary artery. This requires the development and implementation of effective preventive measures.

#### **NEW SOURCES OF LOW DOSES OF RADIATION: RESULTS OF DEVELOPMENT OF DIAGNOSTIC AND THERAPEUTIC RADIOLOGY**

V. Bashnyak, A. Votyakov - the 3<sup>rd</sup>-year students  
Supervisors – Prof. N.V. Korshunova, O.I. Katina

Ambiguity of views about the effects of "small" doses of radiation is one of the key problems of modern radiobiology. Improvement of the medical equipment, the emergence of new methods of diagnosis and treatment is accompanied by increased radiation exposure to the patient and staff.

At this point 1.5 - 2% of malignant neoplasms occur due to the use of computed tomography in the diagnosis of diseases. The resulting radiation dose ranged from 2 mSv (at routine CT of the brain) to 31 mSv (at multiphase scanning of the abdomen or pelvis). Attributable risk of cancer depends on the CT type, the age and sex of the patient. 1 of 270 women who underwent coronary angiography computer at the age of 40, is expected to develop cancer due to this study (1 600 for men). For 20-year patients the risk doubled, while for a 60-year it was 50% lower. The radiation dose also depends on the volume of the tissue. The risk of cancer induction in the CT study of the spine is 1 in 1,800 people, but the lumbar part - 1 in 3200. In order to minimize risk to the patient the active work on the development of methods and protocols for reducing the radiation exposure to the patient without loss of diagnostic accuracy is done. The use of multislice computer tomography, new algorithms, such as a reduction in the voltage of the tube, and ECG dose modulation al-

lows to perform a low-dose CT examination.

Medical diagnostic procedures result in an additional 20 mSv cumulative effective doses per year. This leads to increased risk of cancer in patients. Due to the increase in the number of diagnostic procedures performed to children the risk of radiation-induced solid cancers and leukemia increases. Radiation carcinogenesis is a stochastic effect characterized by dependence on the dose, the volume of the tissue, the age and sex of the patient. Accurate dosimeter data allow to calculate the lifetime attributable risk of radiation-induced cancer.

### **MECHANISM OF NOOTROPICS EFFECT**

E. Velchenko - the 4<sup>th</sup>-year student

Supervisors – Cand.Med. Sc. R.A. Anokhina, O.I. Katina

Nootropic drugs are preparations having activating effects on cerebral metabolism and higher mental functions. They are characterized by metabolic and neurotrophic effect. It causes the process of improvement of the oxidation-reduction reactions, decreases the aggressive actions of lipid peroxidation (LPO), and has a positive effect on neurotransmission.

As a result of numerous clinical and experimental studies the main mechanisms of action of neuroprotective drugs were identified:

- Accelerated penetration of glucose through the blood-brain barrier and increase of assimilation of it by brain cells, especially in the cerebral cortex.
- Amplification of cholinergic impulses in the central nervous system (CNS).
- Increased synthesis of phospholipids and proteins in the nerve cells and erythrocytes (stabilization of cell membranes), the normalization of the properties of liquid membranes.
- The inhibition of lysosomal enzymes and removal of free radicals.
- Activation of cerebral microcirculation by improving the deformability of erythrocytes and the prevention of platelet aggregation.
- Improved cortical-subcortical interaction.
- Normalization of neurotransmitter disorders.
- Activating effect on the higher mental functions (memory, learning ability, etc.)
- Improvement of reparative processes in the brain lesions of various origins.

Nootropic drugs can be used both by patients with different pathologies of the CNS and in healthy people with fatigue, with natural aging, as well as in emergency situations.

### **OXIDATIVE STRESS AND MAGNESIUM METABOLISM AT THE PREGNANT WOMEN WITH DIABETES MELLITUS**

L. Rustamova, A. Votyakov - the 3<sup>rd</sup>-year students

Supervisors – Cand.Med.S . V.A. Maksimenko, O.I. Katina

Series of domestic and foreign studies have shown that the violation of magnesium metabolism manifesting in the form of deficiency is an important component

of formation of myocardial ischemia, hypertension and diabetes. In recent decades a consistent tendency to increasing in the number of patients with diabetes mellitus (DM), especially due to type 2 diabetes is marked. Therefore, the studied indicators of the level of magnesium and antiradical activity of blood serum of women with different types of diabetes both out and in the course of pregnancy and comparison to healthy women are an important issue today.

Magnesium is known to stimulate insulin secretion together with calcium. The enzyme providing transmembrane insulin receptor activity can act only in the presence of  $Mg^{2+}$ . When pregnancy, the need in insulin increases due to the increase of the levels of contrisular hormones. There is a big loss of magnesium ions, potassium, phosphorus and others because of glycosuria. Lack of  $Mg^{2+}$  causes decrease in the production of insulin by the pancreas. There were many studies of the level of magnesium and anti-radical activity (ARA) in the serum of women with diabetes mellitus type 1 and 2, out and in the course of pregnancy, compared to healthy women. Comparative analysis of APA (mM) and Mg levels (mmol / L) in the serum of pregnant women and patients with diabetes showed a strong positive correlation between the ARA indices and the magnesium levels in diabetes compensation ( $r = 0.5$ ). And a strong direct correlation between APA and the level of magnesium in the blood serum of decompensation of diabetes ( $r = 0.8$ ) was found.

Thus, diabetes is accompanied by hypomagnesemia that correlates with the degree of compensation of diabetes and is confirmed by highly significant correlation between the ARA indicators and levels of magnesium in the blood. Severe hypomagnesemia is diagnosed as in non-pregnant so as in throughout pregnancy in women with diabetes of all types. It as well as is accompanied by the development of oxidative stress. Pregnant women with diabetes need to use the drugs of magnesium.

### **TRAINING STANDS AS VISUAL AID IN THE STUDY OF TOPOGRAPHIC ANATOMY**

Yu. Krasnopeev – the 3<sup>rd</sup>-year student

Supervisors – Cand.Med.Sc. S.I. Piskun, O.I. Katina

We have developed training stands that helps to assess the knowledge and practice in the study of different units of topographic anatomy. The content of the stand is matched due to the curriculum.

We have produced two models of training stands. The first stand is on the topic: cranial nerves and the point of exit from the cranial cavity. The second one – is topography of the retroperitoneal space.

The principle of operation.

With the correct mapping of the organ on the table and its name in the list with the help of conductive contacts, the signal lamp lights up. If a student has combined the objects incorrectly – there is no signal. These stands are easy to use. They require connection to the mains.

**DAIRY PRODUCTS IN THE DIET OF STUDENTS OF THE AMUR REGION AND METHOD OF IDENTIFYING RISK FOR GASTROINTESTINAL DISEASES**

A. Suvorova, Yu. Krasnopeev – the 3<sup>rd</sup>-year students  
Supervisors – Prof. G.I. Chubenko, O.I. Katina

The article presents information about the characteristics of dietary intake of medical students and the questionnaires, as a method of preliminary evaluation of their health status. The authors developed a questionnaire and conducted the analysis of the data. One hundred forty-six questionnaires of the second and third year students of Medical Academy were analyzed. The survey noted that 99.3% of students consumed dairy products in their diet. Preference is given to products of industrial production (89.7 per cent) made in the Amur region. Sour dairy products are used by students 1.2 times more often in comparison with dairy ones. Dyspepsia is noted in 93.1% of respondents. 21.9% of them associate these disorders with the consumption of dairy products.

**THE CONTRIBUTION OF GEORGE E. OSTROVERKHOV IN CLINICAL ANATOMY AND OPERATIVE SURGERY**

Yu. Krasnopeev, T. Trifonova - the 3<sup>rd</sup>-year students  
Supervisors – Cand.Med.Sc. S.I. Piskun, O.I. Katina

George E. Ostroverkhov (1904-1990) — a prominent Soviet scientist in the field of clinical anatomy and experimental surgery, correspondent member of AMS USSR (1967), honored scientist of the RSFSR (1965), Professor.

He was born August 17, 1904 in a peasant family in the village of Dergachi, Kharkov province. After graduating from the Kharkov medical Institute in 1928 he was called up for military service, which was held at the Black sea Navy. After demobilization, he was sent to Northern Sakhalin where he worked as chief physician of the hospital and head of the surgical Department of the city of Okha for four years (from 1930 to 1934). In the next seven years he studied in graduate school and worked at the Department of hospital surgery of the 1st Moscow medical Institute under the guidance of an outstanding Russian surgeon P. A. Herzen that enormously influenced the formation of Ostroverhov as a surgeon and scientist.

In 1949 he defended his doctoral thesis in the field of topographic anatomy on the theme "Experience of surgical treatment of gunshot injuries of peripheral nerves".

From 1950 to 1954 he was the rector of the Kursk state medical Institute and the head of the Department of operative surgery and topographic anatomy: under his leadership post-war reconstruction of many buildings and dormitories of the Institute was carried out, sports facilities were developed. Ostroverhov gained the foundation of the first scientific Council of the KSMI for the defense of theses on competition of scientific degrees.

In 1954-1956 he was the head of the Main Department of educational institutions of the USSR Ministry of health, member of the Board of the USSR Ministry of

health. Since 1956 he worked in the 2nd Moscow medical Institute, where he occupied first the post of Professor and from 1957 to 1976— the head of the Department of operative surgery and topographic anatomy. At the same time from 1959 to 1971 he was chief editor of the publishing house "Medicine". For many years he was Deputy academician-Secretary of the Department of clinical medicine of AMS of the USSR, member of the Board of the all-Union society of surgeons and the Surgical society of Moscow. He took taken an active part in the work of the editorial Board of the journal "Surgery". He was awarded with medals of the Red Star, the Red Banner of Labor and others. He died January 11, 1990 in Moscow.

He was the author of over 250 scientific papers on various aspects of surgery, clinical anatomy and medical education, including 8 monographs.

His main works are:

Experience of surgical treatment of gunshot injuries of peripheral nerves. Thesis 1948 Restorative operations at damages of the nerve trunks of the extremities, 1952 Transumbilically pantogematogena, 1969

Long regional intra-arterial chemotherapy of malignant tumors, 1970, Nerve degeneration of the lungs, 1971, (jointly with E. M. Kogan).

Operative surgery and topographic anatomy, 1972 (with others.)

“Lectures on operative surgery”, several training tables in topographic anatomy, 8 educational films were recorded for demonstrations in lectures.

#### **HEPATITIS NEITHER A NOR G – TTV**

S. Ondar - 5<sup>th</sup>-year student

Supervisors – K.P. Soldatkin, O.I. Katina

Viral hepatitis V (transfusion transmitted virus) – post-transfusion hepatitis. It was opened in 1997.

Etiology:

TTV belongs to the family Circoviridae. The virion is particle without membrane 30-50 nm in size consisting of single-stranded ring-shaped DNA structures containing 3852 nucleotides. There is hyper-variable and conserved area of DNA of the virus. There are up to 16 genotypes and several subtypes of the virus. Genotypes G1a and G1b are isolated more frequently. The same patient can be detected multiple genotypes of TTV. It is associated either with polyinfection with this virus, or with mutations occurring in the DNA of the virus.

TTV is found most often among the general population in Africa (44-83 % of patients). Group of risk of TTV infection is for drug addicts, prostitutes, homosexuals; hemophiliacs and patients on chronic hemodialysis, i.e. persons who are at increased risk of infection with viral hepatitis with parenteral and sexual ways of transmission. The virus also can be transmitted through fecal-oral mechanism. TTV is detected in the blood of domestic animals (dogs, cats) and some farm animals (oxen, pigs, chickens, sheep) and milk.

Pathogenesis:

In patients with post-transfusion hepatitis neither A nor G and the falling titers of TT virus have been associated with an increase and a decrease in the activity of

ALT and AST. With the normalization of activity of aminotransferases TT virus was not detected. A long persistence of TTV DNA (for 22 years) without biochemical and morphological changes in the functions and structure of the liver was revealed. The cases of occurrence of TTV DNA in patients, its persistence and its further disappearance were also confirmed.

Clinical picture: The incubation period lasts from 8-11 weeks.

Patients with fulminant hepatitis and liver cirrhosis of unspecified etiology have high frequency of TTV detection. However, numerous further studies have not revealed any clinical features of hepatitis depending on the detection of TTV. So the etiological role of TT virus in the development of acute and chronic hepatitis, cirrhosis and primary hepatoma needs further study.

The main method of detecting TTV is polymerase chain reaction. The use of drugs of interferon series allows to eliminate TTV. The direct correlation between the disappearance of TTV DNA and viral load before the start of interferon was found.

Preventive measures are the same as in other hepatitis.

#### **THE USE OF MOMETASONE FUROATE IN PATIENTS WITH BRONCHIAL ASTHMA FROM FLOODED AREAS OF THE AMUR REGION**

M. Krichko, S. Ondar - 5<sup>th</sup>-year students

Supervisors – Can.Med.Sc., Assoc.Prof. E.L. Lazutkina, O.I.Katina

The aim of the study: the study efficacy of mometasone furoate in patients with bronchial asthma with micogenous sensitization.

Materials and methods: 25 case histories of patients treated in the Pulmonary Department of the Amur Regional Clinical Hospital and 12 outpatients were examined. The patients' age was 34 to 72 years (average age was  $46 \pm 2.7$  years). Exacerbation of asthma in all cases was associated with living in damp areas due to the flooding. All patients of the experimental group received basic therapy with mometasone furoate in a dose equivalent to severity.

When diagnosing the peculiarity of the Allergy tests with all standards allergens were taken. And skin prick tests with fungal allergens were conducted.

Results and conclusions: The specificity of the sensitization to various allergens in bronchial asthma in residents from flooded areas of the Amur Region, where misogynous form predominated, was established. A clear tendency of increasing the number of patients with allergy to pathogenic molds, suffering from severe bronchial asthma was marked. In patients with bronchial astmoys misogynous sensitization IgE levels in the serum of patients was significantly higher than in the sensitization to other allergens. The degree of bronchial obstruction, according spirometry, in patients of the main group was significantly higher. MF was superior to other inhaled corticosteroids in improving all indicators FVD SCHFV1: peak expiratory flow, forced vital capacity and instantaneous volume expiratory flow at the level of 25-27%. MF was more effective than others in reducing the consumption of KDBA. MF more effectively reduced the severity of the morning feeling of dyspnea by assessment of patients. The frequency of side effects was comparable in all EGCS

groups.

### **AVIATION ACCIDENT. HOW TO SERVIVE?**

V. Lutsuk, A. Barabash - the 2<sup>nd</sup>-year students  
Supervisors - Cand.Biol.Sc. L.A. Guba, O.I. Katina

An aviation accident is defined by the Convention on International Civil Aviation Annex 13 as an occurrence associated with the operation of an aircraft, which takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, where a person is fatally or seriously injured, the aircraft sustains damage or structural failure or the aircraft is missing or is completely inaccessible.

According to statistics, the plane is the safest form of transport. Many people will never trust their life to winged car. They are easy to understand: the crash actually occurs and in some of them it is impossible to survive. However, such cases are still rare, and according to statistics, about 90% passengers of the total number of people involved in plane crashes survive. Chances of survival can be improved by taking a few precautions.

### **GENERAL REGENERATION**

A. Damchat – 2<sup>nd</sup>-year student  
Supervisors – V.S. Kozlova, O.I. Katina

The work is dedicated to the study of general information about the processes of regeneration.

Scientists have been working for a long time on the problem of regeneration, one of the most exciting in biology and medicine. Its general patterns in humans and animals have been disclosed by the end of the last century. The interest for a deeper comprehension of the secret burst out 30-40 years ago. Particularly intensive research widely entered the biology.

The subject of regeneration (especially reparative) is very relevant in our time. Knowledge of the mechanisms of regulation of the regenerative capacity of organs and tissues gives prospects for the development of scientific bases of stimulation and control of the recovery process.

The problem of regeneration has paramount importance for medicine, especially for reconstructive surgery.

In the 50-s of the twentieth century there was an intensive study of regenerative processes in mammals. Studies of our scientists M.A.Vorontsova and L.D.Liozner, their numerous students and followers convincingly demonstrated the presence of high regenerative properties in mammals. An outstanding Russian scientist N.V.Lazarev discovered principle possibility of stimulation in regeneration using drugs (purine and pyrimidine derivatives) and created pharmacology regeneration. These findings coincided in time with the beginning of the rapid development of modern surgery.

Currently, the interest of biologists and physicians to the study of regenerative

processes in the human body and the possibilities of their regulation have been steadily increasing.

### **FIRST AID TO THE CHEMICAL ACCIDENT AT THE SPACEPORT "EAST"**

T. Khlebnicova, Y. Nikolaenko – the 2<sup>nd</sup>-year students  
Supervisors – E.A. Vanina

Current and future missile carriers, have considerable weight and high power. They have significant reserves of toxic components of rocket fuel (unsymmetrical dimethyl hydrazine, kerosene, heptyl, hydrazine, nitrogen tetroxide, inhibited, etc.) They are extensively pollute near surface atmosphere. Toxic fuel components pose a real threat to people and the environment. This is important in areas of startup areas falling stages of launch vehicles, as well as during emergencies, liquidation and disposal of missiles.

ombustion products and thermal energy appear after launch of rockets. It is harmful for the atmosphere and Earth's surface.

When you provide first medical care in the lesion of chemical contamination, you should at first to carry out those activities that will save the lives of the affected.

Clinical manifestations of lesions are:

1. The phenomena of irritation are cough, scratchy or sore throat, watery eyes and pain in the eyes, chest pain, headache;
2. The rise and development of the phenomena of the central nervous system (CNS) are headache, dizziness, feeling of intoxication and fear, nausea, vomiting, euphoria, incoordination, drowsiness, lethargy, apathy, etc.

First aid should be provided as soon as possible and be to:

1. Equip the victim on a gas mask, holding a partial sanitizing of public areas of the body and clothing, adjacent to the open parts of the body;
2. The use of respiratory protection, in the absence of the mask, available tools (pieces of cloth, towels and other materials), moistened with a solution of baking soda;
3. The introduction of the antipode (antidotes);
4. The removal of (export) of the affected area of the infection;
5. To conduct, if necessary, artificial respiration and chest compression on the non-infected areas;
6. First aid in the presence of the chemical chamber;
7. Delivery of the victim to the nearest medical facility.

### **STOMACH. STOMACH ULCER**

B. Chernyy, D. Orlova - the 2<sup>nd</sup>-year students  
Supervisors – V.S. Kozlova , O.I. Katina

The stomach - is a hollow muscular organ of the digestive tract that lies between the esophagus and duodenum.

The wall of the stomach consists of the following layers:

- I. Mucosa.
- II. Submucosal layer.
- III. The muscular coat.
- IV. Serous membrane.

The mission of a stomach is to ensure the formation of stomach juice, i.e. the chemical reaction of the digestive clot.

The functions of the stomach: the accumulation of food supply, its machining and passing into the intestine; chemical of food mass via gastric juice; absorption of a number of substances (water, salt, sugar, etc.); excretory (amplified in renal failure); protective (bactericidal) - by hydrochloric acid; endocrine – producing of a number of hormones and biologically active substances;

There is food accumulation in the stomach after its passing through the esophagus. And the first stages of digestion occur when solid components of the food become a liquid or pasty mixture.

Gastric ulcer - a local defect in the gastric mucosa (sometimes with the capture of submucosal layer) formed by the action of hydrochloric acid, pepsin and bile and provoking trophic disorders on this site.

Peptic ulcer disease is characterized by recurrent course, i.e. alternating periods of exacerbation (often in spring or autumn) and periods of remission. Unlike erosion (mucosal surface defect), the ulcer heals with scarring.

At present it is proved that the ulcer occurs due to infection by such bacteria as a - *Helicobacter pylori* (75% of cases). This is spiral bacteria that adapts to an aggressive environment of the stomach, and is able to neutralize the acid which is in the stomach. Due to the metabolic products of bacteria cells of gastric mucosa die. It leads to the development of ulcers.

The causes of stomach ulcers are typically frequent stresses that strain the human nervous system, which in its turn causes spasms of muscle and all blood vessels in the gastrointestinal tract.

But the main cause of stomach ulcers is still an imbalance that occurs between the protective mechanisms of the stomach and aggressive factors. It occurs as following, mucus that is secreted by the stomach cannot cope with enzymes and hydrochloric acid.

## **PHYSIOLOGICOL ROLE OF PHEROMONES**

D. Orlova, B. Chernyy- the 2<sup>nd</sup>-year students

Supervisors – Cand.Med.Sc. G.E. Cherbikova , O.I. Katina

Pheromones (Greek. Fero - to carry, hormao - encourage) - biologically active substances that are released by animals into the environment in very small amounts. They specifically affect the behavior and physiological state of other individuals of the same species. By their chemical nature pheromones are steroids, acids, aldehydes, alcohols, peptides or mixtures of these substances. They have a small molecular weight and possess good volatility. For example, androstenone - the substance of steroid origin, is structurally similar to the male sex hormone of human. The higher the kind is on the evolutionary scale, the more diverse its sexual behavior is. In

mammals with their developed nervous system chemical signal often is not an order, and information for reflexion. At the same pheromone several alternative reactions can be developed. And one of them, an optimum one, and animal chooses depending on specific circumstances.

It also has concern with us we have too complex organization to uniquely respond to pheromones or just the smell of the opposite sex, though attractive, not mentioning the moral and social constraints of our natural desires. In addition, the biological role of human pheromones, that include odorous secretions of skin glands and the volatiles sexual secretions, is not well understood.

Many experiments were made to define how the substance suspected as pheromones affect the human condition. For example, US researchers investigated the effects of odor of two hormones (androgens and estrogens derivatives) on men and women.

The most significant example of the pheromones action, not related to sexual behavior, is the finding of mother's breast by newborn. Studies show that the mother's nipples secrete substances that help the baby to move in the right direction. A huge number of studies demonstrate that the behavior and physiological processes of the human are impacted by substances defined as pheromones.

### **FREUD'S THEORY**

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The structure of personality in Freud's theory consists of three parts: "It", "I" and "Super-ego". These parts are in constant interaction. "It" by Freud's theory is all the bad things that happened to a man in the past and that he is not aware. "Ego" in the structure of Freud's personality is how a person perceives himself and his behavior. "Superego" is as a person has by the people around: family, teachers, friends and all those with whom we associate ourselves, and who are important to us. These are so-called norms of society.

Let's suppose you come to the canteen to buy a cake. But suddenly you find out that did not bring money. If only we were conquered by "It", we would not hesitate to run to the pies and to force him away from the saleswoman. If only we conquer, "superego," then we would not wanted to eat at all. What for? It is important to respect the rules of society. Therefore, we would simply starve to death. It turns out that the "ego" in Freud's theory of personality is a kind of focal point of our behavior. "Ego" hinders our animal desires of "It", using the "superego." Thus, in theory of Freud there is constant struggle between "It" and "superego". "Ego" constantly tries to use this struggle that we would be satisfied and would not violate the social norms. Everything is quite simple and clear.

Libido and martido – are two instincts in Freud's theory that must be constantly met. Libido - a manifestation of sexual desire. Libido is not always directed to a certain object. It happens so that it is directed at him - selfishness or narcissism. Libido can be directed at children (parental love), or at all the people on earth - humanity. Mortido – is the desire to destroy everything around. Hidden mortido desire

is in each of us. A striking example of morbid is terror and everything that it involves.

### **LESION OF THE EYE AT FILARIASIS**

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Supervisors - K. P. Soldatkin, O.I. Katina

Filariases - Biohelminthiasis caused by round helminthes of the family Filariidae. It is characterized by transmissive way, slow development and of prolonged chronic course of disease. It is widely spread in Africa and America.

Onchocerciasis. The disease is caused by *Onchocerca volvulus*. It is filamentous nematode milk-white, with annular thickenings. The final host is a person, carrier - midges of the family Simuliidae.

Adults have the impact in the subcutaneous tissue and the superficial layers of the skin. The incubation period is 12 months. Development of onchocercose dermatitis: fever, itching, hyperpigmentation of the skin, scratching. Formation of onchocerca – hard, painless and movable nodules. Lymphadenopathy develops. The lesion of organs of vision: lachrymation, pain in eyes, photophobia, blepharospasm, hyperemia, edema and pigmentation conjunctiva. The cornea loses its sensitivity, gloss and transparency (point and sclerotic keratitis). There are corneal ulcers, cysts, keratomalacia. Iritis and iridocyclitis develop. The shape of the pupil (pear-shaped) changes. The lens becomes cloudy and shifting. There is the development of cataract and secondary glaucoma, horioretinitis, sclerosis of vessels of eye, optic nerve atrophy, decreased visual acuity and blindness.

Loasis. The disease is caused by nematode *Loa Loa* - white, translucent threadlike filaria, cuticle is covered with rounded protrusions. The final host is a man. Carriers are horseflies of the genus Chrysops.

The incubation period is up to several years. Allergic reactions: urticaria, fever, pains in the limbs, itching and burning. Calabar swelling (painless, pale, dense, tense, movable). Eye lesion: pain, swelling of eyelids, hyperemia conjunctiva, retinal edema, hemorrhage in the retina, swelling of the optic nerve, paresis of the oculomotor nerve nuclei, further on - blindness.

Mansonelliasis. The disease is caused by *Mansonella perstans*. Final host is a person, carrier - biting midges of the genus Culicoides. There are itchy papular rash on skin, redness and swelling in different parts, pain in bones and joints. Fever. Eye lesion: Calabar swelling, iritis, keratitis, conjunctivitis.

Subcutaneous dirofilariasis. The disease is caused by *Dirofilaria repens* - thin thread-like nematode of white color, the body is covered with ridge-like thickenings, and cross-striations. Agents are - infected dogs, cats, wild animals. Carriers - mosquitoes of the genera Culex, Aedes.

The incubation period is of 2 weeks to 6 months. Nodule up to 2 cm is formed under the skin. It moves. There is the feeling of wiggling and crawling inside of the nodule. There is itching, redness of the skin over the nodule, pain on palpation. Lymphadenitis develops. Eye lesion: lacrimation, blepharospasm, hyperemia of the eyelids, decreased visual acuity, retinal detachment, proptosis, limited mobility of the eyeball,

feeling of a foreign body in the eye.

Despite the fact that these diseases are registered in the countries of Africa and America, the rapid development of tourism and the improvement of relations between countries does not exclude the occurrence of diseases in the Amur region.

### **CASE OF HEMORRHAGIC ALVEOLITIS OF SYSTEMIC LUPUS ERYTHEMATOSUS**

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Supervisors – Cand.Med.Sc. M.V. Pogrebnyaya, Cand.Med.Sc. S.A. Goryacheva

Systemic diseases of connective tissue (SDCT) - are a heterogeneous group of a different diseases that are accompanied by a variety of changes inherent in cellular and humoral immune response and combines with autoimmune phenomena. More than half patients have changes in lungs (that) involve pulmonary tissue in many variations. We present a clinical case of hemorrhagic alveolitis in the debut of systemic lupus erythematosus of patient B., 28 years old, who has been transferred to the rheumatology unit 31.03.2015. The patient complained of dyspnea, dry cough in the evening and at night, pain in the joints of hands and in talocrural joints, raising the temperature to 37.6 C. In February 2015 there were swellings on the face, legs, raising the temperature to 39 C. In March joined pain in the joints of the hands, knee and talocrural. In March 30 deteriorated in the form of intense dyspnea, cough, blood in the sputum, pain in the heart. Patient has been transferred to the hospital 1, which was diagnosed severe anemia, than was once transfused packed red blood cells and intravenous injections of the potassium and magnesium. Precipitating factors of this disease haven't been identified from the history of life. External examination: fair condition, consciousness is clear. Skin is pale; there is purpura on the legs. Dry cough, respiratory depression in the middle and lower parts of the lungs, dyspnea at rest. BR-21/min. Heart sounds are muffled, rhythmic. HR-100/min. AP 100/70 mm.hg. Abdomen is soft and painless. Swelling all over the body.

DS: SLE, acute during, activity 3, joint disease (arthritis), lung diseases (hemorrhagic alveolitis, pneumonitis), Kidneys diseases (lupus nephritis with minimal urinary syndrome, glomerulonephritis), vessels (hemorrhagic vasculitis). Diagnosis exposed on the basis of the following syndromes: articular, bronchopulmonary, bladder, intoxication, secondary immune deficiency, heart deficiency, and anemia. Pulse therapy conducted with methylprednisolone 1000 mg 1, two sessions cascade plasma filtration, symptomatic therapy. After the conducted treatment phenomenon of hemorrhagic vasculitis, minimal urinary syndrome, moderate anemia, low-grade fever had been saved.

In the present case, the patient against a high clinical and laboratory activity SLE developed acute lung damage, manifesting itself by acute respiratory failure, hemoptysis, increasing anemia, X-ray picture of bilateral interstitial and alveolar damage the pulmonary tissue. Acute lung parenchymal lesion with hemorrhagic syndrome is a rare but prognostically unfavorable complication of SLE. If you suspect it, you should be carried out differential diagnosis of pneumonia, aspiration, throm-

boembolic complications, which are often complicating SLE. Recommended early onset aggressive immunosuppressive therapy, primarily glucocorticoids.

### **NONSPECIFIC AORTOARTERITIS PROCESS FEATURES**

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Supervisors – Cand.Med.Sc. M.V. Pogrebnaya

Takayasu's disease (also known as "nonspecific aortoarteritis" and the "pulseless disease") is a form of large vessel granulomatous vasculitis with massive intimal fibrosis and vascular narrowing, affecting often young or middle-aged women. It mainly affects the aorta and its branches, as well as the pulmonary arteries. Females tend to be affected more often than males, and they notice symptoms usually between 10 and 30 years of age. The genetic contribution to the pathogenesis of Takayasu's arteritis is supported by the genetic association with HLA-B\*52. A recent large collaborative study uncovered multiple additional susceptibility loci for this disease, increasing the number of genetic loci for this disease to five risk loci across the genome. Due to the multiplicity of vascular lesions in various areas the symptoms of nonspecific aortoarteritis characterized by extensive polymorphism, which can be found in this particular case.

Patient X., female, 54 years, arrived in rheumatologic ward of ASCH, November 12 2015, with complaints of feeling weakness in the left hand; dizziness; head noises with tendency to be worse in the evening; pain in right calf muscles; pain on movement in the left shoulder joint. According to medical history since 2006 (age of 45) the pain, edema and cyanosis of 2nd finger on the left palm first time appeared. Diagnosis: Thromboangiitis obliterans (Buerger's disease) was concluded. Patient did not receive pathogenetic therapy. May 17 2006 an endarterectomy of left cubital artery was performed and improvement in the patient's well-being was achieved. February 17 2015 patient suffered acute emerged feeling of numbness in the left half of the body, which passed independently in 30 minutes. February 23 suffered a transient ischemic attack stroke with impairment of consciousness. Repeated stroke on April 10 2015. Patient did not appeal to doctors. June 15 2015 diagnosis: Nonspecific aortoarteritis was concluded and pathogenetic therapy was scheduled. July 8 2015 an endarterectomy of left external carotid artery was performed. Recent deterioration of patient's health condition since November 10 2015 when foregoing complaints appear. Patient was hospitalized in rheumatologic ward of ASCH for diagnostics and therapy correction. According to patient's life history such risk factors as long time smoking (15 years) and burdened family history (mother – lower limbs arterial thrombosis). Status praesens: general condition of fair severity, consciousness clear. Skin and mucous membranes are clear, moist, physiologically colored. Auscultative: vesicular breathing, no wheeze. Respiration rate (RR) – 19 per minute. Relative cardiac dullness borders are displaced to the left for 1 cm. Heart tones muted, rhythmic. Pulse – 72 beats per minute. Blood pressure – 130/80 mm.Hg. Abdominal palpation soft, painless. Regular, framed stool. Free, painless urination. No peripheral edema. Duplex ultrasonography of cervical vessels and vessels of upper and lower extremities shows signs of stenotic atherosclerosis, sub-

clavian steal syndrome, diffuse narrowing of the left subclavian artery. CT angiography survey of brachiocephalic and cerebral vessels also detected occlusion of left subclavian and vertebral artery, narrowing of right inner carotid artery and left outer carotid artery. CT scan of cerebral brain revealed post ischemic changes in subcortical structures of right cerebral hemisphere and hydrocephalus. Other laboratory methods of diagnostic shows no process activity at the moment.

Therefore based on clinic syndromes, such as: vascular inflammation syndrome, discirculation syndrome (in different vascular areas), arthropathic syndrome, along with family risk factors the Diagnosis have been concluded: nonspecific aortoarteritis III type, late stage. Stenotic atherosclerosis, left subclavian steal syndrome, occlusion of left subclavian and vertebral artery, narrowing of right inner carotid artery and left outer carotid artery. Ischemic cerebrovascular insult in the basin of the right middle cerebral artery (February 2015). Transient ischemic attack in the basin of vertebral basilar artery (February – April 2015). Differential diagnosis was carried out with generalized atherosclerotic stenotic lesions of vessels.

The peculiarity of this clinical case is the later development of the disease, at the age of 45, the nature and extent of the lesions of vascular channels with multiple stenotic damage of vessels, absence of the laboratory inflammatory changes, disease onset with thrombotic complications.

#### **THE CASE OF DEVELOPMENT OF INFECTIOUS ENDOCARDITIS ON THE OPIATE ADDICTION BACKGROUND**

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Supervisor – Cand.Med.Sc. M.V. Pogrebnyaya

Infectious endocarditis - microbial infection affecting the core endocardium. Tricuspid valve endocarditis is significantly rare to occur. The greatest role in its damage play repeated non-sterile intravenous injection. However, a certain value are occurring in drug addict's immune disorders. Young males tend to get sick more frequently (average age 20-30 years). The most frequent cause of infective endocarditis is Gram-positive cocci: streptococci, staphylococci and enterococci. They stipulate the presence of septic inflammation with characteristic manifestations of infectious-inflammatory and immuno-pathological process, which can be demonstrated on this particular clinical case.

Patient L., 44 years old, was transferred from the Cardiology ward to Nephrology ward of ASCH on November 6, 2015 with complaints of weakness, dyspnea on exertion, tachycardia attacks, pain in the core area, pain in the right hypochondrium, swelling in the legs. From the disease history is known about the long-term of the opium drugs injections. 08.30.2015, on the background of hypothermia the weakness, chills, feeling of palpitations, fever up to 40°C appeared. Patient called an ambulance. After intramuscular injection of lytic cocktail (in about 30 minute), condition has improved, but he refused to be hospitalized. On August 31, 2015 symptoms been resumed and local therapist was called at home, and patient was hospitalized in the therapeutic department of the Svobodnyi city hospital. 01.09.2015 patient was operated relatively to the abscess of gluteal region, draining was per-

formed. With the help of x-ray survey of thorax organs the right-sided pneumonia was diagnosed, antibacterial therapy been prescribed. After the therapy the body temperature has dropped, but urine reduction appeared and swelling in the legs down to the groin area. 19.10.2015 sent for further examination, examined by nephrologist and hospitalized in Nephrology ward of ASCH with the diagnosis: chronic glomerulonephritis, nephrotic syndrome. Echocardiography revealed changes for further treatment transferred to the coronary care unit. With the active questioning such risk factors as long-term intravenous injections of opium drugs was revealed (for the last year patient denies the fact). Also continuous smoking (about 25 years) and alcohol abuse. Objective status: moderate severity condition, consciousness clear. The body temperature is 36.7°C. Skin and visible mucous membranes clean and of normal color. Mesomorphic somatotype. Peripheral lymph nodes are not enlarged, painless. Swelling of the feet and legs on both sides. Bone and articular apparatus without apparent deformation of the full amount of movement. Hardened breathing, dry scattered wheezes. Respiratory rate – 18 per minute. Expanding the boundaries of the heart to the right side. Heart sounds are muffled, rhythmic. At the apex of the heart first tone is weakened. In the projection of tricuspid valve: the tones ratio are normal. Auscultated systolic murmur growing with a deep breath. Heart rate – 75 beats per minute. Blood pressure – 150/100 mm.Hg. Urination free, painless.

Additional diagnostic methods results:

Clinical blood test: leukocytosis, ESR acceleration, light severity anemia.

Biochemical blood tests: CRP – 8 mg/l, procalcitonin test – 3 ng/ml.

Complete urine analysis: erythrocyturia, leukocyturia.

ECG: pulse – 92 beats per minute, sinoatrial rate, partial right bundle branch block, diffuse myocardial changes.

Echocardiogram: Increased vertical dimension of left ventricle, right atrium dilatation. Vegetation on tricuspid valve, signs of a perforation at the base of the leaf. Second degree tricuspid regurgitation. Minor myocardial hypertrophy of left ventricular. Additional trabecula in left ventricular cavity. Myocardial contractility is preserved.

Therefore based on clinic syndromes, such as: inflammatory changes syndrome, valvular lesions syndrome, immune disorders syndrome, cardiac syndrome, arterial hypertension syndrome, cardiac insufficiency syndrome, nephritic syndrome the Diagnosis have been concluded: Tricuspid infectious endocarditis, subacute. Insufficiency of the tricuspid valve. Perforation of the anterior leaflet of the tricuspid valve. CHF stage B, class II. Secondary tubulointerstitial nephritis. Symptomatic arterial hypertension 3rd degree. Average stage of opiate addiction, remission.

Treatment: Cefotaxime – 2 g., Lisinopril – 10 mg., Amlodipine – 10 mg., Ciprofloxacin 400 mg., Kalium chloride 4% + Saline solution 200.0, Metoprolol – 25 mg.

## **CLINICAL AND ANATOMICAL BRAIN'S FEATURES OF THE NEWBORNS**

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Supervisors - A.E. Pavlova

The brain of the newborns is relatively short and wide in comparison with a relatively small size and more expressed curvature of the frontal lobe. The weight of brain is from 239 gr-506 gr, towards with body's weight 1: 8. The length of the cerebral hemispheres is 100-130 mm, width 31-50 mm, height 55-75 mm. Corpus callosum is relatively narrow and short 40-48 mm (42-45 mm), and the thickness is 2-3 mm, at the knee 4-6 mm.

There are all main grooves on the surface of the brain, but they are unevenly developed, tertiary grooves are numerous, but small. The lower part of the central sulcus is often connected with the lateral groove, groove precentral often consist of upper and lower pars.

The upper frontal sulcus is branched forkly in the lower department; inner one is often intermittent too. Newborns have observed asymmetry and individual differences in location, quantity, width and length and also in depth of sulcus are the cerebral hemispheres. There are no clearly defined bound between gray and white matter in sections of the brain. It is explained by the fact that at the time of birth not all nerve fibers are myelinated, nerve cells are not yet concentrated in the surface layers and scattered in large numbers in the white matter.

The basal nucleuses are perfectly formed, but the caudal part of the caudate nucleus may lack. The pons is located slightly higher, more horizontally and anteriorly. The cerebellum is underdeveloped, weighing 20-28 grams, about 5-6% of the brain weight. Newborns have by a surface location of the arterial nets and a small tortuosity of blood vessels; the main venous trunks are concentrated in the parietal and occipital lobes.

## **MY MEDICAL PRACTICE IN TURKEY**

S. Mamedov – the 5<sup>th</sup>-year student

Supervisors - Prof. E.A. Borodin, N.A. Tkachova, D.O. Vdovin – the 6<sup>th</sup>-year student

Thanks to exchange program IFMSA this summer I went to practice in the capital of Turkey - Ankara. On the 31 June I arrived Ankara city. In Esenboga airport my curators Bahadur Azizagaoglu and Utku Kuyucu met me. They took me to university, university located outside of the city. There was campus in the university's territory, where I leaved during one month.

Campus was very comfortable. There were free wi-fi, free water, free tea. Thanks to wi-fi I communicated on Skype with parents every day. Every day had free Breakfast and lunch, it was very delicious.

The room where I leaved was for two person. Every room had an air-conditioner. There were a jim, tennis coart, football field, basketball field in the university's territory. And the most amazing that there was a very big library, which worked all day and night without weekends. Also in the university's territory there were training corps, caffes, mini market and free laundry. The whole territory of the University was protected. No stranger could enter there.

My medical practice was in department of Cardio Vascular Surgery of Bash-

kent university's clinics. Every hour from university to clinic and from clinic from university there was bus. Bashkent university has eleven clinics all around Turkey. Clinics are equipped with ultra-modern equipment. Relationships between medical staff and students was very good. I met with the best doctors of Bashkent clinic (surgeons, cardio vascular surgeons, orthopedists, ophthalmologists), with anesthetist and resuscitator from Azerbaijan, with orthopedic surgeon from Iran, with russian doctor from Kazahstan (cardio vascular surgeon) and with doctor from Kosovo (cardio vascular surgeon).

During my medical practice I got acquainted with clinic's specification, and Bashkent University's history.

I met with turkish students and students from other different countries: America, Greece, Denmark, Poland, Great Britain, Brazil, Kuwait. They were very friendly and sociable.

Turkish students took us to excursion. We visited a lot of sightseings, met with turkish national culture, tasted traditional Turkish cuisine, it was very delicious and nourishing.

In Turkey medicine is very developed, while I was in Turkey all doctors were very kind with me and with another students. I am very happy that I had to my medical practice to Turkey. This is a great experience for me.

#### **ACTION AND RULES OF BEHAVIOR DURING A NUCLEAR CATASTROPHE**

R. Trubachev - the 2<sup>nd</sup>-year student

Supervisors – L.A. Guba, V.V. Kostina

The use of nuclear energy can lead to a nuclear disaster and the use of nuclear weapons is detrimental to all humanity, so it is very important the correct and prompt action in such disasters. The main and decisive factor in any accident has a speed of implementation of measures to protect the population. With the threat or occurrence of the accident immediately, in accordance with the plans there is made notification of employees and the population living not far away. The population is given instructions on the conduct order. The facility Manager or the duty Manager reports about the accident to the head of civil defense of the town and region. Among the complex of measures of population protection in emergency situations especially important place belongs to the organization of timely notification to organs. The howling of sirens, intermittent horns businesses from the vehicles indicate a warning signal "Attention all!" Upon hearing this signal, you must immediately turn on television and radios and listen to the urgent message of local authorities or of staff. All further actions are determined by their directions. The population puts on the means of respiratory protection and goes out of the zone of contamination to the specified area; specialized units of the medical service and the protection of public order arrive to the designated collection points. In a matter of priority there is organized intelligence service that sets the scene of the accident, the degree of infestation their territory and air condition of the people in the infected area, the boundaries of zones of infection. There is set cordoned off areas of infection and organized traffic control.

Conducting organized rescue begins after the investigation and decision-making. Before that measures are taken to rescue people by working personnel of the object and by the population in the order of mutual.

#### **ADIPOSE TISSUE HORMONES**

Zh. Blagova, M. Bayramov – the 2<sup>nd</sup>-year students

Supervisors – Assoc.Prof., Cand.Med.Sc. E.V. Egorshina, V.V. Kostina

Adipose tissue is the main source of energy and plays an important role in the regulation of energy homeostasis. At the present stage the attention of scientists in many countries is focused on hormone-like substances - adipokines (adipocytokines, adipose derived hormones). There are more than 50 adipokines. They are heterogeneous in structure and performed functions. There are two types of adipocytokines: adipose tissue-specific biologically active substances that are true adipocytokines, and others, which are abundant synthesized by adipose tissue, but are not specific for it. Adiponectin - adipose tissue hormone which is involved in the regulation of adipose tissue and energy metabolism. One of the main functions of adiponectin is oxidation and cleavage of fat, which, in its turn, prevents the development of obesity. Leptin - a peptide hormone which is secreted by fat cells and is believed to be involved in the regulation of energy metabolism and body weight gain. It reduces appetite and increases energy expenditure, alters the metabolism of fats and glucose, and neuroendocrine function either by direct influence or activation of specific structures of the central nervous system.

#### **AGE FEATURES OF THE SKULL**

E. Fomina - the 2<sup>nd</sup>-year student

Supervisors - A.E. Pavlova, V.V. Kostina

Newborn cranial is developed better than the front, due to a relatively strong development of the brain, jaw underdevelopment and lack of teeth. Facial skull is more developed from 13-14 years. By this age, characteristic facial features are added.

The skull of the newborn has fontanelles (fonticuli) - the remnants of the membranous skull. They are located at the intersection of joints. The lack of joints between the bones of the skull of a newborn makes it plastic. At the age of 20-30 years, the seams start to grow. And in old age there is the resorption of bone substance: bones become thinner and more fragile. When tooth loss occurs atrophy of the alveolar processes of the maxilla and alveolar part of the mandible. There is a reduction in the height of the lower third of the face and around the facial skull. The angle of the mandible in a newborn is close to 150°. It is decreased to nearly 90° in adults with preserved teeth and chewing the maximum load. Then in the elderly it increases again with the loss of teeth.

## **AGENTS OF PYELONEPHRITIS**

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Supervisors - Dr.Med.Sc. G.I. Chubenko, V.V. Kostina

Pyelonephritis — is nonspecific process at which the inflammation extends only on a of the renal pelvis and calyces, but also on a kidney parenchyma, especially on its interstitial tissue.

The incidence of pyelonephritis among men and women of different age isn't identical. In general patients with pyelonephritis among women prevail. The girls aged from 2 till 15 years old have pyelonephritis 6 times more often than boys, almost the same ratio remains between men and women of young and middle age. At advanced age pyelonephritis arises at men more often.

Reasons of developing of pyelonephritis (etiology). The most frequent etiologic factors are gram-positive and gram-negative conditionally pathogenic bacteria, many of which belong to normal microflora of the person. Pyelonephritis cause E. coli, Proteus, Enterobacter, Klebsiella, Pseudomonas aeruginosa, Staphylococcus aureus (golden, epidermal), enterococci and Escherichia coli, and others. The species and character of bacterial flora are of great importance in developing of pyoinflammatory. So, for example, white and golden plasmacoagulant staphylococcus are capable to cause pyoinflammatory process in unchanged kidney while other microorganisms, as a rule, cause pyelonephritis in the presence of the contributing factors.

## **ANALYSIS OF INCIDENCE RATE OF TUBERCULOSIS IN THE AMUR REGION**

N. Sharvadze, K. Khotsanyan – the 5<sup>th</sup>-year students  
Supervisors - O.A. Agarkova, V.V. Kostina

Tuberculosis - specific infectious disease that affects various organs and systems of the person, most often the lungs continues to be alarming medical and social problem because of the high morbidity and mortality. According to WHO in 2013 9 million people became ill with tuberculosis and 1.5 million died from this disease. Since 1999 the Russian Federation is among the 22 countries with the highest burden of tuberculosis (NBTS). In 2014 Russia occupies 13th place in this list of leading countries.

According to Amurstat's data incidence of tuberculosis in the Amur region exceeds the national average for many years. So in 2014 the incidence of active TB in the Amur Region was 85.6 per 100 thousand population, which is 1.6 times higher than in the whole of Russia (2013 - 63.1 per 100 thousand population).

On the territory of the Amur Region the index of bacterioexcretion among the first detected patients is 29.5 (per 100 thousand. population), which is 2 times less than in the Far Eastern Federal District (61.2) and even the index of bacterioexcretion in the Russian Federation as a whole (32.1) . In this case the value is more favorable in the Amur region than in Russia, but this figure could be evidence of the insufficient microbiological control of patients with pulmonary tuberculosis.

The presented statistics show that despite the positive changes for the Rus-

sian Federation as a whole, the TB situation in the Amur Region is quite difficult and there is a need for further improvement of TB control and the realization of modern methods of combating the disease.

### **ANALYSIS OF MORBIDITY AND MORTALITY FROM CARDIOVASCULAR DISEASES IN THE AMUR REGION**

N. Sharvadze, K. Khotsanyan – the 5<sup>th</sup>-year students

Supervisors - E.A. Sundukova, V.V. Kostina

Cardiovascular diseases - a group of diseases of the heart and blood vessels continue to be threatening medical and social problem because of the high morbidity and mortality.

The incidence of diseases of the circulatory system in the Amur region has grown steadily since 2005 and have peaked in 2013, reaching 4403.2 per 100 thousand people. However, it should be noted that in 2014 a significant reduction of the incidence at 49.74% was recorded. Incidence amounted 2213 cases per 100 thousand people in 2014.

Over the past 10 years, mortality from CVD in the Amur region decreased by 13.8% and amounted to 594.4 cases per 100,000 population in 2014 (FEFD - 710.6, the Russian Federation - 696.5 per 100 thousand population). In the structure of mortality from diseases of the circulatory system the largest share amounts to coronary heart disease - 47.5% followed by cerebrovascular diseases - 23.1%, myocardial infarction - 7.1%, hypertension - 0.89%.

So the presented statistics show that despite the positive changes for the Amur region as a whole, the situation with cardiovascular diseases in Russia is quite difficult and there is a need for further improvements in its monitoring and implementation of modern methods of disease control.

### **ANAMALOUS DEVELOPMENT OF THE CEREBRAL CORTEX**

T. Kukhno - the 2<sup>nd</sup>-year student

Supervisors - S.S. Cand.Med.Sc. Selivyorstov, V.V. Kostina

Transpontina dysplasia is the site of a violation of architectonics, which was formed by the anomalous development of the stem cell and is located from the wall of the ventricle to the cortex.

Lissencephaly (agyria) and pachygyria — hypoplasia of the cerebral convolutions with a smooth surface of cerebral hemisphere.

Microgyria (micropolygyria) — many small, short, shallow brains. More common focal microgyria of various sizes. Microgyria (polymicrogyria) is another variant of cortical dysplasia, meaning the land of many small, shallow convolutions with the violation of the structure of the gray matter.

Focal cortical dysplasia (CDF)- partial breach neurointelligence processes of neural migration, resulting in formation of abnormal areas of the cerebral cortex.

Scienceasia — total pathology with the formation of glial migration trajectories extending from the ventricles to the cortex.

Heterotopia — a cluster of neurons, abnormal staying at different places EN route to the cortex.

### **ANATOMY NERVUS TRIGEMINUS**

T. Yakubovskaya – 2<sup>nd</sup>-year student

Supervisors – Cand.Med.Sc. S.S. Selivyorstov, V.V. Kostina

Trigeminal nerve (nervus trigeminus) is a mixed nerve, which is the V-th pair of cranial nerves comes out from the side of the pons varolii. It includes motor and sensory fibers. In addition, the composition of the branches of the trigeminal nerve is the secretory branches, which are responsible for the innervation of the glands of the facial area.

The ophthalmic nerve (n. ophtalmicus) carries sensitive information from areas of the skull, forehead, upper eyelid, conjunctiva and cornea of the eyes, nose except for the nostrils, nasal mucosa, frontal sinus, and enters the skull through the top eye slit in the orbit. This is the most thin branch extending from the trigeminal nerve.

Maxillary nerve (n. maxillaris) leaving the cranium through a round hole, enters the pterygopalatine fossa, where it divides into 3 main branches: the infraorbital nerve (n. infraorbitalis), sphenopalatine nerves (n. pterygopalatini) and the zygomatic nerve (n. zygomaticus). They form connections with branches of the facial nerve and Innervate the skin of the lower eyelid, upper lip and the side of the face.

Mandibular nerve (n. mandibularis) exits from the skull through the oval hole and is divided into 4 main branches: medial pterygoid nerve (n. pterygodeus medialis), ear-temporal nerve (n. auriculotemporalis), nerve alveolaris inferior and lingual nerve (n. lingualis). They branch out and carry sensitive information from the lower lip, lower teeth and gums, chin and jaw (except the angle of the jaw), parts of the external ear and oral cavity, innervates all the masticatory muscles.

### **ASPERGER'S SYNDROME**

E. Alekseeva, A. Poplavskaya, A. Telyakova – the 4<sup>th</sup>-year students

Supervisors – Can.Med.Sc. N.G. Brash, V.V. Kostina

Asperger's syndrome — the general disorder of development which is characterized by serious difficulties in social interaction. Certain reasons of emergence of a syndrome of Asperger are unknown. Heredity is the main reason for development of this frustration.

Also it is considered that emergence of a syndrome of Asperger is influenced by biological and teratogenic factors which affected the woman's organism at the beginning of pregnancy.

Asperger's syndrome is characterized:

- violation of social communication;
- violation of social interaction;
- violation of social imagination;
- limited and stereotypic interests and behavior templates;

- physical awkwardness;

Treatment of a syndrome of Asperger is directed on mitigation of symptoms and training of the child or adult in the social, communication and speech skills corresponding to his age. Medicinal treatment is characterized by application of a typical neuroleptics for mitigation of the accompanying symptomatology, selective inhibitors of the return capture of serotonin (fluoxetine) for treatment of the limited and repeating interests and lines of conduct.

### **BIOLOGICAL TERRORISM**

Zh. Blagova, M. Bayramov – the 2<sup>nd</sup>-year students  
Supervisors – L.A. Guba, V.V. Kostina

Biological terrorism and its potential as a means of mass destruction is now the subject of increasing concern to the international community. On the one hand, it is connected with an increasing role and place of terrorism in the system of global threats, but on the other - the rapid development of life sciences expands the list of those "critical technologies" that could be used by terrorist organizations and totalitarian regimes. Among the causes of bioterrorism in the second half of the 20<sup>th</sup>-century may be noted the intensive development of the natural sciences, especially medicine and biology, growth in the number and skills in these areas, as well as the availability of scientific information for the various sectors of society. In the modern world in a rather complex military - political situation it is possible to use a different way of biological resources. Therefore, future doctors should be acquainted with the basic provisions of protection against biological weapons.

### **CHLAMYDIA INFECTION AS A CAUSE OF COMMUNITY-ACQUIRED PNEUMONIA**

T. Kucherenko – the 5<sup>th</sup>-year student  
Supervisors - T.A. Dolgikh, V.V. Kostina

Among all types of pneumonia doctor most often deal with community-acquired pneumonia. According to official statistics Ministry of Health, the incidence of community-acquired pneumonia in Russia among individuals older than 18 years is 3.9%. The most common cause of community-acquired pneumonia is *Streptococcus pneumoniae* (30-50%). However, the increasing importance among the etiological factors of community-acquired pneumonia in recent years given the so-called atypical microorganisms, primarily *Chlamydia* (*Chlamydia*) pneumoniae. It is estimated that 5 to 15% of community-acquired pneumonia caused by chlamydia, and during the epidemic these figures may increase up to 25%. Etiology. *Chlamydia pneumoniae* - pathogenic obligate intracellular gram-negative bacteria capable of latent existence or persistence in the host.

Epidemiology. The source of infection is a sick man. The mechanism of transmission - aerogenic, route of transmission - airborne. Pneumoclamidiosis occurs as sporadic cases or as outbreaks. It is most common in adults, especially in middle-aged and elderly (20-49 years). Seasonal patterns of spread of the infection have been identi-

fied. Mortality in chlamydial pneumonia reaches 9.8%. Clinical picture. The incubation period is 2-4 weeks. Pneumoclamidiosis may occur in acute and chronic forms. Acute often occurs in the pneumonic, nasopharyngeal and asymptomatic (latent) form. Chronic pneumoclamidiosis manifested pulmonary (asthma, asthmatic chronic bronchitis) and cardiovascular forms (endocarditis, coronary heart disease), probably long asymptomatic carriage of chlamydia, and a combination of Chlamydia bacterial infectious diseases.

Diagnosis: hemogram, bacteriological method, IFA, Response MYTH, PCR diagnostics.

Treatment of Chlamydia pneumonia should be comprehensive and include, in addition to antibacterial agents, drugs that target the immune response correction. Causal treatment: Macrolides, fluoroquinolones, tetracyclines. For the treatment of chlamydial pneumonia recommended antibacterials for at least 2-3 weeks. Applied also immunomodulators.

Prognosis is favorable. Pneumonia caused by this pathogen is usually characterized by a moderate course, and such patients are treated as outpatients.

#### **CLINICAL AND ANATOMIC FEATURES OF THE CONCEPT OF "SIGNAL SYSTEM"**

A. Smirnova, V. Shebunova – the 2<sup>nd</sup>-year students, A. Poroshin – the 5<sup>th</sup>-year student

Supervisors - A.E. Pavlova, V.V. Kostina

Signal system - a system of conditionally and unconditionally reflex connections of higher nervous system of humans and animals with the environment. I and II signal systems are distinguished. The term was introduced by academician I. P. Pavlov. This system is a subject of studying of physiology of the higher nervous activity of humans and animals. First signal system is the perception of the world, using senses, well-developed in almost all animals. The second signaling system arose in the course of evolution, the process of social labor. The second signal system is unique to humans, but, according to scientists it is possible in some high-organized animals. This is due to the fact that only humans are able to form abstracted from the circumstances of the image. In conjunction with the word forms a concept. And the more images associated with the word, the deeper and more multifaceted understanding of what it is. The capacity for the generalized reflection of phenomena and objects provided to a person an unlimited possibility of orientation in the surrounding world and enabled him to create science. The first and second signal systems – different levels of a single of the higher nervous activity, where the second signal system plays a leading role. The formation of the second signaling system is only under the influence of association, i.e. is determined not only by biological but also by social factors. Unlike conditioned reflexes of animals, reflecting the surrounding reality with the help of specific auditory, visual and other sensory cues, stimuli second signal system to reflect the validity of using generalized, abstract notions expressed by words. Animals only operate on images that are formed on the basis of the signal stimuli, and the person operates not only images but also

related thoughts, meaningful images that contain semantic information.

### **CLINICAL CASE OF HASHIMOTO'S DISEASE**

R. Shpidonova - the 3<sup>d</sup>-year student

Supervisors - Prof. I.Yu. Akarov, V.V. Kostina

Autoimmune thyroiditis is partly due to a genetic defect of the immune system. In this case, the antibodies produced by the immune system, take their own thyroid cells for foreign and damage them. Pathogenetic factors of the disease are the autoantibodies to thyroglobulin, colloids and thyroid peroxidase, and sensitized T-cells. In the development of the disease sensitized lymphocytes infiltrate the breast tissue, induces in it inflammation through the production of proinflammatory cytokines, some of which can cause cytolysis of glandular cells, which eventually causes the formation of goiter, thyroid enlargement. The disease was first described in 1912 by H. Hashimoto.

Patient N 40 years old, entered the AROD with complaints of sore throat, cough. Data of survey: local status - the thyroid gland increased due to both lobes, heterogeneous, painless. These USI nodal structures of both lobes of the thyroid gland. TTG - 3.5 mkIE / ml. Cytology: colloidal cancer. Macroscopic description: the tissue in the lymph nodes 0,3 0,7 cm grey. The right lobe: whitish areas up to 2 cm; left lobe (6x4 cm) has whitish fabric - 0,5 0,8 cm. Pathological conclusion: lymph node hyperplasia, hemorrhage in the left and right lobe of the thyroid gland. The diagnosis is autoimmune Hashimoto's thyroiditis. Routinely it was performed thyroidectomy. Thyroid hormones after surgery: T G 5.17; T3-3,48; T4-137,94. Appointed L- thyroxine replacement therapy at 50 mg in the morning. The disease is relevant because it is a rare and life

### **COMPARATIVE ANALYSIS INFANT MORTALITY IN RUSSIA, THE FAR EAST AND THE AMUR REGION FOR BASIC CLASS AND SELECTED CAUSES OF DEATH FOR 2009-2014**

T. Kucherenko – the 5<sup>th</sup>-year student

Supervisors – Doc.Med.Sc., Prof. L.N. Voit, Cand.Med.Sc. E.A. Sundukova, V.V. Kostina

Relevance. Infant mortality describes the death of newborn infants from birth to one year. It stands out from the general problem of mortality due to special social significance. Its level is used to assess the health of the general population, social welfare, the quality of treatment and preventive care for women and children.

The aim of this work is the comparative analysis of deaths of children under 1 year, as well as identifying the main classes and individual causes of infant mortality in the Amur Region, Far Eastern Federal District (FEFD) and the Russian Federation (RF) in the period from 2009 to 2014.

Materials and methods. We analyzed the infant mortality rate (per 1,000 live births), according to the territories for 2009-2014. We used data of Federal State Statistics Service.

Conclusions. This study led to the following conclusions:

1. During 2009-2014 the infant mortality rate for the Amur region fell by 1.3 times; in Russia - by 1.1 time; by FEFD - with 10.5% (2009) up to 9.0% (2014).
2. In 2012 it was diagnosed surge of mortality among children under 1 year in the study area (about 8.64% of Russia; 10.9% of the Far Eastern Federal District and 13.8% of the Amur region).
3. The structure of the infant mortality rate ranks 1st place - certain conditions originating in the perinatal period (up to 54.6%); 2nd place - congenital anomalies and malformations of the children (up to 21.2%); external causes of death - the third highest prevalence (up to 5.2%).
4. Developed and put into effect a program of the Russian government to reduce infant mortality rates are highly effective and socially significant for the population.

#### **COMPARATIVE ANALYSIS OF THE ATTITUDE TO HEALTH AND HEALTHY LIFESTYLE ON THE EXAMPLE OF STUDENTS OF RUSSIA AND CHINA**

N. Mostovskoy, S. Mamedov, Y. Kirey - the 5<sup>th</sup>-year students  
Supervisors - Doc.Med.Sc., Prof. L.N. Voit, V.V. Kostina

The aim of the forthcoming research is making a complex analysis of the impact of environmental, social, and psychological factors as well as age-related features of on the formation of subjective attitude to health and healthy lifestyle, on the example of students from Russia and China, namely students from the Amur State medical academy (Amur SMA) and the Heyhe institute (Héihé xuéyuàn).

The main objective of this research is a comparative analysis of the attitude of the Russian and Chinese students to the concept of HL, as well as identifying of the level of bad habits negative influence on the students of two countries. Aimed to achieve the set goal, we have analyzed the subjective attitude to health and HL among the students from Russia and China.

The main investigational methods, used in the work, were: a questionnaire, an observation of the specificity of environmental factors and the social environment, as well as psychological factors that shape a subjective attitude to health and healthy lifestyles of students.

Among the respondents involved in the survey there were the 5th year students (20-25 years) from the Amur SMA and the Heyhe institute, in the amount of 40 people.

A positive attitude to smoking was noted among 50% of Chinese respondents, while only 30% of students from Russia shared a similar point of view. According to the survey, the students' attitude to alcohol products turned out to be exactly opposite.

The content of food consumption of students living in Russia and China differs in many aspects. It was found out that 80% of Chinese students adhere to a eating regime, and only 15% of students from Russia follow it.

The percentage of students attending sports clubs was almost equal among

the respondents of the Amur SMA and the Heyhe institute. The overwhelming majority of students (95% Russian and 88% Chinese students) admitted the importance of regular physical exercise towards HL. Sport sections are visited by 50% of Chinese students and by 55% of Russian students respectively.

The heredity's impact on health was distinguished by 46% of the students surveyed in Heyhe and by 38% students from Blagoveshchensk. It indicates a greater frequency genetically determined traits occurrence among students from China. More than that, it gives the evidence the crucial influence of genetic factors on human health.

It is well worth mentioning, that about 25% of all diseases are closely correlated with unfriendly environmental conditions. The impact of the environmental affect on health was admitted by 74% of Chinese students and by 23% of Russian students. In China, environmental pollution by means of industrial waste is on a critical level, while in Russia this problem does not seem so catastrophic.

An analysis of the received data enables us to conclude that students' attitude to health and HL is affected both by social factors, and biological factors as well. The national culture and environmental conditions, inter alia, give a considerable impact towards HL attitude.

#### **CONSERVATIVE TREATMENT OF ECTOPIC PREGNANCY**

A. Alieva, L. Saaya - 4<sup>th</sup>-year students

Supervisors - Dr.Med.Sc., Prof. V.A. Dorovskih, V.V. Kostina

It is believed that the drug therapy of ectopic pregnancy is sufficiently promising. However, the method is still not widely used, in particular, due to the low incidence of timely diagnosis of progressive tubal pregnancy.

In most cases, conservative management of patients with ectopic pregnancy methotrexate is used, less likely it is used potassium chloride, hypertonic glucose solution, prostaglandin drugs, mifepristone. Medications are used topically and parenterally (injected into the fallopian tube through the lateral vaginal vault under ultrasound, laparoscopy or transcervical catheterization of the fallopian tube).

Alternative product - dactinomycin. Since 4-5 days later operating period nonspecific therapy begins: hemostimulating, desensitizing, physiotherapy. 3 courses of rehabilitation therapy are carried out within 5-6 months later the operation .

#### **CORTEX MECHANISM'S DEPRESSION IN PATHOGENESIS OF MIGRAINE**

E. Alekseeva, A. Poplavskaya, A. Telyakova – the 4<sup>th</sup>-year students

Supervisors – Dr.Med.Sc., Assoc.Prof. V.N. Karnaukh, V.V. Kostina

Migraine — a neurologic disease, the most frequent and characteristic symptom are incidental or regular strong and painful attacks of a headache in one half of the head. The migrainous attack in classical option includes four stages: prodroma, aura of an attack, actually headache, postdroma.

Today, there are some theories of development of migraine: the vascular theory which is connected with a spasm or expansion of brain arteries; the neural - emergence of an electric discharge on average a brain and the theory connected with excitement of kernels of a trigeminal nerve in a trunk head.

At the molecular level process of emergence of aura of an attack most of all, and mechanisms of its development in an attack is studied. The cortex depression - a wave of intensive activity of nervous cages which moves on bark is the reason of aura. After a phase of hyper excitability there comes the period of long braking of nervous cages during which neurons can't be excited. These processes can explain those changes of a blood-groove which are revealed before migrenozny pain. When neurons are active and are discharged, they need a lot of energy and, therefore, a lot of blood (in this stage the blood-groove increases to 300%).

### **CRITICAL PERIODS IN FETAL DEVELOPMENT**

A. Mironenko, R. Yusibova - the 2<sup>nd</sup>-year students

Supervisors - L.G. Zherepa, V.V. Kostina

The main critical periods for human embryos and fetuses are the end of the the preimplantation period and period of implantation (the first week after conception), the period of placentation (9-12 week after conception), the period of formation of rudiments of organs (3-6 week).

Some researchers unite the critical periods of an organogenesis and placentation in one period. Pathogenic impacts on an organism of the embryo and fetus during these periods lead in most cases to its death, malformations, and also pawned dysfunction of organs and systems, especially those that undergo intense differentiation and increase metabolism. Particularly sensitive are rudiments of the nervous and cardiovascular systems, blood system.

The Development of the fetus is affected by the damaging environmental factors. The environment for the fetus is mother's organism, and changes of a condition of mother can be reflected in a condition of a fetus.

Diseases of the fetus can be divided into: embryopathy, fetopathy, hereditary disease, developmental delays, hypoxic conditions, diseases related to the immune conflict.

The basic hereditary diseases of the fetus are: chromosomal illnesses – syndrome Down's, Edward's syndrome, Patau's syndrome, Klayntfelter's syndrome, Shershevsky-Turner syndrome's and others.

The cause of chronic disorders of fetal development are various conditions that can insufficiently supply the fetus with oxygen and nutrients. Many diseases of the fetus can affect on mother's body (the immune conflict) when the fetus sensibilizes a maternal organism antigens.

### **DEVELOPMENT OF THE PORTAL VEIN**

A. Khomenko, D. Dmitrieva – the 2<sup>nd</sup>-year students

Supervisors - L.G. Zherepa, V.V. Kostina

The study of the portal vein is necessary for diagnosing its pathologies. Malformations of the portal vein can cause the development of complex vascular anomalies of the abdominal cavity. For example, congenital stenosis of the portal vein is a picture of portal hypertension, which is often found in patients. It is accompanied by an increase in pressure in the portal vein, which is very dangerous. Just malformations may be accompanied by atherosclerosis. It is widespread among the population of economically developed countries in Europe and North America. People usually get sick in the second half of life. The manifestations and complications of atherosclerosis are the most frequent causes of death and disability in most countries. Therefore, the study of this topic is an urgent problem.

Gate vein is an important venous collector of abdomen and blood is collected from all unpaired abdominal organs (stomach, esophagus, spleen, pancreas, small intestine and colon, etc.). Taking into account the urgency of topographical knowledge, individual and variant anatomy of the portal vein, we have studied the development of the portal vein. Development of the portal vein is closely linked with the development of the liver and blood circulation of the body forms: the yolk, placental and final - definitive. As the liver bud is growing, liver tissue strands are separated middle part of the vitelline-mesenteric vein network of small veins and capillary bed. Distal part of the vitelline-mesenteric veins contain bringing veins of the liver. Under placental circulation with the disappearance of the yolk sac, yolk veins are reduced, and the mesenteric veins of the vitelline-mesenteric in connection with the intensive development of the intestine is much more complicated. As a result, the right vitelline-mesenteric vein in the area between the middle and distal anastomoses reduces venous and the left is turned into the trunk of the portal vein. Then there is the intense increase in the diameter of the trunk of the portal vein, its roots and branches.

### **FLOODS IN THE AMUR REGION**

U. Omoniddinova, S. Umarova, E. Fomina - the 2<sup>nd</sup>-year students  
Supervisors - L.A. Guba, V.V. Kostina

The first big flood on the Amur river the Russian settlers saw in 1861. It happened just three years after the first settlers settled in the Amur region. Water flooded cropland, grasslands, and settlements. The water level in Blagoveshchensk has risen by 10m. After 11 years in 1872 Amur again showed its strength. The water rose even higher. On the streets of Blagoveshchensk steamers sailed the transported passengers to their houses and hotels. In 1897 it was recorded another strong flood on the Amur river. In that year by TRANS-Baikal railway was put out of action just launched by the flood. "This year will long remain in the memory of inhabitants of TRANS-Baikal as the year of the disaster" – the newspapers wrote later. 1928 was disastrous for the Amur region. This year there were 4 floods. The rebellious waters of the Amur river broke into the town of Zeya and almost completely destroyed it. Also Blagoveshchensk was very upset by the flood: "the Water came every hour, finally, even was the Telegraph wires flooded on which freely floated the boat... In many places the depth was four meters... houses, barns, shops were floating in the

river." In 1958, the flood was the record by level of water in Amur river. In Blagoveshchensk it exceeded the former figure on 37 centimeters. In the Amur region 129 settlements were flooded. 48 villages and towns were completely under water. 1979 – new severe floods in the Amur region. In 1984 the Amur water flooded Blagoveshchensk, six more villages in the Amur region were completely under water. Never the Amur water rose so high here. In 2007 the Zeya river due to heavy rains brought great flooding. Zeyskaya HPS held back the flow of water and thus saved the Amur towns and villages from catastrophic flooding.

### **FROM FOLIC ACID TO THE HEALTH OF THE FUTURE BABY**

A. Telyakova, Y. Semdyankina – the 4<sup>th</sup>-year students

Supervisors – Dr.Biol.Sc., Assoc.Prof. N.V. Simonova, V.V. Kostina

Any woman planning to become mother has to remember that reception of some vitamins before pregnancy is necessary for health of future kid. One of such vitamins is folic acid (B9 vitamin). It is water-soluble substance, comes into an organism with food (in a large number contains in green vegetables and leaves, citrus, bread, liver, cheeses, eggs and cottage cheese) and can be synthesized by symbiotic bacteria in intestines at a normal state of microflora. During pregnancy B9 vitamin plays a role in a formation and development of nervous fabric of a germ, participates in formation of vessels of a placenta. The lack of folic acid during pregnancy can lead to emergence of uglinesses in violations of mental development in newborn children. Average daily norm of folic acid – 400 mkg, the most admissible quantity - 600 mkg. Modern preparations of folic acid contain its necessary quantity, are safe for the pregnant woman in the recommended dosage and are studied rather well.

Foliber can be applied by women at the time of planning of pregnancy and in the first three months of incubation of the child to prevention of defects of development.

Gemoferon is applied during pregnancy and a lactation, at anomies, after a stomach operations, a renal failure, a helminthes invasion.

Elevit promotes decrease of risk of emergence of congenital defects. It isn't necessary to accept for a long time a complex by persons, with a big amount of calcium in blood.

Thus, folic acid – one of the few medicines, efficiency and which safety at pregnancy is proved in many researches. Reception only one tablet in day – an easy, inexpensive and reliable way to reduce risk of serious diseases of the kid and to present it full-fledged life.

### **GENETIC ASPECTS OF THE OCCURRENCE OF ASTHMA**

A. Lutov, V. Bityutsky – the 6<sup>th</sup>-year students

Supervisors – Cand.Med.Sc. I.V. Kostrova, Dr.Med.Sc., Assoc.Prof O.B. Prikhodko, V.V. Kostina

During several recent decades a constant growth of asthma morbidity is observed, and mostly it is in developed countries. Certain predisposing genes were dis-

covered as a result of genetic studies, which helped us to engineer new drugs and explain the causes of such expansion.

Asthma is a unique way that different pathogenic processes neglected by exogenous agents contacted with predisposing genes result in. From genetic aspect asthma is a disease with complex hereditary, involving multiple genes, which requires involving of massive samples, as well as longitudinal cohorts in genetic studies. There is a need to wide use of genes interaction analysis methods, including those based on scale-free networks theory.

Despite all efforts there's no clear understanding of asthma pathogenesis, and still no radical treatment of the disease, which makes asthma genetics study an urgent issue.

## **GLYCOGEN DISEASES AND THEIR CAUSES**

A. Khomenko - the 2<sup>nd</sup>-year student

Supervisors - L.Ya., Etmanova, V.V. Kostina

Glycogen storage disease - diseases caused by defective enzymes involved in the breakdown of glycogen. Currently glycogenoses are divided into groups: liver, muscle and mixed ones.

### **HEPATIC GLYCOGEN**

The most common glycogen storage disease type I or von Gierke due to an autosomal recessive defect in glucose-6-phosphatase. Due to the fact that this enzyme is only in liver and kidney, mainly affects these organs. Since the enzyme is necessary for dephosphorylation of glucose-6-phosphate, followed by output of blood glucose in patients with hypoglycemia observed and, consequently, acetonemia, metabolic acidosis, acetonuria.

Glycogen storage disease type III or Forbes or Corey-Limit dekstrinoze - is an autosomal recessive defect amilo- 1,6-glucosidase. For patients it is characterized by hepatomegaly, moderate delay in physical development during adolescence, these may be a slight myopathy.

Glycogen storage disease Type IV (Andersen's disease) is associated with defective glycogen branching enzyme and type VI (Hers disease) is associated with deficiency of hepatic glycogen phosphorylase.

### **MUSCULAR GLYCOGEN**

Glycogen storage disease type V (Glycogen storage disease type V) - the lack of muscle phosphorylase.

### **MIXED GLYCOGEN**

Glycogen storage disease type II (Pompe disease) - affects all glikogen-contained cells due to lack of lysosomal -1,4-glucosidase. Patients without treatment die at an early age due to cardiomegaly and severe heart failure.

Aglycogenesis - conditions associated with the lack of glycogen. Examples of aglycogenesis may be autosomal recessive hereditary deficiency of glycogen synthase. Symptoms of a sudden fasting hypoglycemia, especially in the morning, are vomiting, convulsions, loss of consciousness. As a result of hypoglycemia there is observed psychomotor retardation, mental retardation.

## **HISTORICAL OVERVIEW OF EMBALMING CORPSES FROM ANCIENT TIMES TO THE PRESENT DAY**

D. Yermolayeva, S. Shapoval - 2<sup>nd</sup>-year students

Supervisors - L.G. Zherepa, V.V. Kostina

Embalming - method of preventing rotting corpses or individual organs, used to preserve the bodies of people after their death, disinfection of corpses. The essence of embalming is impregnated fabrics corpse substances that destroy germs and prevent post-mortem tissue destruction.

The ancient Egyptians used for embalming fragrances - balms (hence the name of the procedure). Before embalming in Egypt, the brain was taken out through the nose, as it was believed that it was of no value. In ancient Greece, corpses of noble people only were embalmed, this was punished in Mosley countries.

In the Middle Ages embalming wasn't practiced, there were some facts about the embalming of the French kings.

With the the beginning of the XVIII century embalming went to the scientific level. And in Russia it has come from the XIX century, with the works of anatomists Shchepina, Protasov, Mukhina.

In Moscow in 1935 the laboratory was established under the leadership of B.I.Zabarskiy, which for half a century, has embalmed body of many historical figures. In our days, there is appeared a tradition of exhibiting of embalmed body on display to the public - usually in museums as curiosities, previously so was done only with the "incorruptible" relics of various saints

## **INFECTIONS AND INFESTATIONS OF THE AMUR REGION: THE BUREYA DISTRICT, TOWN OF SHIMANOVSK**

D. Nikitina, A. Skripelev - the 2<sup>nd</sup>-year students

Supervisors - Prof. E.N. Gordienko, V.V. Kostina

The problem of prevention of parasitic diseases is one of the most important for each person, regardless of age and social status. Our health, well being, emotions, behavior, tastes, preferences, depend on the inhabitants or our body with different consequences for our organism.

According to the World Health Organizations, 50 million people die each year in the world, more than 16 in millions of people infections and parasitic diseases are the cause of death.

According to the parasitological monitoring during the life of almost every Russian carries a parasitic diseases children and adolescents up to 14 years are affected more offen.

## **INSULIN**

O. Shabalina - the 2<sup>nd</sup>-year student

Supervisors - L.Ya. Etmanova, V.V. Kostina

Insulin (from Latin. Insula - Island) - peptide hormone, produced in the beta cells of the islets of Langerhans of the pancreas. It has a multifaceted effect on the exchange of sensitive tissue.

The main effect of insulin is to reduce the concentration of glucose in the blood. Insulin increases the permeability of plasma membrane glucose, activates key enzymes of glycolysis, stimulates formation in the liver and muscle glycogen from glucose, increases the synthesis of fats and proteins. In addition, insulin inhibits the activity of enzymes cleaving glycogen and fat. That is, in addition to the anabolic action of insulin it has also catabolic effect.

Violation of insulin secretion due to destruction of the beta cells - an absolute insulin deficiency - is a key component of the pathogenesis of type 1 diabetes. Relative insulin deficiency and loss of sensitivity of receptors - have an important place in the development of type 2 diabetes.

### **MAGNETIC RESONANCE IMAGING**

S. Umarova, U. Omoniddinova – the 2<sup>nd</sup>-year students

Supervisors - A.E. Pavlova, V.V. Kostina

Currently, MRI is used quite often. It is used to diagnose diseases of the central nervous system (brain and spinal cord), and the musculoskeletal system (spine, muscle-joint system) and internal organs. Magnetic resonance angiography allows you to see the vessels to assess their condition (aneurysms, etc.). The method is widely used in the study of upper respiratory tract - malformations, inflammatory diseases of the paranasal sinuses. This method is the most accurate in identifying pituitary adenomas.

In recent years, during diagnostic MRI is increasingly focusing on pathology of the internal organs of the pelvic organs, the eye socket.

### **MALFORMATIONS OF THE SPINAL CORD**

A. Skripelev - the 2<sup>nd</sup>-year student

Supervisors – Cand.Med. Sc., Assoc.Prof. S.S. Seliverstov, V.V. Kostina

The most severe malformations of the spinal cord is amyelia - no spinal cord, usually combined with a full spina bifida.

Spina bifida occulta is exclusively bone defect - slit in the back wall of the vertebra or several vertebrae. This happens more often in the lumbar or sacral spine at the level of the L1 (first lumbar vertebra) to S2, S3 (second and third sacral). Nor shell spinal cord neither spinal nerve roots through a defect bones protrude.

Meningocele - a more severe pathology. After a bone defect of back of the vertebra the meninges protrude under the skin, forming a pocket.

Meningomyelocele - the most complicated and frequent variant of spina bifida. All the contents of the spinal canal catch and bulge into the bone defect with such malformations.

Diastematomyeliya - bony prominence that leads to the division of the spinal cord into two halves.

## **METHODS OF BEAM RESEARCH OF A PANCREAS**

D. Pronina, Y. Chervova – 2<sup>nd</sup>-year students

Supervisors – A.E. Pavlova, V.V. Kostina

1. Radiological method. For this purpose it is necessary to execute simulated contrasting by gas. This procedure can be followed by complications and only in half of cases can give information on the sizes of body. Contours of gland manage to be revealed only at tomographic research that renders padding beam loading on patients.

2. Ultrasonic research technique. This method is reference at inspection of patients with pathology of bodies of a stomach. At ultrasonography of iron comes to light in epigastric area ahead from the turnpike vessels and a spine column. At research it is estimated the sizes, a form, contours, uniformity of texture, a parenchyma, a condition of environmental bodies.

## **NIKOLAI KOLTSOV – ONE OF THE FOUNDERS OF GENETICS IN RUSSIA**

T. Kucherenko – the 5<sup>th</sup>-year student

Supervisors – Cand.Med.Sc. O.S. Yutkina, V.V. Kostina

Nikolai Koltsov - Soviet geologist, founder of the national Experimental Biology. Passion for zoology led future scientist to Moscow University that he graduated brilliantly. Together with a group of leading professors and teachers of Moscow University Nicholas demonstratively left the university in protest against the repression of the tsarist government and began working at Shanyavsky private university. A few years later in the first in the Russian Research Biological institution - Institute of Experimental Biology, by created Koltsov in 1917, has gathered a galaxy of outstanding researchers. Friendly, creative atmosphere of the Institute contributed to new discoveries.

Koltsov showed mainly on the spermatozoa of decapod crustaceans, formative value of cellular "skeletons" (Koltsov principle), the effect of ion series on the reaction of contractility and pigment cells, physical and chemical effects on the activation of unfertilized eggs to develop. He was the first who developed a hypothesis of molecular structure and matrix reproduction of chromosomes ("hereditary molecules"), which anticipated the most important fundamental principles of modern molecular biology and genetics (1928).

Achievements: He was one of the founders of genetics in Russia, the founder of the Institute of Experimental Biology in Moscow (Summer 1917), organizer and head of the Russian Eugenics Society.

Among Koltsov students and colleagues were: S.S. Chetverikov, B.L. Astaurov, N.V. Timofeev-Resovskii and many other outstanding scientists. Koltsov created Moscow Experimental School of zoologists of Cytology and Genetics.

### **PSEUDOMONAS AERUGINOSA INFECTION**

R. Shpidonova - the 3<sup>d</sup>-year student

Supervisors - Cand.Med.Sc. A.V. Sergienko, V.V. Kostina

*Pseudomonas aeruginosa* - movable microbe that for its development needs the obligatory presence of oxygen. The bacterium is particularly resistant to a large number of antimicrobials. *Pseudomonas aeruginosa* infection can occur through contact-household, food and airborne routes. Damaged skin, extensive wound and burned the surface, decubitus, ulcers, can easily become a gateway for the penetration and development of *Pseudomonas aeruginosa* infection. Moist environment contributes to the emergence of infection (for example, under the sodden bandage or a wet diaper in children). When there is *Pseudomonas* infection, the characteristic blue-green color of the wound surface and the dressing appear. In patients with severe burns, *Pseudomonas aeruginosa* can penetrate into the bloodstream and cause sepsis. Crust formed on the wound surface, becomes purple, black or dark brown. Under the crust there is a destroyed tissue, there formed hemorrhage and tissue edema. The inflammatory process extends farther to the healthy parts as evidenced by their redness. The crust is torn away, but new one brown or black is formed. The process can result in gangrene or abscess. Treatment of *Pseudomonas* infections should be comprehensive and include antibiotics, surgery, probiotics, immunomodulators, symptomatic treatment herbal medicine, homeopathic remedies and treatment of the main disease.

### **SCIENTIFIC EVIDENCE OF CYTOLOGICAL, MICROBIOLOGICAL AND SEROLOGICAL BRONCHOALVEOLAR LAVAGE OF PATIENTS WITH PNEUMONIA, LIVING IN THE FLOOD ZONE IN THE AMUR REGION IN AUGUST OF 2013**

E. Blizhnikova – the 6<sup>th</sup>-year student

Supervisors – Prof. S.Yu. Landyshev, V.V. Kostina

The results demonstrate the leading role of pneumococcus in the etiology of pneumonia, which confirms its inoculation in the bronchoalveolar lavage. These significantly increased inoculation of atypical pneumonia pathogens - Legionella, Chlamydia and mycoplasma in the bronchoalveolar lavage, which was confirmed by the scientific evidence of polymerase chain reaction and microscopy. The presence of atypical pathogens in the bronchoalveolar lavage was accompanied by a more severe pneumonia, the development of complications (abscess formation, exudative pleural effusion, respiratory distress), despite adequate therapy, take into account the sensitivity of pathogenic and opportunistic microorganisms to antibiotics and carrying out rehabilitation bronchial tree by flexible bronchoscopy. Duration of the disease also increased, owing to reduced immunological reactivity of patients and the high virulence of the microflora.

### **SKIN ANATOMY. AGEING AND SKIN CARE QUESTION**

Yu. Pechyorskaya, S. Tsydendambayeva – the 2<sup>nd</sup> year students

Supervisors - L.G. Zherepa, V.V. Kostina

Human skin consists of 3 components: epidermis, dermis and fat or hypodermis.

The epidermis - the outer layer of skin is that constantly peels. The dermis consists of fibroblasts to producing collagen and elastin – the fibers that plays the role of skin frame. Fatty layer helps to keep the skin plump and smooth.

2 groups of factors that cause aging: internal (endogenous) - heredity and age. External (exogenous) - environmental effects.

There is a common free radical theory proposed by a medical doctor from the University of State Nebraska in the mid-1950s. This theory is based on the idea that free radicals bring the destruction of protein molecules that make up our skin.

There are 5 types of skin aging: 1 - decrease in the elasticity of soft tissues of the face and neck, "tired face"; 2 - "wrinkled face"; 3 - senile deformation of face and neck; 4 combination of low elasticity, wrinkling and deformation; 5 - muscular, i.e. greatly developed muscles of the face and slightly pronounced subcutaneous fat.

Prevention of premature aging: a correct diet and rest; massage - cosmetic and therapeutic; cosmetic masks; mesotherapy technique; physiotherapeutic techniques; peeling; botulinum toxin injections; use of tsitamines in cosmetics; injection contour plate; plastic surgery.

To maintain a healthy look and smooth face is necessary not only the local face skin procedures, but also the recovery of the whole organism.

### **SUBACUTE SCLEROSING PANENCEPHALITIS (SSPE)**

S. Ovchinnikova, D. Yashin - the 5<sup>th</sup>-year students

Supervisors – P.K. Soldatkin, V.V. Kostina

Subacute sclerosing panencephalitis (SSPE) is rare chronic, progressive and fatal encephalitis that affects primarily children and young adults, caused by a persistent infection of immune resistant measles virus.

The progression of symptoms begins with stage 1—in this stage the individual's behaviour becomes more abnormal and erratic. The person develops myoclonic spasms/jerks. As the disease progresses towards stage 2, the intensity of the spasms and the mental deterioration increases. The final, advanced stages of SSPE include the steady decline in body function with increased intensity of the stage 2 symptoms/signs and also blindness. At the end of the final stages the person is likely to be mute, in a vegetative state, and/or comatose.

The diagnosis of SSPE is based on signs and symptoms and on test results, such as typical changes observed in EEGs, an elevated anti-measles antibody (IgG) and typical histologic findings.

The treatment for the SSPE infection is the immunomodulator interferon and specific antiviral medication — ribavirin and inosine. Anticonvulsants, like sodium valproate and clonazepam, are helpful in controlling the myoclonus.

People with this disease frequently die 1 up to 2 years after diagnosis, but some may survive for longer periods.

Immunization against measles is the only known prevention for SSPE.

## **THE ASYMMETRY OF THE CEREBRAL HEMISPHERES**

E. Safronova - the 2<sup>nd</sup>-year student

Supervisors - Cand.Med.Sc. S.S. Selivyorstov, V.V. Kostina

The asymmetry of the cerebral hemispheres (the same functional hemispheric asymmetry, FHA) - a departure from symmetry in the activities of the paired cerebral hemispheres.

Hemispheres are equipotential (i.e. equivalent) of relatively simple functions. This means that simple neural function can equally well perform any hemisphere. But at the same time, the hemisphere are specialized relatively complex mental function. This means that each hemisphere can do something better than the other hemisphere.

Specialty of the left and right hemispheres. Now it is established the opinion that the left hemisphere is dominant in formal linguistic operations, including speech, parsing and phonetic representation. The right hemisphere of patients with split-brain exhibits an almost complete inability to active speech, it can not distinguish the verb tenses, plural and singular, correctly understand sentences with complex syntax or requiring a significant burden on short-term verbal memory, unable to phonetic representation.

## **THE CONDUCTION SYSTEM OF THE HEART**

Ch. Lopsan, Yu. Borodulina - the 2<sup>nd</sup>-year students

Supervisors - L.G. Zherepa, V.V. Kostina

Heart is a four-chambered muscular organ located in the chest cavity as part of the anterior mediastinum. Functions of the conduction system of the heart are synchronous and rhythmic work of the heart.

Central conduction system of 2 nodes: the sinoatrial node ( node Kish-Flex) located in the wall of the right atrium between the hole of the superior Vena Cava and the right auricular. The sinoatrial node, according M.P.Varegina has more significantly connective tissue and less blood and cardiomyocytes. The atrioventricular node ( node Ascoff-Tovar) lies deep in the lower part of the atrial septum. In the membranous part of the interventricular septum passes into the atrioventricular bundle, as found A.V.Evtushenko.

Excitation spreads in atrium from the sinoatrial node on three inter-node tracts

( Bachman, Wenckebach, Taurel) to the atrioventricular node and goes on interatrial Bachman bundle to the left atrium. At first only right atrium excites, then left and right, ones and finally only the left atrium.

Ventricular excitation spreads from the atrioventricular node on the atrioventricular bundle, Giss bundle, located in the interventricular septum. This bundle divides into right and left pedicles, ending in the ventricular myocardium of Purkinje fibers.

## **THE ROLE OF THE ESSENTIAL AMINO ACIDS IN THE HUMAN BODY**

R. Myrghyan – the 2<sup>nd</sup> student

Supervisors – Cand.Med.Sc., Assoc.Prof. E.V. Egorshina, V.V. Kostina

Aminocarboxylic acid - a special class of organic compounds that are involved in almost all biochemical processes taking place in the body: the synthesis of vitamins, pigments, hormones and purine components. Polypeptides (or proteins) it is composed of the amino acids. Essential acids are found in the following products: Valine - in grains, mushrooms, meat, dairy products, soybeans, peanuts. Isoleucine - in cashew nuts and almonds, chicken meat and eggs, fish, liver, meat, rye, lentils, soybeans, and most seeds. Leucine - in meat and fish, nuts, lentils, brown rice, and also in the majority of seeds. Lysine - in fish, meat, milk and dairy products, wheat and nuts. Methionine - in the milk, fish, eggs, meat, legumes. Threonine - eggs and dairy products. Tryptophan - meat, bananas, dates, sesame, peanuts, oats. Phenylalanine - in beef, chicken, fish, eggs, soy, milk and cottage cheese.

## **TREATMENT OF HYPERTENSIVE CRISIS**

A. Telyakova, Y. Semdyankina – the 4<sup>th</sup>-year students

Supervisors – Can.Med.Sc. L.V. Kruglyakova, V.V. Kostina

The problem of hypertensive crises is actual, one of the main reasons for cardiovascular complications and decrease in operability of the population.

Hypertensive crisis – the sudden increase of arterial pressure which is followed by clinical symptoms and demanding immediate decrease.

There are complicated and not complicated hypertensive crises. The complicated hypertensive crisis differs from the uncomplicated in sharp defeat of target organs. It defines medical tactics and a way of introduction of preparations and a place of treatment (in the block of intensive therapy, usual office or at home).

Medical tactics includes gradual decrease in arterial pressure upon 20 — 25% at treatment of uncomplicated hypertensive crisis and fast decrease by 20 — 30% at treatment of the development of irreversible changes complicated for the purpose of prevention from heart, a brain and death of the patient; correction of already developed complications. Hypotensive are means nitropruside sodium, diuretics and beta adrenoblocators are most effective, use of a labetalol, in certain cases — nitroglycerine and a gidralazin is possible. Medical supervision for not less than 6 hours for an exception of complications is desirable for the patient with hypertensive crisis.

Thus, tactics of the doctor has to be extremely individual. At a preparation choice for knocking over of hypertensive crisis it is necessary to define its type, to estimate degree of a clinical picture (existence or lack of complications), to find out the reasons of sharp increase of arterial pressure, duration and frequency of therapy, to determine the level and speed of the expected pressure decrease.

## **TROPONINS MARKERS OF HEART DISEASE**

A. Smirnova, S. Umarova, U. Omoniddinova – the 2<sup>nd</sup>-year students

A. Poroshin A. – the 5<sup>th</sup>-year student

Supervisors - Assoc.Prof., Cand.Med.Sc. E.V. Egorshina, V.V. Kostina

Troponin — globular regulatory protein consisting of three subunits, which is involved in the process of muscle contraction. It is found in skeletal muscle and cardiac muscle, but not contained in the smooth muscle. It is a component of the contractile apparatus of striated muscles. It allows the muscle fibers actin and myosin to slide relative to each other. In the sarcomere protein molecules to form a troponin complex consisting of three interconnected units: troponin T, troponin C and troponin I in the ratio 2:1:1. Troponin T (molecular weight 39.7 KD) provides communication troponin complex with tropomyosin fibers. Troponin C (molecular weight KD) binds to calcium ions, whose concentration increases in cells after depolarization of the cell membrane, causing contraction of the muscle fibers. Troponin I (molecular weight of 22.5 KD) inhibits the contractile act during the recovery phase. Different kinetic properties of troponin T and troponin I are due to the difference in their molecular weight. Troponins T and I exist in three isoforms: cardiac-type muscle, slow skeletal muscle type and fast skeletal muscle type. Isoform of troponin T specific for cardiac muscle, embryonic period of development is also present in skeletal muscle. It can be found in recovering from injuries of skeletal muscles in patients with polymyositis or muscular dystrophy of Duchenne, as well as in the epithelial cells of the renal tubules. Cardiac isoform of troponin I until now was found only in cardiac muscle, which indicates its absolute cardiospecific. Troponin T and troponin I are also called cardiac troponins. In ischemic or any other damage to the myocardial cells troponin complex decomposes, and the molecules of troponin penetrate into the bloodstream. The concentration of troponins in the blood can be measured with current laboratory techniques. Thus, troponins allow you to identify quickly myocardial infarction, which gives the opportunity to win time. They are also suitable for late diagnosis, when the blood levels of other cardiac markers are already returning to normal. In addition, knowing the concentration of troponin one can not only diagnose a heart attack, but also with high reliability predict the risk and assess the chances of survival of a patient who had a heart attack.

## **TYPES OF NATURAL CONSERVATION OF CORPSES**

A. Gribov, V. Sukhorukova - the 2<sup>nd</sup>-year students

Supervisors - L.G. Zherepa, V.V. Kostina

Natural conservation of corpses can go by two ways - mummifying and transformation of corpses in adipocere.

Mummification of corpses in nature happens in the dry soils which are well ventilated and containing mineral and limy deposits. In such conditions the corpse quickly dries and there doesn't create conditions for development of putrefactive microorganisms (Bokarius N.S.).

In the mummified corpses there is a quickly decomposition of internals

and their transformation of them into mucous weight which follows through a rupture of putrefactive fabrics and is absorbed to the soil. Such corpse becomes as if a dry empty box. Skin of a corpse becomes dark or brown-orange and corpse itself firm as a tree (Minakov P.A.).

Mummification of corpses is possible not only in hot climate and in the dry soil, but also in North conditions, with the penetrating wind when liquid from a corpse is frozen and blown by a wind. Such corpses were repeatedly found in the Alps.

The second type of natural preservation of a corpse is its transformation in adipocere that occurs in the presence in the soil of moisture or finding of a corpse in water in the absence of air. The essence of process is that fat of a corpse decays on glycerin and fatty acids and reminds mix of fats with wax. The corpse gets gray-brown coloring.

Adipocere is formed not earlier than in 6 weeks. At children's corpses it can be formed a little earlier. Formation of an adipocere is a natural phenomenon of natural preservation of a corpse at which the lifetime form and lines of the person remain long.

#### **USE OF THE BIOLOGICAL WEAPON IN THE MODERN HISTORY**

D. Pronina, Y. Chervova – 2<sup>nd</sup>-year students

Supervisors – L.A. Guba, V.V. Kostina

The biological weapon is pathogenic microorganisms or their spores, viruses, bacteriemic toxins, the infected people and animals, and also the means of their delivery intended for mass defeat of manpower of the opponent, farm animals, crops of crops, and also decay of some types of military materials and equipment. Is weapons of mass destruction and it is forbidden according to the Geneva protocol of 1925.

#### **MY MEDICAL PRACTICE IN TURKEY**

S. Mamedov – the 5<sup>th</sup>-year student

Supervisors - Prof. E.A. Borodin, N.A. Tkachova, D.O. Vdovin – 6<sup>th</sup>-year student

Thanks to exchange program IFMSA this summer I went to practice in the capital of Turkey - Ankara. On the 31 June I arrived Ankara city. In Esenboga airport my curators Bahadur Azizagaoglu and Utku Kuyucu met me. They took me to university, university located outside of the city. There was campus in the university's territory, where I leaved during one month.

Campus was very comfortable. There were free wi-fi, free water, free tea. Thanks to wi-fi I communicated on Skype with parents every day. Every day had free Breakfast and lunch, it was very delicious.

The room where I leaved was for two person. Every room had an air-conditioner. There were a jim, tennis coart, football field, basketball field in the university's territory. And the most amazing that there was a very big library, which worked all day and night without weekends. Also in the university's territory there

were training corps, cafes, mini market and free laundry. The whole territory of the University was protected. No stranger could enter there.

My medical practice was in department of Cardio Vascular Surgery of Bashkent university's clinics. Every hour from university to clinic and from clinic from university there was bus. Bashkent University has eleven clinics all around Turkey. Clinics are equipped with ultra-modern equipment. Relationships between medical staff and students was very good. I met with the best doctors of Bashkent clinic (surgeons, cardio vascular surgeons, orthopedists, ophthalmologists), with anesthetist and resuscitator from Azerbaijan, with orthopedic surgeon from Iran, with russian doctor from Kazahstan (cardio vascular surgeon) and with doctor from Kosovo (cardio vascular surgeon).

During my medical practice I got acquainted with clinic's specification, and Bashkent University's history.

I met with turkish students and students from other different countries: America, Greece, Denmark, Poland, Great Britain, Brazil, Kuwait. They were very friendly and sociable.

Turkish students took us to excursion. We visited a lot of sightseings, met with turkish national culture, tasted traditional Turkish cuisine, it was very delicious and nourishing.

In Turkey medicine is very developed, while I was in Turkey all doctors were very kind with me and with another students. I am very happy that I had my medical practice in Turkey. This is a great experience for me.

### **ALICE IN WONDERLAND SYNDROME**

K. Gorshkova, A. Krivenko – the 4<sup>th</sup>-year students  
Supervisors – N.G. Brash, V.V. Kostina

Alice in Wonderland Syndrome is a disorienting neurological condition that affects human perception. The syndrome is sometimes called Todd's syndrome, in reference to an influential description of the condition in 1955 by Dr. John Todd (1914-1987). Todd discovered that several of his patients experienced severe migraine headaches causing them to see and perceive objects as greatly out of proportion. They have altered sense of time and touch, as well as distorted perceptions of their own body. Although having migraine headaches, none of these patients had brain tumours, damaged eyesight, or mental illness that could have caused similar symptoms.

People experience micropsia, macropsia, pelopsia, teleopsia, or size distortion of other sensory modalities. It is often associated with migraines, brain tumors, and the use of psychoactive drugs. A prominent and often disturbing symptom are experiences of altered body image. The person may find that they are confused as to the size and shape of parts or the whole their body. Alice in Wonderland syndrome also involves perceptual distortions of the size or shape of objects.

Whatever the cause, the bodily related distortions can recur several times a day and may take some time to abate.

The diagnosis can be presumed when other causes have been ruled out and if the

patient presents symptoms along with migraines and complains of impress during the day.

### **ANEMIA IN DEFICIENCY OF B12 AND FOLIC ACID**

D. Piura – the 3<sup>rd</sup>-year student

Supervisors – Cand.Med.Sc. N.V. Menshchikova, V.V. Kostina

Vitamin B12 and folic acid are chemically different vitamins, required for the biosynthesis of DNA. Their lack leads to disruption of this process, inhibition of normal mitosis, abnormal maturation and functioning of produced cells. These changes are especially notable in tissues whose cells divide quickly, for example, in the bone marrow and epithelium of the gastrointestinal tract, but in some degrees all dividing cells are corrupted.

The main manifestation of deficiency of vitamin B12 or folic acid is a severe anemia, but it is also possible pancytopenia and disorders of the digestive tract.

Anemia caused by lack of itamin B12 or folic acid, are characterized by some specific changes in peripheral blood and bone marrow, which are called megaloblastic anemia. Since the primary defect is disturbance of synthesis of DNA, cell division is inhibited while maintaining the synthesis of protein and RNA. This leads to the formation of large (macrocytic) red blood cells with a high RNA: DNA. These abnormal red blood cells are extremely sensitive to destructive influences. Morphologic study of bone marrow is the abundance of cells, increase of the number of abnormal precursors of red blood cells (megaloblasts), and the extremely small number of cells, which mature up to normal cells.

linical manifestations of anemia are atrophy of the gastric mucosa, yellowness of skin and sclera, funicular myelosis, General hemosiderosis, fatty degeneration of the parenchymatous organs, General obesity and so on.

### **ANOMALIES OF THE EXTERNAL EAR**

R. Mirgyan – 2<sup>nd</sup>-year student

Supervisors - A.E. Pavlova, V.V. Kostina

Floor of the auricle in the norm is in fact a rudimentary body, so the concept of its anomalies seems to be very loose.

Signs, by which the floor of the auricle of the individual is different from the characteristic of the majority, it is necessary to consider not so abnormal as variation. If you come to the diversity of the ear device with this point of view, go to the so there will be not enough for the lobe of anomalies only the most exvisited deviations from the norm. The number of them do not exceed 5%

Abnormalities of the external ear are more common on the right side than on the left one. The double-edged anomalies occupy in this respect, an average place. Abnormalities of the ear can be expressed in its unusual size, position, abnormal external shape, the presence of additional structures and abnormal moves – fistulas.

Ear of macaque is characterized by the fact that the curl is not wrapped inside a sublime form roller and is deployed, and on the top of it there is a free stick-

ing Darwin's tubercle, which normally faces inside.

If the upper part of the ear is deployed (no curl) and the ear cartilage in addition to this place forms a bulge in the direction of the lateral surface of the shell, without pronounced Darwin's tubercle so this is called the ear satyr or faun.

### **ARTEMISININ AND IVERMECTIN: FORWARD TO THE PAST**

K. Hotsanyan, V. Cheplygin - the 5<sup>th</sup>-year students

Supervisors - T.A. Dolgikh, V.V. Kostina

Malaria - a disease that is entirely preventable and treatable. The main goal of treatment is to achieve rapid and complete elimination of Plasmodium parasites in the blood and prevent the escalation of uncomplicated malaria into severe form or death, as well as the development of chronic infections caused by malaria concomitant anemia. New drug DSM265 kills drug-resistant strains of Plasmodium falciparum (the parasite that causes malaria) in the blood and liver, targeted influencing the ability of the parasite to reproduce. Malaria - an infectious disease that is transmitted by mosquitoes.

The results showed that the chemical compound was well tolerated by human DSM265. Scientists have found the optimal level of dosage and duration of treatment in preclinical models, to establish the dose for a person to be used in future clinical trials. The first clinical trial was to investigate the safety of the drug in Australia. Now the study is carrying out of its effectiveness in Peru, DSM265 the ability to cure patients with malaria. It is already planned additional clinical trials, and one of them will be assess the value of preventive medicine.

Artemisinin (hinghaosu) - sesquiterpene lactone extracted from the herb Artemisia annua (sweet wormwood). It was used in China as an antipyretic for over 2,000 years. The active ingredient is isolated and described in 1971, the responsibility for its antimalarial activity is a peroxide structure (trioxane).

### **CHOLESTEROL AND ITS BIOLOGICAL ROLE IN HUMAN LIFE**

A. Gribov, V. Sukhorukova - the 2<sup>nd</sup>-year students

Supervisors - L.Ya. Etmanova, V.V. Kostina

Cholesterol - an organic compound, a natural fat (lipophilic) alcohol contained in the cell membranes of all living organisms, except for fungi and enucleated. The adult human body contains about 100 grams of cholesterol. Nervous tissue, adrenal glands, ovaries, uterus, testis are most rich in cholesterol. Sufficiently high cholesterol content is in the muscles, lungs, liver, kidney, spleen, skin.

Cholesterol is transported in to the blood by special substances (molecules), which are called lipoproteins. The three main types of lipoproteins:

1. LDL (low-density lipoprotein, LDL) - people often refer to their "bad cholesterol." LDL transports cholesterol from liver cells to other ones in the body. If carried too much, more than the cells could be used, it may be harmed by the rise of LDL.

2. HDL (high-density lipoprotein, HDL) - people often refer to their "good

cholesterol." HDL cholesterol is reversed - HDL cholesterol transfer from the cells back to the liver. In the liver, it is either broken down or excreted from the body as waste.

3. Triglycerides - the chemical form in which most fats exist in the body as well as in foods. They are present in blood plasma. Triglycerides in complex with cholesterol form plasma lipids (fats or blood).

Cholesterol performs two important functions:

1. Plastic function. Cholesterol regulates the physical-chemical properties of the lipid bilayer and thus affects the functional activity of membrane proteins.

2. Metabolic function. Cholesterol is the precursor of a number of compounds that perform important functions in the body. Among these substances: bile acids, steroid hormones, sex hormones, vitamin D.

Benefits of cholesterol. It does not bypass the cells as major-component of the plasma membrane, where it plays a structural and functional role.

Harm of cholesterol. The accumulation of cholesterol in the body in the elderly, especially the increase of its content in the blood is considered as an important factor in the development of atherosclerosis.

#### **CLINICAL AND ANATOMIC FEATURES OF THE CONCEPT OF "SIGNAL SYSTEM"**

A. Smirnova, V. Shebunova – the 2<sup>nd</sup>-year students

A. Poroshin – the 5<sup>th</sup>-year student

Supervisors - A.E. Pavlova, V.V. Kostina

Signal system - a system of conditionally and unconditionally reflex connections of higher nervous system of humans and animals with the environment. I and II signal systems are distinguished. The term was introduced by academician I. P. Pavlov. This system is a subject of studying of physiology of the higher nervous activity of humans and animals. First signal system is the perception of the world, using senses, well-developed in almost all animals. The second signaling system arose in the course of evolution, the process of social labor. The second signal system is unique to humans, but, according to scientists it is possible in some high-organized animals. This is due to the fact that only humans are able to form abstracted from the circumstances of the image. In conjunction with the word forms a concept. And the more images associated with the word, the deeper and more multifaceted understanding of what it is. The capacity for the generalized reflection of phenomena and objects provided to a person an unlimited possibility of orientation in the surrounding world and enabled him to create science. The first and second signal systems – different levels of a single of the higher nervous activity, where the second signal system plays a leading role. The formation of the second signaling system is only under the influence of association, i.e. is determined not only by biological but also by social factors. Unlike conditioned reflexes of animals, reflecting the surrounding reality with the help of specific auditory, visual and other sensory cues, stimuli second signal system to reflect the validity of using generalized, abstract notions expressed by words. Animals only operate on images that are formed on the basis of the signal

stimuli, and the person operates not only images but also related thoughts, meaningful images that contain semantic information.

### **CLINICAL AND ANATOMICAL FEATURES OF THE EYE SOCKET CAVITY IN THE NEWBORN**

M. Bayramov, R. Myrghyan – the 2<sup>nd</sup>-year students  
Supervisors – A.E. Pavlova, V.V. Kostina

The shape of the orbit resembles a triangular pyramid whose axes converge posteriorly relatively little. The base of the pyramid is faced forward and forms the entrance to the eye socket. Its narrowed apex is directed towards the back and a few inside. Thus, the longitudinal axis of the eye sockets, converging posteriorly and expenditure front, forming an open anterior angle. This angle is always less than in children by its maximum value to 20-25 years old. Age transposition of angle is of practical importance in clinical ophthalmology, as esotropia may decrease with age and exotropia in children over the years, doesn't decrease, but increase. In newborn borders are smoothed orbit, because of the weak development of brow ridges, zygomatic bone and its frontal process. The transverse dimension of the orbit ranges from 18.5-23 mm, the vertical size of 15-22 mm, so the depth of the orbit is relatively small. Size of upper- and infraorbital slits are relatively large.

### **CONDUCT OF PREGNANT WOMEN WITH PROSTHETICS VALVES OF HEART**

. Romashchyov, . Taran – the 6<sup>th</sup>-year students  
Supervisors – Cand.Med.Sc., Assoc.Prof. O.N. Sivaykova, V.V. Kostina

Presently there is a tendency to the increase of number of pregnant women with the artificial valves of heart. In such patients the risk of thromboembolic complications, bacterial endocarditis is enhanceable, parafunctions of prosthetic appliance because of formation of fistulas round prosthetic appliance from insolency of guy-sutures or thrombosis of artificial valve, obstetric bleeding, there is a risk of embryopathies at anticoagulating therapy accoucheurs, physician, cardiologists, have problems on the conduct of similar patients, that it contingently the physiological features of pregnancy (by propensity to the hypercoagulability), possibility of development of the fallopian bleeding during genus, difficulties of correction of anticoagulating therapy on background caesar section.

A risk at pregnancy with the artificial valves of heart depends on the type of prosthetic appliance and its position, and also from the presence of concomitant pathology. So, pregnancy at prosthetic appliance of aortic valve presents a less thrombogenic risk, what at prosthetic appliance mitral, pulmaneri or tricuspid valve or at multivalvular prosthetics. The risk of origin of complications during pregnancy increases also at presence of in anamnesis of preceding thromboembolism, fibrillation of auricles, mitral stenosis, hypercoagulability.

There is not single opinion of the most preferable type of valve at a necessity its setting for women, designing pregnancy. Prosthetic Bioappliances possess a subzero

thrombogenic risk, but degenerate quickly. Mechanical valves lasting, however require lifelong anticoagulating therapy.

Presently for anticoagulating therapy for the artificial valves of heart varfarin and other antagonists of vitamin K is used. Heparin (unfractionating and low-molecular heparin). The use of varfarin provides reliable anticoagulation, but frequently results in complications from the side of foetus (such as embryopathies, spontaneous breaking of pregnancy on early terms and premature genus).

Heparin does not carry a risk for a fetus, but not so effective in regard to anticoagulation. There are serious complications of the use of heparin from the side of mother are bleeding, osteoporosis, a heparin induced thrombocytopenia, thromboembolic complications. The conduct of pregnant on an unfractionating heparin is problematic, because it is difficult constantly to monitor APTT (Activated partial thromboplastin time) and to support his permanent level. Application in the parallel instances of low-molecular heparin yet is studied not enough.

A decision about the method of anticoagulating therapy during pregnancy must include the estimation of risks.

### **CORONARY ARTERY BYPASS GRAFT SURGERY**

V. Mikhailova, A. Kazakov – the 3<sup>rd</sup>-year students

Supervisors - Dr.Med.Sc. G.N. Marushchenko, Cand.Med.Sc. A.V. Sergienko

The aorta Coronary Shunting is a surgical intervention as a result of which the heart blood-groove below a place of narrowing of a vessel is restored. The aorta Coronary Shunting becomes coronary angiography, define a place of narrowing of coronary arteries. At this surgical manipulation round a place of narrowing there creates the other way for a blood-groove to that part of heart which wasn't supplied with blood.

The section providing access to heart will be executed on the middle of a breast. Exactly the surgeons will take a piece of a vein which will be used for shunting. Veins of the lower extremities take quite often.

Internal chest and beam arteries are used rather frequent and preferable to shunting. It provides full functioning of the shunt (its functionality and durability).

One of such arteries is the beam artery of a hand, it settles down on the internal surfaces of a forearm, closer to a thumb.

The internal chest artery undertakes from under a breast, usually left, but in certain cases right and left internal head arteries are used. Its sufficient diameter and lack of atherosclerotic defeat is defined when carrying out coronary angiography.

### **FATAL FAMILIAL INSOMNIA**

K. Hotsanyan, N. Sharvadze - the 5<sup>th</sup>-year students

Supervisors - Cand.Med.Sc O.S. Yutkina, V.V. Kostina

Fatal familial insomnia - a rare hereditary disease in which a person dies from an inability to sleep. Until now, it was observed only in forty families all over the world. In the first stage insomnia is accompanied by panic attacks and phobias, dur-

ing the second one there added hallucinations and increased sweating. At the third stage of the disease the person loses the ability to sleep and begins to look much older than he is. Then it is developing dementia, and the patient dies - typically from malnutrition or pneumonia.

Lethal insomnia arises from the fact that in a codon (encoding trinucleotide) 178 PRNP gene, located at chromosome in 20 instead of asparagine, aspartic acid appears. This changes the shape of the protein molecule, and it turns into a prion - aggressive abnormal protein in the composition which has no nucleic acids. Under the influence of the surrounding prion molecules become like it, and this leads to irreversible changes. Under the action of prions thalamic nuclei are covered with pores turn, into a sponge and stop working.

The disease is characterized by an autosomal dominant mode of inheritance: that is, it does not have media. It is transmitted to children from parents with a probability of 50%, and only on condition that one of them is sick. Today, the disease is considered incurable.

#### **FEATURES OF MENTAL DEVELOPMENT OF CHILDREN WITH CEREBRAL SPASTIC INFANTILE PARALYSIS**

. Matyliuk, . Yudina, A. Yudin – the 5<sup>th</sup>-year students  
Supervisors - Cand.Med.Sc. O.S. Yutkina, V.V. Kostina

The purpose of scientific work consists of studying of features of mental development of children with cerebral spastic infantile paralysis. 6 children aged from 10 months up to 10 years who are on treatment in neurologic office in CMCH No. 1 of Blagoveshchensk were investigated.

Children were observed in a hospital with the diagnosis of cerebral spastic infantile paralysis, from them at 50% a spastic diplegiya, and other 50% of children have a spastic hemiplegia. The diagnosis of cerebral spastic infantile paralysis of 100% of children was exposed in 1 year.

Thus, development of the personality in children with cerebral spastic infantile paralysis in most cases are very peculiar, though under the same laws, as development of the identity of normally developing children. Specifics of development of the identity of children is determined as cerebral spastic infantile paralysis by both biological and social factors. Development of the child in the conditions of an illness, and also adverse social conditions negatively affect formation of all sides of the identity of the child having a children's cerebral palsy.

#### **FIRES OF THE AMUR REGION**

A. Rogovchenko - the 2<sup>nd</sup>-year student  
Supervisors - L.A. Guba, V.V. Kostina

With the onset of cold weather in the Amur region the number of fires is increased, especially in the private sector. This year 61 people were killed by fires in the Amur region. There were registered 1150 cases of emergence. Firefighters conduct different preventive actions. The main causes of fires are careless using of fire,

exploitation of electrical equipment and negligence of people. Emergency, dilapidated housing is in almost all localities of the Amur region. There are furnaces, chimneys and heating systems. Typically, people have to use additional sources of heating and it leads to serious fires with death and injury of people. Fires often happen in houses of invalids and pensioners. Except city cases there are a lot of forest tragedies. Amur region is famous for its Khingansky and Zeyskiy reserves, where animals of Red Book live. It also influence on human life. Large fires pollute air and people breathe it and it can lead to different diseases such as ischemic stroke and cardiac arrhythmia. Ministry of forestry and fire safety advises to remember certain rules of fire safety when they use different source of fire. Also citizens should remember that all appliances used at home must be supervised, especially heaters.

### **GENERAL CHARACTERISTICS OF THE PINEAL GLAND**

E. Baldanov – the 2<sup>nd</sup>-year student

Supervisors – Doc.Med.Sc., Assoc.Prof. N.P. Krasavina, V.V. Kostina

The epiphysis, pineal gland, or pineal body (corpus pineale, epiphysis cerebri) is a small organ performing endocrine function, which is considered an integral part of photoendocrine system.

Anatomically it belongs to epithalamus region. The epiphysis refers to the diffuse endocrine system.

Basically, the pineal gland consists of pinealocytes — polygonal parenchymal cells of the pineal gland, but also found four other types of cells: interstitial endocrinocytes, perivascular phagocytes, neurons of the pineal gland, peptidergic neuron-like cells.

Until now the functional significance of the pineal gland for a man is poorly understood. The secretory cells of the pineal gland secrete into the blood the hormone melatonin, synthesized from serotonin, which is involved in synchronizing circadian rhythms (biorhythms "sleep — Wake") and may affect all of the hypothalamic-pituitary hormones, and the immune system. Adrenocorticotropin (ACTH) stimulates the production of aldosterone, biosynthesis is carried out by restoring the serotonin.

Known general functions of the pineal gland include: inhibition of release of hormones growth, inhibition of sexual development and sexual behavior, inhibiting of the development of tumors, impact on sexual development and sexual behavior. In children, the epiphysis is larger than in adults; upon reaching sexual maturity, production of melatonin decreases.

### **HEREDITARY DISEASE PHENYLKETONURIA**

A. Neverova, N. Soyotova - the 3<sup>rd</sup>-year students

Supervisors - Cand.Med.Sc., Assoc.Prof. V.A. Maksimenko, V.V. Kostina

Phenylketonuria (PKU) is an inherited retardation caused by the deficiency of phenylalanine hydroxylase enzyme which is essential for conversion of phenylalanine (PA) into tyrosine.

There are signs of disease: 1. Mental delay; 2. Convulsive disorder; 3. Predisposition to dermatitis; 4. Pigmental exchange disorder

Nowadays 5 nosological types of phenylketonuria are distinguished: Type 1. Classical PKU; Type 2. Variant PKU; Type 3. Transitory neonatal PKU; Type 4. Lack of dihydropteridine reductase; Type 5. Genetic defect of bipterin synthesis.

Treatment involves a diet with very low phenylalanine.

### **HODGKIN'S LYMPHOM**

M. Ruder, A. Cheban - the 3<sup>rd</sup>-year students

Supervisors – Cand.Med.Sc. N.V. Menshchikova, V.V. Kostina

Hodgkin's lymphom is the kind of malignant tumor, which develops from lymphatic tissue including the lymph nodes and other organs of the lymphatic system of the body (spleen, thymus, red bone marrow).

There are four stages (variants) of disease: variant with a predominance of lymphatic tissue, nodular sclerosis, mixed-cellular variant, variant with a suppression of lymphatic tissue. The advance of Hodgkin's lymphom is expressed morphologically in the sequence of its three stages: with a predominance of lymphatic tissue, mixed-cellular and with a suppression of lymphatic tissue. These clinical and morphological variants can be considered as stages of Hodgkin's disease.

Clinical manifestations of Hodgkin's disease:

1. The appearance of enlarged painless lymph nodes, mostly in the cervical region.
2. The swollen of lymph nodes in the chest cavity may cause compression of the trachea, which may be accompanied by cough and shortness of breath.
3. Rise in temperature, exhausting night sweats and losing weight.
4. Skin itch, fatigability, poor appetite.

### **HYALURONIC ACID. IT'S ROLE AND PLACE IN MEDICINE**

K. Denishchik – the 2<sup>nd</sup>-year student

Supervisors - L.Ya. Etmanova, V.V. Kostina

Hyaluronic acid (HA) is a polysaccharide widely distributed in body tissues.

Hyaluronic acid was first extracted in 1934, by X-ray crystallography, from the vitreous eye of cows by the scientists Carl Meyer.

Hyaluronic acid is an essential part of our body, such as water or blood.

Hyaluronic acid participates in the distribution of water in the tissues of the body, determines the barrier and protective functions of the intercellular space.

In the human body, hyaluronic acids are generated by special cells- fibroblasts.

The method of biosynthesis of HA was invented in 1955, it was preceded the selection hyaluronate from bacteria (streptococci) in 1937.

Since the 50s, HA started apply in medicine.

Throughout the time HA research, scientists have tried to improve the quality

which is directly dependent on the molecular weight.

It is known that the elixir of eternal youth has not yet been found, but slow down skin aging and prolong youth modern cosmetology is quite capable, with the help of the "rejuvenating apples", as hyaluronic acid.

### **MALFORMATIONS OF THE EYEBALL**

A. Aksyonov - the 2<sup>nd</sup>-year student

Supervisors- Cand.Med.Sc., Assoc.Prof. S.S. Selivyorstov, V.V. Kostina

Anophthalmia - lack of eyeballs. a) True anophthalmia rare malformation due to a lack of eye favorites. b) False anophthalmia - caused his eyes to stop the development of the optic vesicle stage or degeneration of the optic cup. Gidroftalm innate - an increase in the eyeball increases. It occurs when a congenital glaucoma, in the underdevelopment of developing rosy-corneal angle and venous sinus of the sclera, which leads to a violation of the outflow of aqueous humor, and increased intraocular pressure. Eye cystic - cystic cavity in place of the absent of the eyecup. A cyst is a congenital eye - protrusion of the eyeball with retina. Coloboma - patchy absence of one or another membrane of the eye. Staphyloma - local bulging of the wall of the eyeball due to the limited extension of the sclera. Cyclops - the existence of a single orbit of the middle line in the forehead, which does not contain any of the eyeball, or contains it in the reduced, the normal or double kind up to the presence of two reduction in size of the eyeballs. Defects are accompanied by abnormalities of the nose, which often is located over the tubular appendage of the eye socket with a single cavity.

### **MALFORMATIONS OF THE TONGUE**

D. Nikitina - the 2<sup>nd</sup>-year student

Supervisors – Cand.Med.Sc., Assoc.Prof. S.S. Seliverstov, V.V. Kostina

Fissured tongue, macroglossia, microglossia, dual tongue, the absence of tongue, as well as tongue-tie are referred to the anomalies of tongue development.

Fissured tongue when the tongue is increased slightly, but remains soft. It is dissected furrows into shares. Epithelial cover is not broken.

Macroglossia. Sizes may reach such shape that it is not placed in the oral cavity, is protruded between the teeth and sometimes hangs over the lower lip.

Microglossiya is reflected in a reduction of tongue, the result of abnormal development of the teeth-jaw system.

Dual tongue - the tongue of the splitting of the middle line in its top when every is fitted with its bridle.

The absence of tongue in the mouth - aglossia.

Tongue-tied - ankyloglossia at which the mobility of tongue is impaired.

### **MORHOLOGICAL FORMS OF LIVER CIRRHOSIS**

V. Mikhailova, A. Kazakov – the 3<sup>rd</sup>-year students

Supervisors - Cand.Med.Sc. N.V. Menshchikova, V.V. Kostina

Cirrhosis is serious disease of the liver, accompanied by irreversible changes in parenchymal liver tissue by fibrous connective tissue, or stroma.

Postnecrotic portal and mixed cirrhosis allocate by morphogenesis.

Postnecrotic cirrhosis of the liver - the result of massive necrosis of hepatocytes (merging centrilobular, bridges portoportal, portocentral).

Portal cirrhosis of the liver - a consequence of the introduction of fibrous septa in segments of the portal tracts and or central veins.

Mixed cirrhosis has symptoms like postnecrotic and portal cirrhosis.

Grossly, the following types of liver cirrhosis: macronodular, micronodular, incomplete septal mixed. The criterion - the size of nodes and regenerates sept.

Macronodular cirrhosis. Characterized regenerates nodes of various sizes, from 3 mm to 5 cm in diameter.

Micronodular cirrhosis. Nodes regenerates the same size, with a diameter of 1-3 mm. The incomplete septal cirrhosis. Signs of recovery in the nodes are not very pronounced between major nodes - thin, sometimes incomplete fibrous septa connecting neighboring portal tracts. Mixed (large-CKD) are diagnosed with cirrhosis, if the number of large and small units is approximately the same.

## **PSORIASIS IN THE AMUR REGION**

A. Kharkovskaya - the 3<sup>rd</sup>-year student

Supervisors - Dr.Med.Sc., Prof. G.I. Chubenko, V.V. Kostina

Psoriasis is a chronic inflammatory skin disease, which is accompanied by the appearance of her bright pink rash with abundant peeling on the surface. Usually, there are foci of psoriasis on elbows and knees. In Russia, it affects about 2% of the population.

Currently, psoriasis is considered a hereditary disease: the basis of the disease is not one but a whole range of reasons - immunological changes, metabolic, endocrine and related neurological disorders. This is exactly: psoriasis - not infectious, therefore not a contagious disease.

Disease with remissions lasting months or years before reaching the end of life.

There are winter, summer form of psoriasis. The most common clinical form of the disease is plaque psoriasis.

According to the State Organization "Central Research Institute for Information and Public Health Organization" Ministry of Health of Social Development of Russian Federation, Moscow (04.15.2015) the Amur Region is part of a group with a maximum incidence of psoriasis. According to data from 2009-2013, the psoriasis on average 2 times more often detected among the adult population. For five years the incidence of psoriasis primary rural residents decreased by 19.8%. Moreover, among citizens the primary disease by psoriasis decreased by 3,4% from 2010 to 2013. This may be due to difficulties in obtaining dermatovenereological medical care in rural areas.

## **REPARATIVE REGENERATION OF SEED PLANTS**

N. Darina – 2<sup>nd</sup>-year student

Supervisors – Dr.Med.Sc., Prof. H.P. Krasavina, V.V. Kostina

Regeneration of seed plants is a restoration of structural elements of fabric instead of the dead ones. In the beginning of regeneration process, there are spermatogoniya as a result of division of the remained stem cells, then — other cages radio resistant cells of Sertoli and intrastitsialny cages of Leydiga.

Somatic cells of Sertoli are located among a germinal epithelium occupy about 35-40% of volume. The intact small egg with fully complete spermatogenesis contains 800-1200 106 cells of Sertoli. Sertoli's cells synthesize and secrete proteins, cytokine, growth factors, opioids, steroids, prostaglandins, modulators of cellular division, etc. Sertoli's cells determine the final volume of small eggs and production of sperm at adults. Each cell of Sertoli morphologically and functionally is connected with a certain number of spermatozoa. At the person on each cell of Sertoli 10 germinal cages or 1,5 spermatozoa are necessary.

Cells of Leydiga produce man's sexual hormones — androgens (testosterone), also small amounts of oxytocin stimulating activity the smooth muscular of cells the of deferent ways. The androgens produced by cells of Leydiga are necessary for a normal current of a spermatogenesis; they regulate development and function of additional glands of sexual system; provide development of secondary sexual signs; define a libido and sexual behavior.

## **RESEARCHES OF WAYS OF REHABILITATION OF CHILDREN WITH DIAGNOSIS OF CEREBRAL SPASTIC INFANTILE PARALYSIS**

. Matyliuk, . Yudina, A. Yudin – the 5<sup>th</sup>-year students

Supervisors - Cand.Med.Sc. O.S Yutkina, V.V. Kostina

On the basis of CMCH No. 1 there were researches of ways of rehabilitation of children with the diagnosis of cerebral spastic infantile paralysis aged from 2 up to 15 years. They are: kinesitherapy, pharmacotherapy, surgical treatment, physical therapy, use of botulinum toxin and psychotherapeutic rehabilitation.

Thus, main objectives of physical therapy are: preservation of length of muscles, simplification of care, simplification of active control of residual movements. The complex of actions are treatment by situation, daily passive and passive — active exercises use of biologically feedback, orthoses, splinting, cryotherapy, electrostimulation of muscles and reflexotherapy. Botulinistichesky toxin is applied to permission of the concrete functional restrictions caused focal spasticity. The purpose of psychotherapeutic rehabilitation is reduction of a muscular tone by use of psychological influences.

## **SELFIE-ADDICTION**

A. Vinohodova, T. Koryukova - the 4<sup>th</sup>-year students

Supervisors - N.G. Brush, V.V. Kostina

Selfie – make photo of oneself by mobile phone or camera and laid out on the social networks. Now selfimania is recognized as full-fledged mental disorder by a number of American psychiatrists. Such diagnosis is for those people who are at least 5 times a day selfie Internet downloads. Psychiatrists attribute selfimania to disorders based on the obsessive desire to constantly repeat the same action.

There are three stages of addiction to the fashion trends.

1. At the first (episodic) stage, one makes at least three series of shots a day, but do not share them on social networks.

2. On the second (acute) stage, someone also makes series of at least three shots per day, but at the same time actively share them with others through the Internet.

3. In the third (chronic) stage, one photographs himself not less than 6 times per day, and constantly put the results in the network.

As a result of the survey, we found that 85% of schoolchildren entertain themselves by a new trend in photography - selfie. But among the students it was only 58%. Adolescence is more loyal to this phenomenon.

The habit of taking pictures of himself, then to post the images in the "Facebook", "Instagram" or "VKontakte" in the last half a year has covered the whole world. Obsession with crossbows becomes such a global phenomenon that psychologists are interested in them. The American psychiatric association officially named selfie as psychological disorder filling up medicine by new disease - selfit.

### **SURGICAL TREATMENT OF THE TETRAD OF FALLO**

D. Baymysheva – the 3<sup>rd</sup>-year student

Supervisors - Cand.Med.Sc., Assoc.Prof. A.V. Sergienko, V.V. Kostina

Fallo's tetrad — the so-called "blue" heart disease combining by definition of the French pathologist Fallo, four anomalies: a stenosis of output department of the right ventricle (valvate, subvalvate, a stenosis of a pulmonary trunk and (or) branches of a pulmonary artery or combined); high (subaortal) defect of an interventricular partition; aorta dextrapozition; a hypertrophy of the right ventricle (as a result of the complicated outflow of blood from a ventricle).

The most effective method of treatment of cyanotic congenital heart disease of a tetrad of Fallo is in due time executed surgical intervention on heart. Indications to operation have absolute character. In our country most of surgeons adhere to a landmark surgical method of treatment of children with Fallo's tetrad.

The first stage - till 3 years the palliative operations significantly facilitating life of patients are carried out. The purpose of performance of palliative operations — to increase inflow of blood to a small circle of blood circulation.

The second stage - is carried out in 2-6 months after the first. Radical operation is carried out in the conditions of IK with a careful cardioplegia.

### **THE ANATOMY OF THE GLOSSOPHARYNGEAL NERVE**

E. Baldanov – the 2<sup>nd</sup>-year student

Supervisors – Cand.Med.Sc., Assoc.Prof. S.S. Selivyorstov, V.V. Kostina

The glossopharyngeal nerve, known as the ninth cranial nerve, is a mixed nerve that carries afferent sensory and efferent motor information. It exits out of the brainstem behind the upper [medulla](#), just rostral (closer to the nose) to the [vagus nerve](#). The motor division of the glossopharyngeal nerve is derived from the [basal plate](#) of the [embryonic medulla oblongata](#), while the sensory division originates from the [cranial neural crest](#).

Branches: [Tympanic](#). [Stylopharyngeal](#). [Tonsillar](#). Branches to the [posterior third of tongue](#). [Tongue branches](#). [Nerve to carotid sinus](#).

There is a number of functions the glossopharyngeal nerve: It receives general sensory fibers ([ventral trigeminothalamic tract](#)) from the [tonsils](#), the [pharynx](#), the [middle ear](#) and the posterior 1/3 of the tongue. It receives special sensory fibers ([taste](#)) from the posterior one-third of the [tongue](#). It receives visceral sensory fibers from the [carotid bodies](#), [carotid sinus](#). It supplies [parasympathetic](#) fibers to the [parotid gland](#) via the [otic ganglion](#). It supplies [motor fibers](#) to [stylopharyngeus muscle](#), the only motor component of this cranial nerve.

## THE MECHANISM OF ACTION OF FIBRINOLYTIC AGENTS

V. Naidina, A. Yantsen - the 4<sup>th</sup>-year students

Supervisors – Dr.Biol.Sc., Assoc.Prof. N.V. Simonova, V.V. Kostina

Fibrinolytic agents - the medicament to facilitating the dissolution of fibrin and thereby causing resorption of new thrombi.

Mechanism of action there are isolated indirect plasminogen activators (streptokinase) and fibrinolytics which act directly on plasminogen. The direct plasminogen activators include a recombinant tissue plasminogen activator alteplase, its derivatives (tenecteplase), and urokinase and prourokinase.

Streptokinase - an enzyme produced by  $\alpha$ -hemolytic streptococcus group C. The streptokinase has no proteolytic activity. It interacts with plasminogen produced becomes complex proteolytic activity and stimulates plasminogen transition (plasminogen) in fibrinolysin (plasmin) as in the thrombus and blood plasma. Plasmin, being a proteolytic enzyme that dissolves fibrin. Consequently, fibrinolytic streptokinase is of indirect action.

Urokinase - an enzyme produced in the kidney. As a result, the conversion of circulating plasminogen fibrinolysin in urokinase, streptokinase and the same, can cause systemic fibrinolysis. The latter is due the fact that fibrinolysin has indiscriminate effects of protease that can metabolize many protein compounds found in blood plasma. This leads to a reduction in the plasma fibrinogen level,  $\alpha_2$ -antifibrinolysin, several blood clotting factors (V, VIII). Naturally, the content in the blood of fibrin degradation products and fibrinogen increases.

Tissue plasminogen activator - serine protease is identical to the human plasminogen activator synthesized by vascular endothelium. Currently it is used a single-stranded molecule of recombinant tissue plasminogen activator (alteplase). Alteplase has a high affinity for fibrin. On its surface, it becomes much more active and selectively affects close to fibrin-bound plasminogen, turning it into plasmin. There-

fore, the effect of the fibrinolytic system is much less pronounced. Furthermore, compared to streptokinase, alteplase capable of degrading fibrin with more pronounced cross-coupled, that is a long existing fibrin clots. Alteplase inhibitors inhibit the action of plasminogen activator. Unlike drug streptokinase is not immunogenic. Tenecteplase - derivative alteplase, created on genetic engineering by replacing amino acid residues in the three sections of the parent molecule. This has led to an increase in fibrin-specific and the emergence of resistance to the influence of plasminogen activator inhibitor type-I.

Prourokinase recombinant - created with genetically engineered modified human prourokinase molecule, which in thrombus specifically interacts with plasminogen associated with the fibrin, and does not inhibit the inhibitors circulating in the blood plasma. Under the influence of the plasmin is a single chain molecule of prourokinase is converted into the more active double-stranded molecule of urokinase.

#### **TYPES OF ACCENTUATION IN MEDICAL STUDENTS**

K. Borodina - 5<sup>th</sup>-year student

Supervisors - Cand.Med.Sc. E.L. Chupak, V.V. Kostina

To study of processes of adaptation of students to training conditions we selected the character accentuation. Accentuation of character - is the excessive growth of certain character traits, in which there is not beyond the norm deviations in psychology and human behavior, bordering on pathology.

Materials and methods. Researches were conducted at Amur State Medical Academy. There were examined 178 students of medical faculty, 73 second-year students and 105 students of the fifth year. A survey of students was carried out using a technique Leonhard - Shmisheka intended to determine the nature of accentuation. Statistical analysis was performed using Student's t-test.

So leading accentuations at second-year students are hypertimidity, anxiety, exaltation. At the fifth-year students celebrated a smoother character accentuation, so they have all the leading accentuation except cyclothymic and exaltation, have lower values than the 2<sup>nd</sup> year students.

Significant differences are noted and common expressions accentuation of character in different groups. So accentuation analysis presented in the common symptom of character, shows that among sophomores significantly more people at the same time having from 3 to 5 marked accentuation of character, they make up 33.2% of the total number surveyed in contrast to the students of the 5<sup>th</sup> year where such students is much less - 18%.

Thus, the accentuation of character can serve as a breeding ground for the development of premonitory events, neurotic and psychosomatic disorders, which again points to the need for targeted diagnostic and remedial activities among students in order to normalize their functional state.

## **UNIQUE VITAMIN**

A. Cherepenko – the 4<sup>th</sup>-year student

Supervisors – Dr.Biol.Sc., Assoc.Prof. N.V. Simonova, V.V. Kostina

Ascorbic acid - water-soluble vitamin that is essential for normal functioning of connective and bone tissue. The human body can not produce vitamin C on their own, so you must get it from food.

The pharmacological properties: anti-hemorrhagic, antioxidant, anti-hypoxic, antitoxic, anti-anemic, anti-atherosclerotic, anti-inflammatory, anti-stress, anti-allergic, regenerating.

The daily rate of vitamin C for adults - 100 mg, for pregnant women - 130 mg. Lack leads to violation of the synthesis of collagen and also leads to scurvy - bleeding into tissue and organs due to increased fragility of vessel walls. In children lack of vitamin contributes to the development of rickets because it violates the development of cartilage and bone.

Vitamin C is testimony for the use to people who are prone to stress, diseases of any genesis, with exposure to the toxic effects, fractures and injuries. It requires to people often suffer from SARS, it is useful in disorders of the gastrointestinal tract, as well as in high mental and physical stress.

Dosage forms: pellets, drops, and powders for oral, intravenous and intramuscular administration.

Mode of application and dose:

Inside, after meal.

As a preventive measure (in the winter-spring period and malnutrition): adults - 50-100 mg/day, children - 25-75 mg/day., during pregnancy and breastfeeding - 300 mg/day for 10-15 days, then - 100 mg/day.

For therapeutic purposes: adults - 50-100 mg 3-5 times a day, for children - 50-100 mg 2-3 times a day.

Intramuscular and intravenous solutions of 5-10% - 1-5 ml at poisoning - 3g (60 ml).

Contraindications: hypersensitivity, thrombophlebitis and a tendency to thrombosis.

## **X-RAY ANATOMY OF BILIARY TRACTS**

A. Rogovchenko, S. Arkhipov - the 2<sup>nd</sup>-year students

Supervisors - A.E. Pavlova, V.V. Kostina

Biliary tracts are divided into intrahepatic, extrahepatic and gallbladder. Intrahepatic biliary ducts extend from biliary capillaries (the finest grooves with diameter 1mkm) on the surface of hepatocytes (biliary capillaries don't have their own wall). X-ray anatomy of biliary tracts. Artificial contrasting is required condition for getting imagination of biliary tracts. Special x-ray methods.

1)Cholecystography is research of gallbladder after ingestion of contrast substance. Normal gallbladder looks like homogeneous intensive shade with oval shape and smooth sharp contours

2)Cholegraphy is research of gallbladder and billiary ducts after intravenous introduction of contrast substance

3)Cholangiography is research of billiary ducts.

Ultrasound anatomy of billiary ducts. Intrahepatic ducts aren't identified by ultrasonography. Age features. CT-anatomy of biliary tracts. Right billiary duct is often in porta of hepar, left duct is always out of the liver's parenchyma.

### **NOMALIES OF THE ACOUSTIC ANALYZER**

N. Darina – 2<sup>nd</sup>-year student

Supervisors – Cand.Med.Sc. S.S. Selivyorstov, V.V. Kostina

In the ENT region 50% of the malformations affect the ear. Malformations of the outer and middle ear are predominantly unilateral (70-90%) and mostly involve the right ear. Inner ear malformations can be unilateral or bilateral. The incidence of ear malformations is approximately 1 in 3800 newborns. Ear malformations may be genetic (associated with syndromes or not, with family history, spontaneous mutations) or acquired in nature. Malformations can affect the outer ear (pinna and external auditory canal, EAC), middle ear and inner ear, not infrequently in combination. Formal classification is advisable in order to be able to predict the prognosis and compare treatment schedules. Various classifications have been proposed: pinna and EAC malformations according to Weerda (1), middle ear malformations according to Kösling (2), and inner ear malformations according to Jackler (3), (4), to Marangos (5) and to Sennaroglu (6).

### **HOLESTEROL AND ITS ROLE IN THE HUMAN BODY**

D. Davidova, S. Moiseeva - the 2<sup>nd</sup>-year students

Supervisors - L.Ya. Etmanova, V.V. Kostina

Cholesterol is an organic compound, a natural fatty alcohol that contained in the cell membranes of all living organisms except for fungi and prokaryotes. It's insoluble in water but soluble in fats and organic solvents. About 80% of cholesterol is produced by the human body: the liver, the intestines, the kidneys, the adrenal glands, the gonads, the remaining 20% comes from food.

Cholesterol in the blood is finding in the form of lipoproteins - highly soluble complex compounds with specific transporter proteins (apolipoproteins).

There are several types of apolipoproteins differing by molecular weight, degree of solubility of the complex compound with cholesterol: high molecular weight (HDL, HDL, and high density lipoprotein) and low molecular weight (LDL, LDL, low density lipoproteins) and very low molecular weight (VLDL, VLDL, VLDL density).

## **CASE OF HEMORRHAGIC ALVEOLITIS OF SYSTEMIC LUPUS ERYTHEMATOSUS**

E. Grigorieva, V. Ivanec, E. Kalashnikova, T. Ivashutina, V. Kerk - the 6<sup>th</sup>-year students

Supervisors – Cand.Med.Sc. M.V. Pogrebnaya, Assoc. Prof., Cand.Med.Sc. S.A. Goryacheva

Systemic diseases of connective tissue (SDCT) - are a heterogeneous group of a different diseases that are accompanied by a variety of changes inherent in cellular and humoral immune response and combines with autoimmune phenomena. More than a half patients have changes in lungs (that) involve pulmonary tissue in many variations. We present a clinical case of hemorrhagic alveolitis in the debut of systemic lupus erythematosus of patient B., 28 years old, who has been transferred to the rheumatology unit 31.03.2015. The patient complained of dyspnea, dry cough in the evening and at night, pain in the joints of hands and in talocrural joints, raising the temperature to 37,6 C. In February 2015 there were swellings on the face, legs, raising the temperature to 39 C. In March joined pain in the joints of the hands, knee and talocrural. In March,30 deteriorated in the form of intense dyspnea, cough, blood in the sputum, pain in the heart. Patient has been transferred to the hospital 1, which was diagnosed severe anemia, than was once transfused packed red blood cells and intravenous injections of the potassium and magnesium. Precipitating factors of this disease haven't been identified from the history of life. External examination: fair condition, consciousness is clear. Skin is pale, there is purpura on the legs. Dry cough, respiratory depression in the middle and lower parts of the lungs, dyspnea at rest. BR-21/min. Heart sounds are muffled, rhythmic. HR-100/min. AP 100/70 mm.hg. Abdomen is soft and painless. Swelling all over the body.

DS: SLE, acute during, activity 3, joint disease (arthritis), lung diseases (hemorrhagic alveolitis, pneumonitis), Kidneys diseases (lupus nephritis with minimal urinary syndrome, glomerulonephritis), vessels (hemorrhagic vasculitis). Diagnosis exposed on the basis of the following syndromes: articular, bronchopulmonary, bladder, intoxication, secondary immune deficiency, heart deficiency, anemia. Pulse therapy conducted with methylprednisolone 1000 mg 1, two sessions cascade plasma filtration, symptomatic therapy. After the conducted treatment phenomenon of hemorrhagic vasculitis, minimal urinary syndrome, moderate anemia, low-grade fever had been saved.

In the present case, the patient against a high clinical and laboratory activity SLE developed acute lung damage, manifesting itself by acute respiratory failure, hemoptysis, increasing anemia, X-ray picture of bilateral interstitial and alveolar damage the pulmonary tissue. Acute lung parenchymal lesion with hemorrhagic syndrome is a rare but prognostically unfavorable complication of SLE. If you suspect it, you should be carried out differential diagnosis of pneumonia, aspiration, thromboembolic complications, which a often complicating SLE. Recommended early onset aggressive immunosuppressive therapy, primarily glucocorticoids.

## **THE CASE OF DEVELOPMENT OF INFECTIOUS ENDOCARDITIS ON THE OPIATE ADDICTION BACKGROUND**

V. Mazenkova, V. Selitskyi, T. Ivashutina, A. Treyger – the 6<sup>th</sup>-year students  
Supervisor – Assoc.Prof., Cand.Med.Sc. M.V. Pogrebnaya

Infectious endocarditis - microbial infection affecting the core endocardium. Tricuspid valve endocarditis is significantly rare to occur. The greatest role in its damage play repeated non-sterile intravenous injection. However, a certain value are occurring in drug addict's immune disorders. Young males tend to get sick more frequently (average age 20-30 years). The most frequent cause of infective endocarditis are Gram-positive cocci: streptococci, staphylococci and enterococci. They stipulate the presence of septic inflammation with characteristic manifestations of infectious-inflammatory and immuno-pathological process, which can be demonstrated on this particular clinical case.

Patient L., 44 years old, was transferred from the Cardiology ward to Nephrology ward of ASCH on November 6, 2015 with complaints of weakness, dyspnea on exertion, tachycardia attacks, pain in the core area, pain in the right hypochondrium, swelling in the legs. From the disease history is known about the long-term of the opium drugs injections. 08.30.2015, on the background of hypothermia the weakness, chills, feeling of palpitations, fever up to 40°C appeared. Patient called an ambulance. After intramuscular injection of lytic cocktail (in about 30 minute), condition has improved, but he refused to be hospitalized. On August 31, 2015 symptoms been resumed and local therapist was called at home, and patient was hospitalized in the therapeutic department of the Svobodnyi city hospital. 01.09.2015 patient was operated relatively to the abscess of gluteal region, draining was performed. With the help of x-ray survey of thorax organs the right-sided pneumonia was diagnosed, antibacterial therapy been prescribed. After the therapy the body temperature has dropped, but urine reduction appeared and swelling in the legs down to the groin area. 19.10.2015 sent for further examination, examined by nephrologist and hospitalized in Nephrology ward of ASCH with the diagnosis: chronic glomerulonephritis, nephrotic syndrome. Echocardiography revealed changes for further treatment transferred to the coronary care unit. With the active questioning such risk factors as long-term intravenous injections of opium drugs was revealed (for the last year patient denies the fact). Also continuous smoking (about 25 years) and alcohol abuse. Objective status: moderate severity condition, consciousness clear. The body temperature is 36.7°C. Skin and visible mucous membranes clean and of normal color. Mesomorphic somatotype. Peripheral lymph nodes are not enlarged, painless. Swelling of the feet and legs on both sides. Bone and articular apparatus without apparent deformation of the full amount of movement. Hardened breathing, dry scattered wheezes. Respiratory rate – 18 per minute. Expanding the boundaries of the heart to the right side. Heart sounds are muffled, rhythmic. At the apex of the heart first tone is weakened. In the projection of tricuspid valve: the tones ratio are normal. Auscultated systolic murmur growing with a deep breath. Heart rate – 75 beats per minute. Blood pressure – 150/100 mm.Hg. Urination free, painless.

Additional diagnostic methods results:

Clinical blood test: leukocytosis, ESR acceleration, light severity anemia.

Biochemical blood tests: CRP – 8 mg/l, procalcitonin test – 3 ng/ml.

Complete urine analysis: erythrocyturia, leukocyturia.

ECG: pulse – 92 beats per minute, sinoatrial rate, partial right bundle branch block, diffuse myocardial changes.

Echocardiogram: Increased vertical dimension of left ventricle, right atrium dilatation. Vegetation on tricuspid valve, signs of a perforation at the base of the leaf. Second degree tricuspid regurgitation. Minor myocardial hypertrophy of left ventricular. Additional trabecula in left ventricular cavity. Myocardial contractility is preserved.

Therefore based on clinic syndromes, such as: inflammatory changes syndrome, valvular lesions syndrome, immune disorders syndrome, cardiac syndrome, arterial hypertension syndrome, cardiac insufficiency syndrome, nephritic syndrome the Diagnosis have been concluded: Tricuspid infectious endocarditis, subacute. Insufficiency of the tricuspid valve. Perforation of the anterior leaflet of the tricuspid valve. CHF stage B, class II. Secondary tubulointerstitial nephritis. Symptomatic arterial hypertension 3rd degree. Average stage of opiate addiction, remission.

Treatment: Cefotaxime – 2 g., Lisinopril – 10 mg., Amlodipine – 10 mg., Ciprofloxacin 400 mg., Kalium chloride 4% + Saline solution 200.0, Metoprolol – 25 mg.

#### **NONSPECIFIC AORTOARTERITIS PROCESS FEATURES**

D. Makarkina, E. Kim, A. Treyger - the 6<sup>th</sup>-year students

Supervisor – Assoc.Prof., Cand.Med.Sc. M.V. Pogrebnaya

**Takayasu's disease** (also known as "nonspecific aortoarteritis" and the "pulseless disease") is a form of large vessel granulomatous vasculitis with massive intimal fibrosis and vascular narrowing, affecting often young or middle-aged women. It mainly affects the aorta and its branches, as well as the pulmonary arteries. Females tend to be affected more often than males, and they notice symptoms usually between 10 and 30 years of age. The genetic contribution to the pathogenesis of Takayasu's arteritis is supported by the genetic association with HLA-B\*52. A recent large collaborative study uncovered multiple additional susceptibility loci for this disease, increasing the number of genetic loci for this disease to five risk loci across the genome. Due to the multiplicity of vascular lesions in various areas the symptoms of nonspecific aortoarteritis characterized by extensive polymorphism, which can be found in this particular case.

Patient X., female, 54 years, arrived in rheumatologic ward of ASCH, November 12 2015, with complains of feeling weakness in the left hand; dizziness; head noises with tendency to be worse in the evening; pain in right calf muscles; pain on movement in the left shoulder joint. According to medical history since 2006 (age of 45) the pain, edema and cyanosis of 2<sup>nd</sup> finger on the left palm first time appeared. Diagnosis: Thromboangiitis obliterans (Buerger's disease) was concluded. Patient did not receive pathogenetic therapy. May 17 2006 an endarterectomy of left cubital artery was performed and improvement in the patient's well-being was

achieved. February 17 2015 patient suffered acute emerged feeling of numbness in the left half of the body, which passed independently in 30 minutes. February 23 suffered a transient ischemic attack stroke with impairment of consciousness. Repeated stroke on April 10 2015. Patient did not appeal to doctors. June 15 2015 diagnosis: Nonspecific aortoarteritis was concluded and pathogenic therapy was scheduled. July 8 2015 an endarterectomy of left external carotid artery was performed. Recent deterioration of patient's health condition since November 10 2015 when foregoing complains appear. Patient was hospitalized in rheumatologic ward of ASCH for diagnostics and therapy correction. According to patient's life history such risk factors as long time smoking (15 years) and burdened family history (mother – lower limbs arterial thrombosis). Status praesens: general condition of fair severity, consciousness clear. Skin and mucous membranes are clear, moist, physiologically colored. Auscultative: vesicular breathing, no wheeze. Respiration rate (RR) – 19 per minute. Relative cardiac dullness borders are displaced to the left for 1 cm. Heart tones muted, rhythmic. Pulse – 72 beats per minute. Blood pressure – 130/80 mm.Hg. Abdominal palpation soft, painless. Regular, framed stool. Free, painless urination. No peripheral edema. Duplex ultrasonography of cervical vessels and vessels of upper and lower extremities shows signs of stenotic atherosclerosis, subclavian steal syndrome, diffuse narrowing of the left subclavian artery. CT angiography survey of brachiocephalic and cerebral vessels also detected occlusion of left subclavian and vertebral artery, narrowing of right inner carotid artery and left outer carotid artery. CT scan of cerebral brain revealed post ischemic changes in subcortical structures of right cerebral hemisphere and hydrocephalus. Other laboratory methods of diagnostic shows no process activity at the moment.

Therefore based on clinic syndromes, such as: vascular inflammation syndrome, discirculation syndrome (in different vascular areas), arthropathic syndrome, along with family risk factors the Diagnosis have been concluded: nonspecific aortoarteritis III type, late stage. Stenotic atherosclerosis, left subclavian steal syndrome, occlusion of left subclavian and vertebral artery, narrowing of right inner carotid artery and left outer carotid artery. Ischemic cerebrovascular insult in the basin of the right middle cerebral artery (February 2015). Transient ischemic attack in the basin of vertebral basilar artery (February – April 2015). Differential diagnosis was carried out with generalized atherosclerotic stenotic lesions of vessels.

The peculiarity of this clinical case is the later development of the disease, at the age of 45, the nature and extent of the lesions of vascular channels with multiple stenotic damage of vessels, absence of the laboratory inflammatory changes, disease onset with thrombotic complications.

## **CLINICAL AND ANATOMICAL BRAIN'S FEATURES OF THE NEWBORNS**

N. Syrenova - the 2<sup>nd</sup>-year student  
Supervisor - A.E. Pavlova

The brain of the newborns is relatively short and wide in comparison with a relatively small size and more expressed curvature of the frontal lobe. The weight of

brain is from 239 gr-506 gr, towards with body's weight 1: 8. The length of the cerebral hemispheres is 100-130 mm, width 31-50 mm, height 55-75 mm. Corpus callosum is relatively narrow and short 40-48 mm (42-45 mm), and the thickness is 2-3 mm, at the knee 4-6 mm.

There are all main grooves on the surface of the brain, but they are unevenly developed, tertiary grooves are numerous, but small. The lower part of the central sulcus is often connected with the lateral groove, groove precentral often consist of upper and lower pars.

The upper frontal sulcus is branched forkly in the lower department, inner one is often intermittent too. Newborns have observed asymmetry, and individual differences in location, quantity, width and length and also in depth of sulcus is the cerebral hemispheres. There are no clearly defined bound between gray and white matter in sections of the brain. It is explained by the fact that at the time of birth not all nerve fibers are myelinated, nerve cells are not yet concentrated in the surface layers and scattered in large numbers in the white matter.

The basal nucleuses are perfectly formed, but the caudal part of the caudate nucleus may lack. The pons is located slightly higher, more horizontally and anteriorly. The cerebellum is underdeveloped, weighing 20-28 grams, about 5-6% of the brain weight. Newborns have by a surface location of the arterial nets and a small tortuosity of blood vessels, the main venous trunks are concentrated in the parietal and occipital lobes.

## **HUMAN PAPILOMA VIRUS**

V. Poh, V. Savchenko - the 3rd-year students

Supervisor - Doc.Med.Sc., Prof. G.I. Chubenko

HPV is the causative agent, which is sexually transmitted. A significant portion of the population is subjected to HPV. The prevalence of HPV in the world is about 10%. HPV is a causative agent of cancer of neck of womb. This fact was first proved by a German scientist Harold zur Hausen. He received the Nobel Prize for this discovery in 2008.

Characteristics of the virus: a form of the icosahedron; absence of supercapsid; virion size of 45-55 nm; double-stranded DNA genome; tissue –specific. The incubation period is from 3 months to several years. Three major groups of HPV are the following: non oncogenic papillomaviruses (HPV 1,2,3,5); low oncogenic risk papillomaviruses (HPV mostly 6, 11, 42, 43, 44); high oncogenic oncogenic risk papillomaviruses (HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 and 68).

Ways of infection: through microtrauma of the skin, by contact, due to sexual contacts, perinatally. A manifestation of HPV can be found out on different parts of the body, but most of the lesions of HPV infection are genitals. Pathogenesis: viruses infect epithelial cells, most cells, often of the basal layer, are infected. Most sensitive to the introduction of the virus is the transformation zone of the neck of womb, a place of transition of stratified squamous epithelium in the cylindrical one. The virus moves to the cell nucleus, where a long time can be in the inactive state. In the presence of favorable factors the process of replication and spread of viral parti-

cles in the depth and breadth of the epithelial tissue takes place. In the cells the cell differentiation is disrupted and certain morphological changes are formed in the tissues. DNA of the virus exists in two forms in the cells: episomal and integrated. Compound of viral DNA and the DNA of epithelial cells triggers the mechanism of carcinogenesis, which leads to a high degree of dysplasia and cancer.

Diagnosis: the PCR method; cytological examination. Growths are removed by laser or liquid nitrogen. During the treatment vitamins, adaptogens, antiseptics and immunomodulators are used. The culture method for the detection of HPV is not used. Cytologic screening detects both precancerous growths and the early stages of invasive cancer. To do this, the method of smear staining, according to Romanovsky Gimza, is used.

Vaccine: Gardasil (manufactured in the Netherlands) against 16, 8,6,11 HPV type; Cervarix (manufactured in Belgium) against 16, 18 type. The spread of diseases of cancer of neck of womb (HPV): Chita Region - 31.1%; Republic of Tyva - 25.5%; Tomsk Region - 27.7%, St. Petersburg - 29%. Interesting facts: HPV is mostly detected in sexually active segments of the population aged 17-25. Approximately 50% of the population is carriers of HPV. In pregnant women, the virus is revealed in 30-65% of cases. The virus is transmitted from a mother to a fetus. The virus remains viable in the swimming pool, sauna, and water.

## **REVISITING CHRONIC FATIGUE OF DOCTORS OF EMERGENCY SERVICES**

V. Poh, V. Savchenko - the 3rd - year students  
Supervisor - Doc.Med.Sc. V.V. Grebenyuk

Topicality: Chronic Fatigue Syndrome is the result of neuro-psychological and physical overwork. Perhaps this is due to the fact that the human body is exposed to a significant intellectual and emotional impact of the outside world, the adverse effects of harmful factors of environmental pollution, and therefore it forces the compensatory-adaptive mechanisms be constantly triggered that possibly leads to a reduction of adaptation, to available chronic diseases, and possibly to the development of new ones (A.M. Lakshin et al., 2007), to chronic fatigue syndrome in particular (A.E Vermel, 1999; A.I Kovalev et al., 2001; S. Komarov, 2008). But, in the end, most researchers have concluded that the basis of the disease is excessive overwork of the body. Basically it is stress. The study of chronic fatigue syndrome (CFS) of doctors of emergency services is a socially significant problem, because it is directly related to the results of treatment, with the provision of emergency care for patients, with the formation of the psychological climate, mental attitude during the operations, and while saving the patient's life in case of the most critical situations. A man in this regard, begins to feel a sense of inner emotional burnout as a result of continuous contact with other people, to a greater extent it is typical for emergency medical specialties. Analysis of these manifestations reveals another special psychological phenomenon - burnout syndrome. We think that if we do not study this problem at a higher level of detailed examination, then later for humanity and especially for doctors it may be comparable to the spread of infectious diseases.

Purpose: 1) to examine the question, what is the syndrome of chronic fatigue, burnout syndrome of doctors of emergency services, as well as why and how to fight against them and to prevent them;

2) to identify the stages of CFS of surgeons, resuscitators, emergency doctors, obstetrician-gynaecologists and traumatologists of Blagoveshchensk;

3) to conduct a survey of students of the 1st, 2nd, 3rd- years of Amur State Medical Academy, in order to identify the selection of speciality of emergency services.

Results: to identify the stage of CFS in doctors the research was conducted in "Amur Regional Hospital," "Amur Regional Children's Hospital", "City Clinical Hospital 1", "Amur Regional Perinatal Center" of Blagoveshchensk. 80 professionals working in this field more than 5-15 years answered the test questions. When studied the symptoms of chronic fatigue syndrome in the doctors of emergency services, considering themselves relatively healthy as for chronic fatigue syndrome, were found out. The state of chronic fatigue as a symptom had been identified with a fairly high rate - 55% with no significant differences according to gender (in the women - 26.6%, in the men - 28.4%). When considering the detection of the rate of chronic fatigue, depending on the age it was revealed that the "big" sign of chronic fatigue syndrome was significantly more registered in younger persons with a frequency of 31.6%. We also found out that most of the surveyed associated their problems with stress disorders at the workplace. Poor environmental conditions took the second place. The lack of sleep was in the third. The fourth place was occupied by the reduced of living standards. Social instability was in the fifth place.

The survey of 300 students of 1st, 2nd, 3rd - years of Amur State Medical Academy (150 girls aged 18 to 21 and 150 boys aged 18 to 23) was carried out.

Question	Girls/ Boys	I do r know
Do you want to be a doctor of emergency specialty?	girls	42
	boys	35
Can you change your mind?	girls	56
	boys	73

Conclusion: The survey shows that the majority of doctors of emergency medical services have the symptoms of chronic fatigue syndrome, it being found out with relatively high rate - 55%. As to male students, they want to link their lives with surgery, but half of them might change their mind, and as for the girls, most want to become obstetrician-gynecologists, but half of them also might change their mind. The main reason is fear, enormous responsibility, low wages and long period of training.

## **CREATORS OF THE RUSSIAN ANATOMICAL TECHNIQUE**

T. Bayrak, A. Bashtannik – the 2nd-year students  
Supervisors - L.G Zherepa, Can.Ped.Sc I.A. Bibik

Even at ancient times the Egyptians dissected and embalmed corpses under the arches of the pyramids and temples. The Egyptian priests tried to protect human bodies from rotting for possible prolonged period. As to embalming the Egyptians relied on just mystical, religious motive. They did not follow any scientific purposes.

At that time anatomical technique was developed just due to experience. This development was not based on any precise anatomical data or the data of physics or chemistry.

Scientists of the Alexandrian school: Erasistratus and Herophilus, Hippocrates and Galen.

Scientists of the Middle Ages brought humanity to a new road: Leonardo da Vinci, Andreas Vesalius, Eustachius.

Russian medical science, due to its geographical location and specific historical development, followed another way.

The first school of Russian doctors: Nicolaas Bidloo, A.P. Protasov.

The scientists of Anatomy contributed to the development of domestic Anatomy and anatomical techniques: E.O. Mukhin, I.V. Buyalsky, A S. Venediktov.

From the middle of the XIX century domestic anatomical technique received powerful development: M.A. Popov, O.K. Belousov.

One of the interesting questions of anatomic technique is transformation of separate organs, tissues and even whole corpses into full fossils – G.G. Starichenko.

Prominent Russian anatomists: G.M. Iosiphov, K.N. Lysenko.

The last representative of the old Russian school of anatomists is an anatomist Professor V.N. Tonkov.

Except for anatomists pathologists were also engaged into the development of anatomical techniques.

Russian anatomical technology has been developing with each passing year. Russian science is characterized by participating millions of people in all achievements of science and scientists.

The scientists of our time are not single dreamers at their own risk making inventions and discoveries, they are scientists of the advanced country in the world, working under the guidance of the state and society.

## **THE RETINA**

E. Karapetyan, K. Bolshikh – the 2<sup>nd</sup>-year students  
A. Solonin – the 4th-year student  
Supervisor - Assoc.Prof., Doc.Med.Sc. I.Ju. Sayapina

The retina is inner sensitive layer of the eye. In fact it is the nervous tissue, to insure the vision.

The retina includes three parts: the optical part, ciliary part and iris part. The optical part is light-sensitive and extends to the dental line.

The retina consists of 10 layers:

Internal borderline membrane

Layer of the optic nerve fiber

Layer of ganglion cells

Internal plexiform layer

Internal nuclear layer

External plexiform layer

External nuclear layer

External borderline membrane

The layer of rods and cones

10. Pigment layer

The perception of light is the main function of retina, which is provided by the work of two types of receptors: rods - 100-120 mln, and cones - 7 mln.

There are three different types of cones, one containing blue pigment, others green and red, providing important function of the retina – color perception.

The rods contain a pigment rhodopsin, which absorbs part of the spectrum in the range of red light rays. That's why at night time rods function and in the day time – cones.

Vision is a complex process, which is a result of the reaction, that occurred in the photoreceptors exposed to light, and then is transmitted to the bipolar and ganglion neurons, forming long processes – axons, forming the optic nerve and then transmitting this information to the brain.

Besides in the retina there are two types of nerve cells: horizontal cells in the outer plexiform layer and amacrine cells in the inner plexiform layer that maintain links between all the neurons of the retina.

The optic disc is located in the nasal half of the retina, about 4 mm from the fovea, it is deprived of the photoreceptor, and that's why the field of view has a blind area.

Retinal thickness varies in different areas. The thin retina is in the central region, the so-called foveola, providing quality vision, and the thickest retina is in the area of the optic nerve.

Methods of diagnosis of diseases of the retina.

Determination of visual acuity.

Determination of contrast sensitivity.

Research of color perception and color thresholds.

Electrophysiological diagnostic methods.

Ophthalmoscopy.

Optical coherence tomography.

Fluorescein angiography.

Fundus photography.

If the damage of the central area of the retina occurs a sharp reduction of vision, up to a total loss of central vision, takes place.

If the damage of the retina does not capture the central region, that is without reduction of the vision for a long time, it may not become evident when checking peripheral vision.

## **VICTOR KHRISTIANOVICH FRAUCHI**

I. Kurilova, K. Kostenko, A. Suvorova – the 3<sup>rd</sup>-year students  
Supervisors - Doc.Med.Sc. I.S. Piskun, Cand.Ped.Sc. I.A Bibik

Victor Khristianovich Frauchi was born in 1902, the sixth son in a family of immigrants and cheesemakers. His appearance was unusual and memorable: short, slender, gray-haired. He had high professional competence, sparkling humor, musicality of minister designate and dignity. Priorities in life of Victor Khristianovich were family and friends, as well as music and performing arts.

During his life he received two higher educations: the first (1920-1926) - the Biology Department of Physical and Mathematical Faculty of the First Moscow State University for the series "Zoology", and the second (1927-1931) - Prophylactic Faculty of the Second Moscow State Medical Institute. In 1933 he enrolled in graduate school at the Department of Operative Surgery and Clinical Anatomy of the Central Institute of Improvement of Doctors, and in 1938 he received the degree of candidate of Medical Sciences with a thesis on the topic: "Types of thoracic duct and lymphatic-venous anastomosis". In 1945 Victor Khristianovich has publicly defended the dissertation on competition of a scientific degree of the Doctor of Medical Sciences on the theme: "Gastric pancreas variant of anatomy of the ligaments and surgical access to them."

He brought into Anatomy and Surgery not only an image of uncommon scientist and teacher, but also an image of an easy-going and very decent man. In 1958 he was elected the Head of the Department of Operative Surgery and Topographic Anatomy of Smolensk, and in 1962, of Kazan State Medical Institute. He is the author and co-author of numerous journal articles, for example, "Topographic and clinical anatomy" (co-author with B.V. Fire, 1960), "Topographical anatomy and operative surgery of the abdomen and pelvis", "Topographic anatomy and operative surgery of the head and neck" (1967), "Topographic anatomy and operative surgery of the chest and limbs" (1968), and many others. Victor Khristianovich prepared 18 Candidates and two Doctors of Medical Sciences.

In 1982 he retired and in May of 1986 died. He was buried in Kazan on Archangel Cemetery.

## **GOUT**

V. Ivaschenko, E. Bibzyuk – the 1<sup>st</sup>-year students  
Supervisor - Prof. E.N. Gordienko

Gout is a metabolic disturbance when salts uric acid – urates - are accumulated in the joints. It was called the disease of kings and had been known since Hippocrates times. Today it is a rare disease. Only every third of 1000 suffers from it, usually they are men over 40 and women in the post menopause period. Gout is one of the joint illnesses. The cause of it is the accumulation of urates.

auses

The sign of gout is a gouty arthritis - inflammation of a joint, as a rule it is a great toe joint or a knee joint or an ankle joint.

### Therapy

The diagnosis «gout» means that the patient has to change his life style considerably. As full recovery is impossible, he or she has to take medicine all his/her life. But the early diagnosis helps to control gout to minimize attacks and to avoid complications.

### **IMMUNE RESPONSE OF AN ORGANISM TO GROWTHS' ANTIGENS**

A. Margasova, P. Konda - the 3<sup>rd</sup>-year students

Supervisors – Cand.Med.Sc. N.V. Menshchikova, Cand.Ped.Sc. I.A. Bibik

Immune system consists of two main systems – humoral and cellular. B-lymphocytes are responsible for functioning of humoral system, T-lymphocytes for cellular one. Both systems take part in antigrowth response of an organism, however T-cells get control of increasing and regressing of growth. Antigrowth antibodies, which are formed in the course of tumor increasing, block tumor-associated antigens and interfere with destruction of tumor due to specific T-lymphocytes and promote its escaping from immunological supervision.

Antigrowth antibodies do not only protect an organism from a growth, but also can promote its progressing, having effect of strengthening. Lymphocytes and macrophages have cytolytic and cytotoxic impact on tumor cells contacting with them. Besides, macrophages and neutrophils are capable to cause cytostatic effect as a result of which in tumor cells DNA synthesis and mitotic activity are decreased.

Morphologically, process of immune response to antigens of a growth is expressed by accumulation in stroma of a growth, especially on the periphery, immunocompetent cells: T- and B-lymphocytes, plasmatic cells, macrophages. Clinicomorphological supervisions show the following: when stroma of a growth is rich with immunocompetent cells, rather slow development of a growth is observed. Growths with absence of immunocompetent cells in stroma grow quickly and give metastases earlier.

At early stages of development of a growth, before metastases spread in the local lymph nodes, signs of antigen stimulation had been noted. They are expressed in hyperplasia of lymphatic follicles with increasing of their centers of reproduction, in hyperplasia of reticular and histolytic elements on the course of sinuses which are considered to be expression of antigrowth protection and a favorable predictive sign in the absence of growth metastases.

The thymus also participates in antigrowth protection: it exercises the immunological supervision providing elimination of growth cells. Dependence of growths developing in an individual on the condition of this gland - increase of growths in the removal of the thymus, and also in strengthening of its age involution was statistically proved.

There are included: influence of immunological tolerance, immunosuppressive action of the growth, imbalance between the speed of the immune response and increasing of a growth, genetically determined absence of sensibility to certain growths' antigens, insufficiency of immune supervision as to the thymus.

## **DEVELOPMENT OF FEMALE GENITALS OVARIES DEVELOPMENT**

M. Grishina – the 1st-year student

Supervisors - L.G.Zherepa, I.A.Bibik

Anlagen of sexual glands appear at the 4th week

- 1) as a thickening of the coelomic epithelium, medial to mesonephros,
- 2) blood brings primary germ cells to them from the yolk sac,
- 3) the mesenchyma grows into the ovary.

The ovary, as well as testicle, goes down, but after birth and only in small pelvis. Fiber band in women transforms into lig. ovarium proprium and lig. teres uteri. The uterus, fallopian tubes and vagina develop from Mullerian ducts. From adherent departments the uterus and vagina are formed, and from non adherent fallopian tubes

External genital organs develop as follows:

- from a genital eminence - clitoris;
- from the genital folds – minora labia
- from the genital swellings – majora labia

Anomalies of development of the female genital organs:

ectopia of ovaries – their location in the inguinal canal, in majora labia, additional ovaries (in 4% of cases, underdevelopment of ovaries, absence or doubling of the uterine tubes, in not complete non- adherent Mullerian ducts– either bicornuate or arcuate uterus, in complete non-adherent Mullerian ducts double uterus in one or two vaginas, in underdevelopment of the Mullerian duct - unicornuate uterus, infantile (underdeveloped) uterus, absence of the uterus, vagina.

## **VITAMINS AND THEIR ROLE IN THE HUMAN BODY**

E. Karapetyan – the 2<sup>nd</sup>-year student

A. Solonin – the 4th-year student

Supervisor - Cand.Med.Sc. L.G. Tertichnaya

Vitamins are low molecular weight organic compounds of different chemical nature, necessary for normal functioning of organism.

Vitamins are not synthesized by the body of a man and come together with food, with the exception of Nicotinic Acid.

Vitamins participate in a variety of biochemical reactions, regulate metabolism and provide all normal biochemical and physiological processes in the body.

### Vitamin A (Carotene, Retinol)

It exists in two forms: finished form – Retinol and provitamin – Carotene

Functions of Vitamin A:

1. Prevention of night blindness
2. Improving the resistance to infection of the respiratory system
3. Shortening diseases

4. Sustentation of skin, nail and hair healthy

Vitamin A can be found in: butter, cheese, beef liver etc.

Carotene can be found in: rose, strawberry, melon, peaches etc.

#### Vitamin B1 (Thiamine)

Thiamine is a water-soluble vitamin, which requires daily restoration. One needs its growing during illness and stress.

Functions of Vitamin B1:

1. Influences in growth
2. Improves digestion
3. Normalizes the nervous system, muscles and heart
4. Helps with seasickness and motion sickness

Vitamin B1 can be found in: peas, pasta, spinach, tomatoes, beef etc.

#### Vitamin E (Tocopherol)

Tocopherol is a fat-soluble vitamin, which is destroyed by heat treatment and when using chlorinated water.

Functions of Vitamin E:

1. Increases oxygen supply to the body
2. Increases endurance
3. Warns thrombosis
4. Accelerates the healing of burns and scars
5. Acts as a diuretic

Vitamin E can be found in: wheat, herring, halibut, corn, vegetables etc.

#### Vitamin K (Vikasol)

Vikasol is a fat-soluble complex consisting of three components – K1, K2 and K3, which are necessary for the synthesis of prothrombin and correct functioning of the blood coagulation system.

Functions of Vitamin K:

1. Prevents bleeding and hemorrhage
2. Promotes normal blood coagulation

Vitamin K can be found in: green peas, cauliflower, beef liver, corn, strawberries, potatoes etc.

#### Vitamin C (Ascorbic Acid)

Ascorbic Acid is a water-soluble vitamin.

Functions of Vitamin C:

1. Promotes healing of wounds, burns, bleeding gums
2. Reduces the level of cholesterol in the blood
3. Strengthens the immune system
4. Reduces the likelihood of thrombosis
5. Increases life expectancy
6. Helps in the treatment of colds

Vitamin C can be found in: rose, green onion, currants, lemons, oranges, apples etc.

### **THROMBOEMBOLIA OF THE PULMONARY ARTERY**

N. Soyotova, A. Neverova - the 3<sup>rd</sup>-year students

Supervisors - Cand.Med.Sc. N.V.Menschikova, Cand.Ped.Sc. I.A.Bibik

Thromboembolia of the pulmonary artery (PATE) is an occlusion of lungs' arterial bed (of the trunk, left and right pulmonary artery and/or their branches) by thrombotic masses formed in veins of greater circulation (deep venous thrombosis (DVT) of legs and ileo-caval pelvis segment i.e. in inferior vena cava district, seldom – in superior vena cava district), seldom - in right atrium or in right ventricle of heart.

**Etiology.** Clot is formed: 1) in lower extremity or pelvis veins in most cases; 2) less often: - in right atrium (in cases of a ciliary arrhythmia); 3) in the cardiac valves (in cases of infective endocarditis i.e. endocardium inflammation); 4) in renal and hepatic veins; 5) in superior vena cava system (arms and subclavian veins).

**Clinical characteristics of disease.** There are symptoms listed in decreasing frequency order: 1) tachycardia; 2) chest pain; 3) dyspnea; 4) coughing up blood; 5) fever heat, 6) moist rale; 7) cyanosis; 8) cough; 9) pleural rub; 10) collapse.

Depending on the combination and predominance of above noted symptoms the following symptoms are distinguished: 1) Pulmonary-pleural syndrome. 2) Cardiac syndrome. 3) Cerebral syndrome.

**Pathogenesis.** Pathophysiological changes in cases of PATE present the elevation of pulmonary-arterial bed impedance and pulmonary-arterial hypertony, which leads to raised stress on right ventricle or sometimes even to its deficiency.

## **THE IMPORTANCE OF STUDYING THE LIFE CYCLE OF PLASMODIUM**

V. Ivaschenko, E. Bibzyuk, V. Bibzyuk – the 1<sup>st</sup>-year students

Supervisor - Prof. E.N. Gordienko

The area of malaria and the quantity of infected people is constantly growing since the end of the XX-th century. According to some estimates we may face the problem of the further expansion of this disease because of the global climate change. It's a very serious problem as the effective antimalarial vaccine has not been created yet.

PLC consists of 2 main stages. The first stage occurs (takes place) in a human who is an intermediate carrier, and consists of the hepatic stage and the erythrocytic stage. The hepatic stage matches the incubation period of malaria and lasts for 1.5-2 weeks. During the erythrocytic stage the toxic substances enter the blood stream together with merozoites, tearing the erythrocyte. The clinical symptoms such as fever and chills are the result of the vital activity of parasites. The second stage takes place in the body of anopheles mosquito - the main (host) carrier.

The infected human, being the intermediate carrier, is the main source of malaria infection. This period depends on the duration of the illness and the frequency of relapse. The infected human becomes a source of disease when his/her blood contains at least 1 or 2 gametocytes. Only under this circumstance the anopheles mosquito can be infected. For mosquito to become a malaria carrier, several processes have to occur in its stomach. They are the formation and union of gametes, the formation of zygote, oocysts and sporozoites and their transference into the salivary glands. The speed of these processes depends on the temperature of the environment.

If it is below 15, the sporozoites won't form. The sporozoites in the salivary glands of female anophelids can be invasive no more than 40-50 days.

The information about the PLC allows us to diagnose the disease on its different stages, to predict the clinical presentation and epidemiologic situation of malaria. The genetic method of studying PLS is very promising in the process of inventing antimalarial vaccine.

### **ONTOGENESIS OF THE HEART**

K. Arshinskaya, E. Fedorova – the 2<sup>nd</sup> – year students

Supervisors - L.G. Zherepa, Cand.Ped.Sc. I.A.Bibik

The cardiovascular system is the first system to start functioning during the development of a fetus. Its formation starts within the first few days of the embryo's life. The first contractions of the heart and the flowing of blood are observed during the beginning of the fourth week of its development.

Initially, the heart has a paired anlage. In a human fetus, the heart appears at that stage of development when the fetus is still situated in a single plane. By the end of the fourth week four main compartments of the heart can be distinguished: the bulb transforming into the arterial trunk. The anlagen of the ventricles and the auricles, and the venous sinus. However, the heart works as a contractile tube.

Starting with the middle of the sixth week of the pre-natal development, the process of intracardial septa formation begins. It ends during the eighth week.

The first septum in the cardiac tube – the interatrial septum – is formed in two stages. The heart becomes three-chambered.

The second septum – the interventricular septum - grows from the semilunar fold of the endocardium toward the auricular canal. The heart becomes four-chambered.

The third septum, between the aorta and the pulmonary trunk, develops during the eighth week out of two folds separating the arterial trunk into the aorta and the pulmonary trunk. During the twelfth week, the second and the third septa coalesce, and the formation of the four chambers concludes.

### **PHYSIOLOGICAL REGENERATION**

D. Teplyashin - the 2<sup>nd</sup>-year student

Supervisor - D.A. Semenov

Physiological regeneration is a process of updating of the functioning structures of an organism, due to it the structural homeostasis is supported, and the realization of function of an organism is provided; the regular recovery processes, which is associated with destruction of intracellular structures and with death of cells during normal life of an organism, take place. Repair of a structure can occur on some levels - molecular, intracellular, cellular, tissue and organ levels. Physiological regeneration is updating for cellular and intracellular forms of: epidermis, cornea, intestinal mucosal epithelium. Intracellular regeneration is the most universal form of it. For cellular form of recovery the cell reproduction has the mitotic and amitotic forms for intracellular form. It can be organoid and intraorganoid - the increase of

number (hyperplasia) and size (hypertrophy) of ultrastructures (nucleus, nucleoli, mitochondria, ribosomes, Golgi apparatus) and their components. Intracellular regeneration is a process that provides regular updates of the structural components of the cells. An example of intracellular regeneration at the level of the genetic system is a DNA repairing. Hypertrophy (from the "hyper" - excessive and "trophe" - nutrition) is increase of body or its parts, and hyperplasia (from "plaseo" - generators) is increase of the number of cells or intracellular structures that usually is accompanied by an increase of the functionality of an organ. Veritable hypertrophy usually develops as a result of functional load, but it can be associated with a dysfunction of neurohumoral regulation of metabolism in tissues. Pseudo hypertrophy is an increase of the organ or tissue in size developing of overgrowth of intermediate tissue. Hypertrophy developing due to a functional work - strengthening of an organ or tissue - is called working hypertrophy. It can occur in healthy people. Hypertrophy has the following forms: working, or compensatory, vicarious and hormonal, or neurohormonal. The most common type of hypertrophy is working hypertrophy.

#### **MEDICINAL PLANTS WITH IMMUNOMODULATORY EFFECTS**

A. Vasilyeva, G. Lobacheva – the 4<sup>th</sup>-year students

Supervisor – Doc.Biol.Sc. N.V. Simonova

Immunity is the body's ability to respond to foreign material. Immunity can be maintained with the help of medicinal plants with immunomodulatory effects.

Coneflower is a perennial herb of the sunflower family with a creeping rootstock. Coneflower contains 7 groups of biologically active substances, which include polysaccharides, flavonoids, derivants of caffeic acid, essential lipids, alkylamide, etc. Inulin activates the immune system, enhances the movement of white blood cells into the area of inflammation, increases the solubility of immune complexes and destroys bacteria, viruses and other microorganisms. Inulin promotes tissue regeneration and stimulates the hematopoietic system.

Schizandra chinensis is a perennial plant that reaches up to 15 meters in height. Schizandra contains about 20% of organic acids (malic, citric, tartaric), mineral salts, vitamins, microelements (zinc, cobalt, copper, manganese, nickel, phosphorus, potassium, sulfur, silver, calcium, titanium, molybdenum). Schizandra has tonic effect, increases the reflex activity of the central nervous system, stimulates the cardiovascular system, stimulates respiration, increases nonspecific resistance of the organism.

Rhodiola rosea is a perennial herbaceous plant. Rhodiola contains tyrosol and its glycosides (salidrosides, flavonoids, anthraquinones, essential oils, microelements). Rhodiola rosea has the pronounced stimulating property: increases efficiency, normalizes metabolic processes, contributes to economic energy consumption, improves energy metabolism in muscle and brain due to oxidation processes.

Ginseng is a perennial herbaceous plant of the ginseng family. The fruit contains saponins, inflammatory. The root contains saponins, resins, pectin, starch, vitamins, fatty acids, many microelements. The action of ginseng is due to its stimulating effect on the cortex and subcortical structures of the brain, its positive effect on the blood, as well as the increase of gas exchange, the stimulation of tissue respiration,

the increase of the amplitude of heart contractions, the slowing of rhythm, acceleration of wound healing. Ginseng preparations have stimulating and toning effect. Medicinal plants are used over several millennia. Scientists are supposed to get another 328 most valuable medicines after investigating 125 000 species of still unknown plants.

### **USE OF THE PREPARATION OF POTASSIUM MAGNESIUM ASPARAGINATE IN CORRECTION OF DIABETES**

I. Solovyova - the 3<sup>rd</sup> -year student

Supervisors - Cand.Med.Sc., Assoc.Prof. V.A. Maksimenko, Cand.Ped.Sc. I.A. Bibik

In diabetes of the 2nd type (DM 2) patients have diabetic neuropathy among the complications which lead to defeat of peripheral nervous system. Neuropathy is characterized by diffuse damage of the nervous fibers which are a part of various nerves.

The patients who have diabetes of the 2nd type can have hypomagnesemia which reduces sensitivity of cellular receptors to insulin and changes glucose transport into a cell. The studies show that the preparation of potassium magnesium asparaginate does not only make up a (PMA) deficiency of magnesium and potassium, but also regulates metabolic processes, contributes to the restoration of electrolytic balance, participates both in transmitting impulses along the nervous fibers, and in their synaptic transmission, in implementation of muscular contractions, in maintenance of normal heart activity. Positive effect of the polarizing admixture (glucose + insulin + potassium + magnesium) in the therapy of cardiological patients with myocardial infarction which is based on effect of turning metabolism of hypoxic damaged myocardium from uneconomical oxidation of free fatty acids into glucose, energetically more favorable in the conditions of hypoxia, gives the ground for the use of this mixture and in the treatment of patients with diabetes.

Research was conducted in 2 groups of patients (30 individuals in a group) with diabetic distal polyneuropathy (DPN). The scheme of taking a preparation: 250 ml of potassium magnesium asparaginate intravenously – during 14 days.

conclusions of research were drawn.

### **AGING AS CHRONIC INFLAMMATION**

M. Schepina – the 2<sup>nd</sup>-year student

Supervisor - L.G. Zherepa

What allows some people to keep youth longer than others? Molecular biology can offer some satisfying answers.

Elizabeth Blackburn, a scientist from Australia has showed that our body is the same age with the billions of cells from which it is composed. The more they weaken, the more easily the disease is developed. "If the cells of the immune system start aging, we easily pick up infections and it is more difficult for us to deal with inflammation. In addition to this, if aging the resistance of cells of organs reduce

resistance and that's why in our body such diseases as diabetes, Alzheimer's disease, atherosclerosis, myocardial infarction, stroke or cancer make progress. It is no coincidence that all these diseases are the most common cause of death for older people", - concludes Blackburn.

All the typical senile diseases, according to Elizabeth Blackburn, one way or another are connected with inflammatory reactions, even cancer. In youth, our body is almost always able to eliminate one or the other damage, that comes from the outside or the inside, and in due time removes the hotbed of disease. But if got elder, our cells "lose the form", inflammatory tissue is increasingly expanding. Besides the immune system reduced by inflammation is not sufficiently effective in killing cancer cells so that cancer develops in old age easier than in youth.

So, senile ailments win when inflammatory reactions no longer control the situation in the body. This opinion is shared by an Italian gerontologist Claudio Franceschi: "People with chronic inflammation die before the others." He suggests that those who have inherited particularly good autogenous protection from their ancestors, simultaneously receive predisposition to long life.

At the moment, inflammation is considered to be a major factor, characteristic of the various aspects of aging by the majority of molecular biologists. According to them, reducing efficiency of each individual cell of the body, especially cells of the immune system, is the reason of so limited life on Earth.

It is permissible another statement. Old people, who live to hundred or more years, as we know, rarely suffer from diabetes, cancer or coronary atherosclerosis. Their cells - for whatever reason whatsoever - are aging extremely slowly, and so with the help of their own biochemistry may resist damages to many tissues and organs of the body for a very long time. Thus, it becomes clear why the super centenarians often have no harmful effects from smoking.

What is most interesting in this approach - a very complex process of aging of multicellular organisms concerns the level of a single cell. Here, suddenly a lot of entrance gates are found to have possible impacts on both prolonging and shortening lives. They can be caused genetically or through the mechanism of epigenome - a way of life: nutrition, sleep, stress or prolonged mobility.

#### **REPARATIVE AND PHYSIOLOGICAL REGENERATION AT THE CELLULAR AND TISSUE LEVELS**

T. Bayrak, . Bashtannik – the 2nd-year students

Supervisors - Can.Med.Sc. D.A. Semenov, Can.Ped.Sc. I.A. Bibik

Phenomena of regeneration were familiar to people in ancient times. Especially intensively the problem of regeneration has been developed since the 40-ss of the 20th century.

Regeneration is the process of restoring the lost or damaged body structures. Regeneration influences in the structure and function of the body, its integrity. There are two types of regeneration: physiological and reparative.

Physiological regeneration is the process of updating the functioning structures in the body. In physiological regeneration there are two phases: destructive and

regenerative.

Reparative regeneration occurs after damage of the tissue or organ.

There are several types or methods of reparative regeneration. These include epimorphs, morphallaxis, the healing of epithelial wounds, regenerative hypertrophy, compensatory hypertrophy

The study of regeneration phenomena concerns not only the external manifestations.

Great disagreements concern the question about cellular sources of regeneration. There are three assumptions.

1. The hypothesis of reserved cells.
2. The hypothesis of temporary dedifferentiation, or modulation of the cells.
3. The hypothesis of full dedifferentiation of the specialized cells.

The main problem is that tissue regeneration in humans occurs slowly to recover the really considerable damage.

## **HAIR**

E. Babicheva – the 2nd – year student

Supervisor - Assoc.Prof., Doc.Med.Sc. I.Ju. Sayapina

Hair is a decoration of any person, and one needs to protect them to have them in good form. To keep the hairs, you need to know what they are.

A hair consists of 3 % of moisture and 97% of protein. Protein substance is keratin enriched with sulfur, microelements (iron, copper, zinc, chromium, manganese) and vitamins , B, P, C, T).

Hair grows all over the body, except for the palms and soles.

An adult has about 100,000 hairs, and their number depends on the color. Red haired people have fine head of hair, but their hairs are thinner than the brunettes' ones. Blond haired people have more hairs of all — approximately 150,000. Black haired people have the most massive head of hair of all.

Their head of hair can be 3 times thicker, than in blond haired people.

Hair grows on the head unevenly: more of them on the crown, less on the temporal part and forehead.

The first hairs begin to appear at the end of the third month of fetal development.

Hair also grows unevenly: most quickly on the head (3 days — 1 mm), most slowly on the eyebrows.

A hair lives on average from several months to 6 years. Eyelashes live from 3 to 5 months, vellus hair from 7 to 10 months. For a human being it is considered normal if the day loss of hairs of head is from 30 to 50.

### **Properties of hair**

Healthy hair is usually strong and elastic. A hair can be stretched up to 1/5 of its length, and then it returns to its normal form. Hair strength is comparable with the strength of aluminum and it is able to withstand loads of 100 to 200 g. It is not surprising, therefore, in ancient times, people used to weave ropes of female hair, to lift heavy loads.

Hair has hygroscopic properties. It is able to absorb moisture. They are quite resistant to mild acids, but are not tolerant to alkaline compounds. For a human being, hair plays a major role. Hair protects the head from overheating and from overcooling. Vellus hairs are involved in the process of touching, the eyelashes protect the eyes, the hair in your nose and ears retain dust.

#### **The structure of the hair**

Hair can be of several forms:

- 1) long (of the head, beard, mustache, armpits, genitals) — this is the strongest hair;
- 2) bristly (eyebrows, eyelashes, hair in the nose and external auditory canal);
- 3) vellus (on the face, trunk, limbs).

A part of the hair, freely positioned above the skin, is called the hair shaft (*scapus pili*), and a part hidden in the thickness of the skin — the root of the hair (*radix pili*). The root ends with the extension — *follicles of hair*. The growth of hair takes place in the follicles. At the bottom of the follicle is the *papilla*. *The papilla of hair* is formed mainly of the connective tissue and capillary vessels.

The hair shaft consists of three layers. The core of the hair is called the medullary substance, it contains dead cells. The medullary substance is absent in a vellus hair and at the ends of any other hair.

Basic mass of the hair is the *cortex*, composed of elongated, closely adjacent to each other cells with an elongated nucleus or its traces, containing a pigment - coloring substance. The pigment may be red, yellow, and black, and the combination of these colors creates a customized hair color. In the absence of pigment the hair looks white.

The outer layer of hair — cuticle. Cuticle is presented by the flat anuclear keratinized cells that are located in one layer and overlap each other like tile roofs.

The root part of hair is in the hair pouch (folliculus pili), opening on the skin with a small extension (ostium). The excretory duct of the gland sebaceous passes in a skin follicle approximately on the border of the outer and middle thirds of the hair.

The cuticle (hair sac) consists of connective tissue and epithelial parts. Connective tissue part reaches its full development only in the lower part of the root, starting from the confluence of the sebaceous glands. The epithelial part of the hair sac is located in all layers of the epidermis. Further it goes deeper into the Horny layer and disappears.

The outer layer is called the layer of Henle (enle), it is formed of one row of completely keratinized cells without nuclei. At the confluence of the sebaceous glands, the cells of both layers become scaly and, hence, are mixed with fat of the gland.

The hair is supplied with smooth muscle (arrectores pilorum), having the form of a tape, one end, by means of a short tendon, is attached to the compact layer of the dermis; the other end - to the space below the confluence of the mouth of the sebaceous glands. Contracting, the muscle lifts the hair and, thus shrinking the sebaceous glands, promotes the release of its secret. This process everyone at least once in life, experienced for himself. With a strong sense of fear they say: "My heart sank into my boots and the hair stood on end". This mechanism leads to the movement of the

hair muscle.

### **THE BUTTRESSES OF THE SKULL**

A. Bigun, O. Usik – the 2<sup>nd</sup>-year students

Supervisors - A.E. Pavlova, Cand.Ped.Sc. I.A. Bibik

In some places on the bones of the skull there are thickenings (buttresses), along which chewing pressure is transmitted to the cranial vault. Between the buttresses, which are called the weak places, the thinner bony formations are located as fractures often occur here.

The fronto-nasal buttress balances the force of the pressure from the bottom upwards and front to back and from outside to inside, developed by the teeth.

Alveolar-zygomatic balances the force, developed by chewing teeth in the upward direction, front to back and from the outside to the inside.

Pterygoid-palatal balances the force, developed by molars from the bottom upwards and from back to front.

Palatine buttress balances the force, developed during chewing in the lateral direction.

### **FEATURES OF AREA OF FOOT IN NEWBORNS**

V. Gamza – the 2<sup>nd</sup>-year student

Supervisors – A.E. Pavlova, Cand.Ped.Sc. I.A. Bibik

In a newborn a bone of foot has distinctive features. The block of an ankle bone above looks like a wrong trapeze, it is bent in the frontal plane, its lateral edge is sharp and above the medial. The back articular surface of the plantar part is sharply bent, with insufficiently distinct contours. The back articular surface of a calcaneal bone is bulging, in a form and close to a trapeze. An important anatomic feature of a bone is change of angle of slope of a back articular surface in relation to a long axis, it is equal to 2 – 4 degrees (in adults 36 degrees). Cubical and boatshaped bones, according to a form, are approached to adults. Alar bones have distinctly expressed form and articular surfaces. Points of ossification are defined at ankle and calcaneal bones.

At the instep bones a head is of roundish form. The proximal phalanges have poorly developed head, tubers aren't formed on it, on the II finger the head is slightly bended ectad. The distal phalanges have a roundish eminence with smooth transition into a body (in adults fungoid form).

### **BLOOD PLASMA PROTEINS AS FACTORS LINKED TO INFLAMMATION**

Hvatov – the 1<sup>st</sup>-year student

Supervisor – E.V. Egorshina

Blood is composed of plasma and formed elements (red cells, white cells and platelets). Blood plasma contains a complex multicomponent (more than 100), mix-

ture of proteins differing in origin and functions. Most plasma proteins are synthesized in the liver.

Immunoglobulins and a number of other protective proteins are produced by immunocomponent cells. The total protein content in blood serum of a healthy person is 65-85 g/l (in the plasma this index of 2-4 g/l is higher due to fibrinogen).

The speed of synthesis of these proteins is increased by reducing the formation of albumins and transferrin (a small fraction of plasma proteins, which has the highest mobility in disk-electrophoresis, and which corresponds to the band on electrophoregram before albumins), which concentration decreases in acute inflammation.

Types of pathological changes of the protein composition of blood plasma:

Hypoproteinemia is increase of total plasma protein.

Hypoproteinemia is reduction of the total protein in plasma.

Dysproteinemia is percentage change of the protein fractions with normal total protein in plasma. Paraproteinemia is the appearance of abnormal plasma proteins – immunoglobulins.

Acute phase proteins of inflammation are proteins which content increases in serum in acute inflammation. These include, for example, the following proteins:

Ceruloplasmin	Haptoglobin
Fibrinogen	C-reactive protein
1-antitrypsin	

The biological role of acute phase proteins: a) all proteins are inhibitors of enzymes released by destruction of the cell and prevent secondary tissue damage, b) these proteins have immunodepressing action. In a number of diseases a ratio change of the distribution of protein fractions by electrophoresis in comparison with the rate of change takes place.

Dysproteinemia is characteristic of nephrotic syndrome. Decrease of albumins, 1- and -globulins and increase of 2- and -globulins occur. By reducing the humoral immunity, decrease of fraction of -globulins indicates a decrease of the content of IgG, but it does not reflect the dynamics of changes of IgA and IgM. The content of certain proteins in the blood of plasma can be increased dramatically in acute inflammatory and pathological conditions (injuries, burns, myocardial infarction). Such proteins are called acute phase proteins. They have been participating in the development of inflammatory reactions. The main inductor of synthesis of most acute phase proteins in the hepatocytes – polypeptide interleukin-1 is released from mononuclearphagocytes. Acute phase proteins include C-reactive protein which interacts with the C-polysaccharide of Pneumococcus, 1-antitrypsin, haptoglobin, acid glycoprotein, fibrinogen.

## **PRINCIPAL STAGES OF EMBRYONIC DEVELOPMENT**

Makarova, A. Yaroslavtseva – 2<sup>nd</sup>-year students

Supervisors - L.G. Zherepa, Cand.Ped.Sc. I.A. Bibik

Human embryogenesis is a part of his personal development, ontogenesis. It is closely associated with progenesis (formation of gametes and early post-embryonic

development). Human Embryology studies the process of human development, beginning with the fertilization until birth.

Stage 1. The development of the human embryo. Fertilization is fusion of female and male sex cells. The result is a new single-celled organism, the zygote.

Stage 2. Division. A series of quick consecutive division of the zygote. This stage ends with the formation of a multicellular embryo, having in a human the form of bubble-blastocyst corresponding to a blastula of other vertebrates. The formation of morula, blastula. The formation of the body of the fetus.

Stage 3. Gastrulation. As a result of the division, differentiation, interaction and movement of cells the embryo becomes multilayered. There are germ layers of the ectoderm, endoderm and mesoderm presenting a lining of various tissues and organs.

Stage 4. The separation of the body of the embryo. The formation of amniotic and yolk bubble. Development of the mesoderm.

Stage 5. The period of development of organs and tissues (organogenesis, histogenesis). In the course of differentiation of germ layers the beginnings of the tissues are formed, forming the organs and systems of the human body.

Conclusion. During embryogenesis integral organism is formed from a zygote.

## **PERSONALIZED MEDICINE**

Mongush – the 1<sup>st</sup>-year student

Supervisors – Prof. E.A. Borodin, Cand.Ped.Sc. I.A. Bibik

In recent years, scientists in many countries are actively discussing the concept of personalized medicine. The concept of personalized medicine was introduced by the founder of the Institute of Systemic Biology Professor Lee Hood.

The new approach implies that every patient is assigned to his medication, the patient knowingly participating in treatment. The personalized medicine is based on the principles of prevention and second-guessing, when all efforts are aimed at preventing the disease.

Decoding of human DNA plays a key role in diagnosing. Using the genome of a particular person, you can determine which diseases he will have, at what age. That is, in the future, the doctor will be able to say: at what age, you will have problems with the stomach, with the heart. Also suggest life expectancy.

Technique for decrypting the DNA is about 20 years. At the Congress in California a few companies have already demonstrated prototypes of devices of a matchbook size, capable to receive and decode the human genome, mutations in his DNA, and the source material for analysis, for example, taken from the saliva of the patient.

Many manufacturers have promoted miniature wearable sensors, implanting under the skin, the sensors having been designed so that data can be passed to smartphones of a patient or a doctor.

A significant place in the concept of personalized medicine a molecular diagnostics takes. It helps to identify not only rare forms of cancer (for example: retino-

blastoma), but also some nervous and mental disorders, currently defined only on the basis of the clinical symptoms. All this will be a background for the development of effective treatments.

New opportunities for personalized medicine let you define: fetal rhesus factor, sex of a child, most aneuploidies (monosomies, trisomies) and many other diseases. Method of DNA sequencing can identify hereditary cancer of the breast and ovary. This allows you to carry out preventive measures to preserve life. Personalized medicine is the medicine of the future. It is projected to significantly improve the quality of treatment significantly and will become available to all.

## **VITAMIN D**

Ch. Gasanova – the 1<sup>st</sup>-year student

Supervisor – N.A. Feoctistova

### History of the discovery

Vitamin D was discovered in 1937 by Adolf Vindaus. He won the Nobel Prize for this discovery.

### Specification:

D group Vitamins are formed under the action of ultraviolet radiation in the tissues of animals and plants.

D group Vitamins include:

Vitamin D2 – ergocalciferol; extracted from the yeast

Vitamin D3 – cholecalciferol; extracted from animal tissues

Vitamin D4 – 22,23 dihydro-ergocalciferol

Vitamin D 5 - 24 etilholecalciferol/sitocalciferol/

Vitamin D6 – 22 digidrocalciferol/stigma calciferol/

Nowadays only two vitamins such as Vitamin D2 and D3 are called Vitamin D. These vitamins are fat-soluble, i.e. soluble in fats organic compounds and insoluble in water.

The activity of Vitamin D is expressed in international units (ME): ME 1 comprises 0.000025 mg chemically pure Vitamin D.

### Action:

The main function of Vitamin D is to ensure normal growth and development of bones, prevent rickets and osteoporosis. It regulates the mineral metabolism and promotes the deposition of calcium in bones and dentin, thereby preventing osteomalacia of bones.

Vitamin D affects the overall metabolism in the metabolism of Ca<sup>2+</sup> and phosphate / NRO<sub>2</sub>-4/. At first it stimulates the absorption of calcium, phosphate and magnesium from the bowel.

Vitamin D is unique – it is the only Vitamin that acts as both a Vitamin and as a hormone. As it supports Vitamin levels of inorganic P and Ca in plasma and increases Ca absorption in the small intestine.

Hormone acts as active metabolite of Vitamin D.

However the role of Vitamin D is not limited to the protection of bones, it depends on susceptibility to skin disorders, heart disease and cancer. In geographic

areas where food is poor with Vitamin D, increased incidence of atherosclerosis, arthritis, diabetes, especially juvenile takes place.

Indication for using:

Indications for receiving Vitamin D are:

- Rickets
- Fractures
- Osteoporosis
- Hypocalcemia and Hypophosphatemia
- Bone marrow inflammation
- Slow formation of callus etc.

### **VITAMIN B 12**

El. Ivanova – 1<sup>st</sup>-year student

Supervisor – N.A. Feoctistova

Vitamin B 12 was discovered in 1948. It was extracted from the liver in crystalline form.

Vitamin B 12 contains Cobalt.

Vitamin B 12 is very important substance for the human health and it has a few important functions, such as – protection against obesity; strengthening the immune system; improving the overall condition of the body.

Vitamin B 12 is able to influence in brain activity and human emotional state. The using of Vitamin B 12 in sufficient amounts helps in fighting against stresses and depressions, as well as eliminates insomnia, and helps in the process of adaptation in changes of daily regimen.

Vitamin B 12 is necessary for correct protein, fat and carbohydrate metabolism.

Daily one should take about 1-2 mg of Vitamin B 12.

### **PRACTICE ABROAD. SERBIA**

Chernik I. – the 5th year student

Supervisors – prof. Borodin E.A., Vdovin D.O.

I held an internship in Serbia from 6 to 27 of July. This internship was organized by the International Federation of Medical Students Associations (IFMSA). An internship was held on the base the Clinical Center of Nis, urology department. The goal of the internship was to improve professional medical skills and knowledge.

### **VISIT TO JAPAN**

Danko K. – the 3-rd year student

Supervisor–Professor Borodin E.A.

Japan is an amazing country. That is country of contrasts, where modern buildings coexist with a unique historical masterpieces of former times, where the basis of the most advanced developments (famous around the world) is knowledge of past gen-

erations. For example, the technology of making steel for Japanese scalpels borrowed from the masters of samurai swords. High-rise and earthquake-resistant buildings are built on the principle of Buddhist pagodas. This is a clear examples of how highly the Japanese value their past.

This summer we had a chance to practice in Osaka Medical College. It was two-week program full of new discoveries. It includes such sections as:

- Cardiology Internal Medicine
- General and Gastroenterological Surgery
- Gastroenterology
- Pathology
- Endocrinology and Diabetology
- Anatomy and Cell Biology
- Orthopedic Surgery
- Physiology
- And so on

Every day our practice was full of unforgettable events. About each of them I can make a great story, but then I have to write a book. So I will tell about our first day. The first day we visited the Department of Cardiology, headed by Dr. Ito . We participated in the ward round and saw many patients with various cardiac pathologies : chronic cor pulmonale, aortic sclerosis, pulmonary hypertension. After Dr. ito took us to the Center of Practical Skills. This place is accessible not only to students wishing to practice their skills, but also the doctors who want to practice existing skills. There we met with Ichigo. «Who is he?» - you ask? It will be correctly to say «it». Ichigo is a mannequin that simulates heart sounds in health and disease organism, as well as heart murmur. Under the guidance of Dr. ito, we have improved our skill of auscultation. It was fantastic. Then we visited the ultrasound where Dr. ito has told us about the technique of this procedure, its purpose and gave us a specific case of a given patient. But our day is not over, in the evening we returned to the Simulation Center. And under the control of the Japanese students were able to practice in the possession of laparoscopic equipment. There were special boxes in this center, the front wall of which was imitation of the anterior abdominal wall. It had about 6 holes for insertion of laparoscopic instruments and camera. Only there I realized how difficult it is to manipulate tools, not seeing them. It was a valuable experience. We also had a practise of breast biopsy on another machine. The rest of the day we spent in the company of Miss Kimiko Matsumoto and Professor Hanafusa who gave us a tour of the OMC, told about its structure, about the peculiarities of the Japanese medical training and much more. So it was our first day. But I believe that our most important acquisition on this trip was the friendship which grew between students of different countries, participating in this program. We hope that our future relations with international medical Universities will grow and get stronger every year.

**SOBA ~ REPRESENTATIVE OF JAPANESE SPIRIT**

Ms. Megumi Uemichi, Mr. Mano Soshi & Mr. Kotaro Maeda  
Osaka Medical College, Japan

Japanese products are regarded as high-quality and upscale. However, true integrity of Japanese high-quality commodities can rarely be appreciated especially from overseas countries. We, therefore, would like to introduce “*Soba*”, which exemplifies a crystallization of Japanese manufacturers’ efforts over hundreds of years.



DEUTSCHE ABTEILUNG



## **MODERNE VERFAHREN DER DIAGNOSTIK UND BEHANDLUNG DES BECKENVENENSYNDROMS BEI FRAUEN**

Nagijew M. – Student des 4. Studienjahres

Wissenschaftliche Leiter – prof. Schimko W.W., Tkatschjowa N.A.

Das Beckenvenensyndrom ist immer noch wenig untersucht. Nach Aussage der verschiedenen Autoren beträgt die Auftretshäufigkeit dieser Erkrankung 10-25% bei Frauen im gebarfähigen Alter. Die hauptsächliche klinische Manifestation dieser Pathologie sind chronische Unterleibsschmerzen, die bei kranken Frauen physische und psychische Leiden verursachen, zum Verlust der Arbeitsfähigkeit und sexuelle Unzufriedenheit führen. Gegenwärtig gibt es von dieser Krankheit keinen allgemeinen anerkannten Auffassungen der Pathogenese, keine deutlichen Algorithmen der Diagnostik und Behandlung. Dadurch ist es wichtig, Fragen über Prinzipien der rechtzeitigen Diagnostik und adäquaten Behandlung des Beckenvenensyndroms zu diskutieren.

Als instrumentelle Diagnoseverfahren benutzt man eine Ultraschalluntersuchung des Beckens, Magnetresonanztomographie, Computertomographie, diagnostische Laparoskopie, retrograde Phlebographie der Beckenvenen. Die Letzte ist die informativste und gleichzeitig minimal-invasive Diagnosemethode. Eine wichtige Rolle für die Behandlung des Beckenvenensyndroms spielt die medikamentöse Therapie. Wenn diese Therapie unwirksam ist, führt man den chirurgischen Eingriff durch. Die medikamentöse Behandlung wird auf die Erhöhung des Tonus der Krampfader, auf die Erhöhung ihrer Resistenz, die Verbesserung der Mikrozirkulation und die Unterdrückung der Schmerzen gerichtet. Das Ziel der operativen Therapie besteht in der Unterbrechung der hamodynamisch relevanten Refluxstromung durch die erweiterten Ovarialvenen. Die bestmögliche Methode dabei ist die endovaskuläre Embolisation der Eierstockvenen. Die Wirksamkeit dieser Prozedur erhöht man durch die zusätzliche Einführung des Sklerosierungsmittels. In seltenen Fällen werden laparoskopische oder operative Ligatur der Ovarialvenen durchgeführt.

Das Beckenvenensyndrom ist ziemlich die verbreitete Erkrankung. Ungenügende Information über dieser Erkrankung von Chirurgen, Gynakologen und anderen Fachärzten führt zu großer Anzahl der Diagnosefehler, was falsche Behandlungstaktik bedingt.

### **DIE VESIKULOGRAFIE**

A.Garifullina- die Studentin des 2. Studienjahres

Wissenschaftliche Leiter: A.E. Pawlowa, N.A. Tkatschjowa.

Erkrankungen der Samenblasen, wie nach Ihrer anatomischen Position und durch das Fehlen der spezifischen Symptome der Krankheit sind oft eine wesentliche Schwierigkeit bei der Diagnose. Solche Methoden der Forschung der Samenblasen, wie das Tasten, durch den Enddarm und Forschung des Inhalts der Blasen, die nicht ganz perfekt sind. Deshalb Röntgenographie der Samenblasen spielt eine große praktische Bedeutung.

Die Vesikulographie gibt eine Möglichkeit, solche pathologische Veränderungen in der Samenblaschen zu erkennen, die bei anderen Methoden der Forschung unbemerkt bleiben. Röntgenographie der Samenblaschen, die mit Kontrastmittel gefüllt sind, gibt klare Vorstellung über die Einzelheiten der anatomischen Struktur der Blase, über die Anwesenheit oder Abwesenheit von destruktiven und anderen Änderungen.

Es gibt zwei Arten von Vesikulographie: aufsteigende Vesikulographie, die mit der Hilfe der Katheterisierung der Samenkanalen, Einführung Kontrastmittel mit anschließender Röntgen, und absteigende Vesikulographie, bei der das Kontrastmittel in Samenkanalen durch Punktion der letzten, mit anschließender Röntgen eingeführt wird.

### **DAS VIRUSPAPILLOM DES MENSCHEN**

M. Ruder - Die Studentin des 3. Studierjahres

Wissenschaftliche Leiter: K. m W. Bubinez O.W., Tkaschjowa N.A.

Menschliches Viruspapillom gehört zur Familie der [Papillomaviridae](#), der Gruppe Papillomavirus und umfasst fünf Gattungen (Alphapapillomavirus, Betapapillomavirus, Gammapapillomavirus, Mupapillomavirus, Nupapillomavirus). Man unterscheidet ca. 43 Arten und mehr als 170 Typen, aus denen 13 zur Entwicklung von Krebs führen. Sie infizieren [Epithelzellen](#) der [Haut](#) und verschiedener [Schleimhäute](#). MVP hat eine Kugelform mit einem Durchmesser von 55 nm. Die Proteinhülle (das Kapsid) hat einen würfelförmigen Symmetrietyp und ist als Icosaeder mit 72 identischen Untereinheiten (Kapsomeren) aufgebaut. Das Kapsid schließt das Virusgenom um, eine ringförmig geschlossene, doppelsträngige DNS. Eine isolierte DNS besitzt infektiöse- und Transformationseigenschaften. Das MPV-Genom kodiert für sechs frühe Proteine (E1, E2, etc., E steht für „early“) und für zwei Spätproteine (L1 und L2). Spätproteine sind für die Proteinsynthese der Proteinhülle zuständig, während die frühen Proteine (E1, E2) für die Genom-Replikation von HPV verantwortlich sind. Onkoproteine E5, E6, E7 nehmen an der Kanzerogenese teil und sind die größte Gefahr für den Menschen. Eine Wechselwirkung zwischen Protein E4 und Keratin verursacht sichtbare Wirkung- eine papilläre Änderung auf der Haut (die Entstehung von Warzen).

### **MODERNE METHODEN DER NICHT MEDIKAMENTÖSEN BEHANDLUNG IN DER FRUHEN REHABILITATION VON SCHLAGANFÄLLEN**

. Moltschanow, Student des 1. Studienjahres

Wissenschaftliche Leiter: Professorin E.E. Moltschanowa, N.A. Tkatschjowa

Eines der wichtigsten medizinischen und sozialen Probleme ist derzeit der Insult. Das bedingt von seinem hohen Anteil in der Struktur der Morbidität (350-400 Personen pro 100.000 Einwohner in der Russischen Föderation), sowie Sterblichkeit und Invalidität der arbeitsfähigeren Bevölkerung. Und das Fehlen des gut ausgedrückten klinischen Effekts bei der Anwendung der medikamentösen Mittel fordert

die Suche nach neuen Verfahren der nicht medikamentösen Rehabilitation. Darunter hat Reflextherapie in den letzten Jahrzehnten einen würdigen Platz gefunden.

Eine der wirksamsten Methoden der Akupunktur in der Rehabilitation der Patienten mit Schlaganfall bleibt Skalpthherapie. Diese Methode ist aktiv in China seit 70-er Jahren des vergangenen Jahrhunderts verwendet. Die therapeutische Wirkung der Kraniopunktur wird durch moderne Neurophysiologiedaten über die Innervationsgemeinschaft von einzelnen Gehirnteilen und des Skalps bestätigt. In solchen Fällen führt die natürliche Stimulation bestimmter Bereiche des Skalps zu Funktionsänderungen in dem entsprechenden Bereich der Hirnrinde, wo verschiedene Funktionen des Körpers die eigene Darstellung haben.

### **NEUROPEPTIDE SIND DIE REGLER DER GEDACHTNISPROZESSEN**

Damdyn-ool A. – die Studentin des 2. Studienjahres

Wissenschaftliche Leiter: G.J. Tscherbikowa, N.A. Tkatschjowa

In 19 Jh. äußerten Physiologen die Meinungen, dass die Prozesse des Gedächtnis mit den Änderungen in der Molekule der Gehirns substanz verbunden sind. Aber in welchen genau? Auf diese Frage versuchte zum ersten mal im 1943 schwedische Histochemiker Holder Hilden antworten. Er fand, dass während der Neuronenoregung die Synthese der Nukleinsäuren und Proteinen verstärkt.

Die Gedächtnis Peptide des Vorderlappens der Hypophyse.

Bei vielen Neuropeptiden, vor allem bei Kortikotropine, Melanotropine, Oxytozine dienen, als Reglerfunktionen nicht nur die ganze Molekule der Substanz, sondern auch ihre Fragmente. Einige Fragmente haben eigene selbständige Titel und Funktionalität. So erfüllt linearer Teil ihrer drei Aminosäuren bei Oxytozine alle Funktionen der Melanostatinen.

In der BRD haben Probanden Fragment ACTH4-10 mit dem Ziel der Auswirkung auf die Prozesse des Gedächtnises, der geistigen Leistungsfähigkeit und der Operatortätigkeit eingeführt. Neuropeptide erhöhten Niveau der Heiterkeit und der optischen Aufmerksamkeit; verhindern die geistige Müdigkeit; erhöhten geistige Ton und Motivation.

### **HORMONE DER MILCH UND KOLOSTRUM**

Tarassowa J. – die Studentin des 2. Studienjahres.

Wissenschaftliche Leiter: E.W. Jegorschina, N.A. Tkatschjowa.

Das endokrine System des Neugeborenen aufgrund ihrer Unreife kann genügende Zufuhr von Hormonen im Gewebe, die in den letzten Tagen des intrauterinen Lebens war, nicht gewährleisten. Es wird angenommen, dass dieser Mangel durch die Hormone der menschlichen Milch bedeckt wird.

Hormone der Mutter schützen den Neugeborenenmangel von erhöhten Überlastung auf der Hypothalamus-Hypophysen-Schilddrüsen-System bis zu seiner vollen Reife.

Bei der Studie von Hormonmilch wird Aufmerksamkeit auf Fragen der lokalen hormonellen Wirkungen auf die Verdauung geschenkt. Die Besonderheiten

der Magen-Darm-Kanal eines Kindes, insbesondere die erhöhte Durchlässigkeit der Darmwand in der frühen Periode, erleichtern die Aufnahme der Milchwormone von Neugeborenen.

Somit gibt es eine Möglichkeit des Einflusses der Hormone der Muttermilch aufrechtzeitige Bildung eines Fermentsystems der Verdauung eines Kindes.

### **DIROFILARIOSE**

Schiwtschenko N. – Die Studentin des 5. Studienjahres.

Wissenschaftliche Leiter – Kowaljowa W. W., Tkatschjowa N.A.

In den letzten Jahrzehnten wächst die Zahl der Kranken an Dirofilariosen sehr rasch. Die Fläche des Befalls steigt, zieht in gemäßigten Breiten um. Es wird vermutet, dass sich diese Tendenz sowohl von natürlichen (Erderwärmung) als auch von sozioökonomischen Faktoren (die Schwierigkeit der Diagnose, den Mangel an Prävention, Aktivierung der Migrationsprozesse und andere.) verursacht ist. Im Amurgebiet gibt es eine Reihe der natürlichen Herden, zoonosen Biogelmintosen, die endemisch und enzootisch für diese Region sind. Das sind Chlonorchiasis, Trichinelose, Difilobotriose und andere Krankheiten. In den letzten Jahrzehnten wird in der Welt ein Anstieg der Migration der Bevölkerung bemerkt. Das sind Flüchtlinge, Gastarbeiter, Pilger, «Schuttles» und Touristen. Inländische Reisebüros bieten als Erholungsgebiete solche exotische Länder wie tropische Länder des Südsindiens, Afrika, Mittel- und Südamerika an. In den letzten Jahren nimmt immer größere Beliebtheit unter den Russen die Erholung Thailand, Vietnam, Kambodscha, Indien, u.a.m. Asiatische Länder haben ein niedriger sozioökonomischen Entwicklungsstand und schlechte sanitäre Bedingungen der Bevölkerung. Diese Länder sind die natürlichen Lebensräume mit der Reihe von tropischen und exotischen (für DFO) Erkrankungen, insbesondere von Wurminvasion. Personenverkehrs durch die Zollstellen im Amurgebiet ist sehr rasch. Jeden Tag haben Tausende Menschen die Grenze durchgequert. Als Folge der schrittweisen Entwicklung des Tourismus (als Wirtschaftssektor) erfolgen in den letzten Jahren Fälle der Infektionen der Menschen, die im Amurgebiet leben, mit exotischen tropischen parasitären Krankheiten, wie Herzwurm. Der Russischen Konsumüberwachung nach, werden im Amurgebiet die erste Fälle von Herzwurm im Jahr 2001 registriert. Auf dem Territorium der Amur-Region werden zum ersten Mal im Jahr 2009 solche Fälle bemerkt. Nach der epidemiologischen Daten (ein Patient kam aus Amur-Region in China, St. Heihe) wurde dieser Fall zu einem «importierten» zugeordnet.

### **ENZEPHALITIS IST FRUHLIGSSOMMERE KRANKHEIT**

Smetana E. – die Studentin des 1. Studienjahres.

Wissenschaftliche Leiter: Prof. E.N. Gordienko; N.A. Tkatschjowa

Zecken sind die größte Gruppe in dieser Klasse.

*Ixodes* Gattung zählt in diesen Arten zu den großen Ixodids. Er parasitiert auf verschiedenen Tieren. Der Körper des *Ixodes* ist auf Ähren an der Nase (Kopf) und Körper gewesen.

Klar ausgeprägt ist Geschlechtsdimorphismus. Der Körper ist oval. Das Weibchen ist grösser als Männchen. Das Weibchen bei den Arten ist schwarz.

Während der Häutung der Larven wird innerhalb der Deckschicht, eine neue achtbeinige Nymphe gebildet, d. h. ein neuer Körper. Nymphe ist die ganze Vegetationsperiode aktiv, mit einem Spitzenwert im Mai – Juni.

Außerdem gibt es die Wiederholung der Aktivität der nymphalen Phase in August – September. Für die Weibchen ist haematotrophe Art der Ernährung erforderlich. Diese Bedingung ist Metamorphose. Das gesättigte Weibchen ähnelt einem kleinen Traubengrauen. Das Weibchen geht nach der Larvenverlegung zu Grunde. Es ist die ganze Vegetationsperiode mit einem Höhepunkt im Mai – Juni aktiv.

Auch beobachtet man Wiederholung der Larvenphase mit einem Höhepunkt im August – September. Die Anpassung der Zecken an den Bedingungen der Existenz wird durch Gleichzeitigkeit der Entwicklung mit saisonalen Veränderungen des Klimas gewährleistet und wird durch Entstehung der Veränderungen der Diapausestufe erreicht.

Zeckenenzephalitis ist eine sehr schwere Krankheit, die zur Schädigung führt. Nicht selten wird Tod beobachtet.

Zum Schluss möchte ich sagen, dass Ökologie und Biologie von Zecken variiert. Es wird hervorragende Anpassung an die Bedingungen der Existenz gezeigt.

#### **ANATOMISCHE ASPEKT DES WILKIE-SYNDROMS**

Dadaschewa S. - Studentinnen des 3. Studienjahres.

Wissenschaftliche Leiter - K. m. W. Piskun S. I, Tkachjowa N. A.

Wilkie-Syndrom ist eine seltene Pathologie. Morphologisch entspricht das Wilkie-Syndrom einer Kompression des Teils horizontalen unteren Zwölffingerdarms von oberer mesenterischer Arterie. Zum ersten Mal wurde dieses Syndrom im Jahre 1842 von Rokitansky beschrieben. Er hat seinen möglichen Grund gezeigt. Im Jahre 1907 hat J.C. Bloodgood zum ersten Mal die Manifestationen von Syndrom mit Duodenostomie zu beseitigen. Im Jahre 1921 wurde das Werk von Wilkie veröffentlicht, in dem Duodenostomie als allerwirksamste und darum vorzugsweise der Methode Behandlung dieses Zustandes geschätzt wurde. Wilkie hat auch die Fachdefinition «der chronische duodenale Verschluss» eingeführt, die später als sehr weiterer Begriff kritisiert wurde, weil er das Wesen des konkreten Zustandes nicht erklärte. Dieser Fachdefinition ist heute ungebrauchlich. Allergänglichste ist das Fachwort «der chronische Zerstörung der duodenalen Gangbarkeit», den von J.D. Witebskij im Jahre 1976 vorgeschlagen wurde. Darunter der chronische Zerstörung der duodenalen Gangbarkeit versteht man klinischen Symptom-Komplex funktionellen und organischen (mechanisch) Natur, der das schwere von Vordringen nach Zwölffingerdarmhohlraum mit dem Aufenthalt seines Abtransports in den untergelegten Abschnitten des Dünndarms. Wilkie-Syndrom ist chronische Zerstörung der duodenalen Gangbarkeit, die mit organischen Ursachen — arteriovenöse mesenteriale Kompression des Zwölffingerdarms verbunden ist. Die Bildung der chronischen Zerstörung der duodenalen Gangbarkeit bei diesem Syndrom entsteht in einigen Entwicklungsstufen. Der Periode der vollen

Störungen der duodenalen Gangbarkeit, die mit den Erscheinungen Duodenostasis offenbar ist, gehen die Stadien der Kompensation und Subkompensation voraus.

### **DIE BESONDERHEITEN DER GENEALOGISCHEN GESCHICHTE DER FETTSUCHTIGEN**

Schiwtschenko N. – Die Studentin des 5. Studienjahres.

Wissenschaftliche Leiter – Sundukova E., W. Tkatschjowa N.A.

Übergewicht bei Kindern und Jugendliche ist eines der dringendsten Problemen der modernen Gesundheitsversorgung. Fast in allen Regionen der Welt wächst ständig die Zahl der kranken Kinder und hat alle drei Jahrzehnten verdoppelt. Nach Angaben der russischen epidemiologischen Studie (2007) wird Übergewicht (IMK) in 11,8% der Fällen, einschließlich 2,3% den Kindern bemerkt. Der Anstieg der Zahl der übergewichtigen Menschen hängt nicht immer von äußeren Faktoren und die Eigenschaften des Kindeslebensstil (Bewegungsmangel, schlechte Ernährung) ab, aber in meisten Fällen kann durch erbliche Einflüsse verursacht werden. Der Rolle der Vererbung in der Entwicklung von Übergewicht wurden die Werke von mehreren Forschern gewidmet, die auf die klinisch - genealogische Analyse darauf hingewiesen, daß es eine signifikante Prävalenz der Adipositas (50%) in den Familien der übergewichtigen Frauen, sowohl in vertikaler als auch in horizontaler Zweigen eines Stammbaums gibt. Die Tendenz zur Fettleibigkeit wird hauptsächlich durch die weibliche Linie vererbt. Die Beziehung zwischen der Bildung der Übergewicht und Stoffwechseleigenschaften von Fettgewebe bestätigt eine direkte Korrelation IMT und die Menge des subkutanen Fettgewebes bei der Geburt des Babys von der Grad der Fettleibigkeit der Mutter. Unter Berücksichtigung der oben genannten Umstände wird die vorliegende Studie durchgeführt. Der Zweck ist die Klärung des Einflusses von erblichen und individuellen Angaben der Anamnese auf die Bildung von fortschrittlichen Formen der Adipositas – I. II. Schweregrad in der Kindheit und Jugend.

### **DIE KLINIKO-ANATOMISCHEN BESONDERHEITEN DER VENOSEN SINUSEN BEI DEN NEUGEBORENEN**

Micheitschik K.-die Studentin des 2.Studienjahres.

Wissenschaftliche Leiter: A.E.Pawlowa; N.A.Tkatschjowa.

Bei den Neugeborenen sind venösen Sinuse gut entwickelt. Die große praktische Bedeutung hat der oberen sagittalen Sinus, besonders auf dem Gebiet der großen Abteilung, die für die Punktion zugänglichst ist. Das Deckgewebe des Schädels ist fein; es gibt hier 1-2 venöse Zustrome, und der Lichtstreifen des Sinus ist von den Scheidewänden frei. Auf der Ausdehnung wird die Breite des Lichtstreifens posterior allmählich zum Hinter ausgedehnt, deshalb ist bei der Punktion vorn rückwärts zu richten. Der Untere sagittale Sinus ist schwach entwickelt, manchmal fehlt. Querlaufender und sigmoideurer Sinuse sind gut entwickelt. Die kavernösen Sinuse sind von den zahlreichen kleinen Hohlen mit der großen Menge locker vorgestellt. Der gerade Sinus hat gleich am Anfang ampulloide Erweiterung,

ofterschließt er sich an recht querlaufende, seltener an linke oder an Abfluss der Sinus an.

### **MODERNE MEDIKAMENTÖSE BEHANDLUNG DER EITRIGEN WUNDEN**

Nagijew M. – Student des 4. Studienjahres  
Wissenschaftliche Leiter – Anochina R.A., Tkatschjowa N.A.

In den letzten Jahren stieg eine Anzahl der Patienten mit der eitrigen Wunden an. Trotz der Tatsache, dass eine Menge der neuen physikalischen Methoden entdeckt wird, wird die grundlegende Medikamententherapie zusammen mit der operativen Therapie durchgeführt.

Die Medikamententherapie wird sowohl auf der Systemebene als auch auf lokaler Ebene angewendet. Systemische Behandlung der eitrigen Wunden wird mit der intravenösen Injektion der antimikroben Arznei der Breitspektrumwirkung begonnen. Eine Reihe von Autoren finden eine deutliche Wirkung bei einer Gruppe der Beta-Laktam-Antibiotika, insbesondere zusammen mit den Komponenten, die die Antibiotika vor der Beta-Laktamase schützen. Auf Grund der Tatsache, dass Staphylokokken und hamolytische Streptokokken die häufigste Ursache der eitrigen Infektion sind, wird die Benutzung Beta-Laktam-Antibiotika geraten, die zur inaktivierenden Wirkung der Penicillinase resistent sind. Andere Autoren halten Makrolide für die wirksamste. Außerdem haben die Makrolide immunomodulatorische und antientzündliche Wirkungen. In den letzten Jahren schenkt man große Aufmerksamkeit einer Gruppe der Fluorchinolone. Fluorchinolone haben eine geringe Toxizität, gute Übertragung und hohe Geschwindigkeit der Durchdringung in weichen Geweben. Außerdem antimikrobieller Therapie sollen die immunomodulatorische antientzündliche deintoxikatione symptomatische Therapie durchgeführt werden. Nach der Durchführung bakteriologischer Untersuchung führt man antimikrobielle Therapie unter Berücksichtigung der Empfindlichkeit der Bakterien zur Arznei.

Grundständige Gruppen der Medikamenten für die lokale Behandlung sind Antiseptika, Antibiotika, Sorptionsmittel, Salben auf der Basis von Polyethylenglykol, Fermenten, moderne bioaktive Wundauflagen. Man behandelt die eitrige Wunden unter Berücksichtigung der Stadien des Wundprozesses. Medikamenten, die im ersten Stadium benutzt werden, sollen antimikrobielle dehydratisierte nekrolytische Wirkungen haben. Medikamenten, die im zweiten und dritten Stadium benutzt werden, haben Regenerationsprozesse zu stimulieren, ein Granulationsgewebe vor der Sekundärinfektion zu schützen und ein Wachstum der vegetierenden in der Wunde Mikroorganismen zu bedrücken.

Die Benutzung moderner Medikamenten für die Behandlung der eitrigen Wunden unter Berücksichtigung der Stadien des Wundprozesses erhöht die Wirksamkeit der Behandlung und dadurch verkürzt die Dauer der Rehabilitation.

### **DIE CHROMOSOMENABBERATIONEN**

Fedina A.-die Studentin des I.Studienjahres  
Wissenschaftliche Leiter: Naumenko W.A., Tkatschjowa N.A.

Die Chromosomenabberationen entstehen als Ergebniss des Umbaues der Chromosomen.Sie sind die Folgerung der Chromosomruptur,die zur Fragmenten bildung fuhren und fernerhin wiedervereinigen.Aber dabei ist die normale Struktur nicht wiederhergestellt.

Man unterscheidet 4 Hauptarten von chromosomen Abberationen:

Die Translokation.

Die Inversion.

Die Deletion.

Die Duplikation.

Einige Autoren meinen, daB es von Anomalien der Entwicklung des Kehlkopfes bedingt ist.Die andere glauben,daB die Hauptursache die Schädigung des Zentralnervensystems ist.Die Kranken haben das runde mondformige Gesicht,Mikrocephalie,Mikro- und Retrognathie,Hypertelorismus,antimongoloider Augenschnitt,Epikanthus,zu niedrig aufgestellte dysplastische Ohren,nicht selten vier Finger,geborene Herzfehler,Korperbehinderung,Geistesbeschränkung.

## **DIE PHILOGIE DER HOCHSTEN NERVEN TATIGKEIT UND DER SENSORSYSTEME. DIE FUNKTIONALE ORGANISATION DES GEHIRNS**

Maksyuta.D – der Student des 2. Studienjahres

Wissenschaftliche Leiter: I.W. Sijanowa, N.A. Tkatschjowa.

Die Eröffnung von I.P.Pawlow der Analysatoren und die Entstehung des Lernens über die bedingten Reflexe, in dessen Grundlage die objektive Analyse der Dynamik der Nervenprozesse lag, ist für die Entwicklung der modernen materialistischen Vorstellungen über dynamische Lokalisation der Gehirnfunktionen ganzheitlich und gleichzeitig die differenzierte Heranziehung des Gehirns in jeden Formen seiner Aktivität. Von den Positionen der Systemorganisation der Funktionen werden in der Tätigkeit des Gehirns verschiedene funktionelle Systeme und die Systemgruppen bestimmt. Man unterscheidet 3 Hauptblöcke in ihnen Zusammenwirkung : 1) der Block der Aufnahme und der Überarbeitung der Sensorinformationen - die Sensorsysteme (die Analysatoren); 2) der Block der Modulation, der Aktivierung des Nervensystems – die modulierenden Systeme limbiko-retikuläre Systeme des Gehirns; 3) der Block des Programmierens, des Starts und der Kontrolle der Verhaltensakte – die motorischen Systeme (der motorische Analysator). In der vorliegenden Arbeit waren drei funktionelle Hauptblöcke der Gehirnrinde betrachten. Der erste funktionelle Block des Gehirns ist der Block der Aufnahme, der Überarbeitung und der Aufbewahrung der Sensorinformationen. Er liegt in den hinteren Abteilungen der Halbkugeln und besteht aus nackigen-, gehor-, schlafen- und gemeinsensorischen parietalen Abteilungen der Gehirnrinde und entsprechenden Unterrindengebieten. Der zweite funktionelle Block des Gehirns spielt die wichtige Rolle in der Regelung der Zustände der Aktivität der Rinde des Niveaus des Wachens. Er liegt hauptsächlich innerhalb des Gehirnstammes, der Bildungen der Interhirns und die Medienabteilungen der neuen Rinde. Die Hauptfunktion besteht in der Aufnahme, die Überarbeitung und die Aufbewahrung der äußerlichen Informationen.

Die Apparate des dritten funktionellen Blocks des Gehirns liegt in den Vorderabteilungen der großen Halbkugeln, vorn von zentralen Windungen. Er besteht vollständig aus den Apparaten des efferenten Typs, jedoch befindet sich selbst unter dem ständigen Nebenfluss der Informationen aus den Apparaten des afferenten Blocks.

### **DAS PRINZIP DER DOMINANTE**

Dorochowa N.-die Studentin des 2. Studienjahres

Wissenschaftliche Leiter: G.E.Tscherbikowa, N.A. Tkatschjowa.

Die Dominante ist resistenter Herd der erhöhten Erregbarkeit der Nervenzentren, wo ankommende zum Zentrum Anregungen zur Verstärkung der Erregbarkeit dienen. In anderem Teil des Nervensystems werden Erscheinungen der Hemmung beobachtet.

Der Entdecker dieser interessanten Eigenschaft der Psyche ist unser Landsmann A. A. Uchtomskij.

Das Prinzip der Dominante setzt voraus, dass während der Lebensdauer verschiedene Bedingungen geschaffen werden, bei denen die Erfüllung jeder einzelnen Funktion wichtiger als die Erfüllung anderer Funktion wird. In solchen Fällen unterdrückt die Erfüllung einer Funktion die andere. Die Dominante wird unter dem Einfluss verschiedener Anreize der äußeren und inneren Umgebungen des Körpers gebildet, wie die Erschöpfung der Nährstoffen, die Ansammlung im Blut Geschlechtshormone u.a. Alle diese Anreize erhöhen die Erregbarkeit entsprechenden Nervenzentren (Lebensmittel, sexual-und dergleichen). Durch Summierung mit außenstehenden Reizen unterschiedlicher Modalität wird in diesem Zentrum anhaltende Erregung mit der parallelen Hemmung der anderen, die im Zusammenhang mit ihm stehen, gebildet. So werden Lebensmittel-, Geschlechts-, Schutz- und andere Dominante erschienen, die die Verwirklichung gerade dieser Reflex, das Verhalten des Menschen und Tieren in einem gewissen Moment, bestimmen.

### **DIE ENTWICKLUNG DES SEHORGANS**

Warenik N. – die Studentin des 2. Studienjahres.

Wissenschaftliche Leiter: A.E. Pawlowa, N. A. Tkatschjowa.

Bei niedrigen Tieren gibt es spezifische Sinneszelle der ektodermalen Ursprung. Sie sind durch den ganzen Körper gestreut und sie reagieren auf Lichtreize. Während Phylogenese werden empfindliche Zellen auf dem Gebiet der optischen Grube konzentriert. Bei der Entwicklung der wirbellosen Tieren wird lichtbrechende Medium (Linse) erscheint. Bei den Wirbeltieren entwickeln sich Hilfsorgane: Muskeln, Augenlinder, Tränenapparat.

In der Mitte der dritten Woche der fötalen Entwicklung werden im Neurohr Vorsprünge erscheint, die weiterhin in Augenblasen, die mit den Vorderhirn durch hohle Augentiele verbunden sind. Als Folge des ungleichmäßigen Wachstums in verschiedenen Teilen des Augenbechers wird sein vorderer Teil gezogen und es wird ein doppelwandiger Augenbecher entsteht, aus der Außenseite des

Beutels, entwickelt sich retinale Pigmentepithels und aus der inneren lichtempfindlichen Beutelnerven entsteht einen Teil der Netzhaut. In 4-5. Woche wird aus dem Ektoderm das Linsenblaschen gebildet. In 6. Woche wird aus dem Mesoderm, die Augenbecher umkreist, Hornhaut gebildet, wobei die äußere Epitelschicht der Hornhaut aus Ektoderm entsteht. Glaskörper und Iris werden von Gefäßen und Mesenchym gebildet. Die Tranendrüsen erscheinen in 9. Woche aus der zahlreichenn Knospen, die sich aus der Bindehautepithel des Seitenteils des oberen Augenlids entstehen. Tranennasengang entwickelt sich durch Schließen nasenaugens Furche, die durch Nasen- und Kieferprozessen begrenzt ist.

### **DIE NATURHERDE DER ZECKENENCEPHALITIS**

Saliwon O.- die Studentin des 1.Studienjahres

Wissenschaftliche Leiter : Prof. E.N.Gordienko;N.A.Tkatschjowa

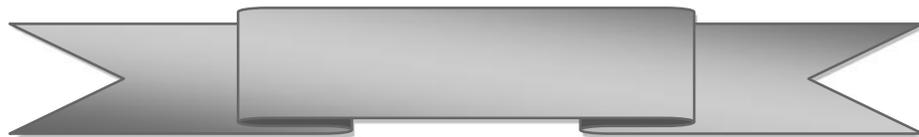
Zeckencephalitis ist das akute Neurovirusinfektion. Diese Krankheit wird durch Fieber und Schädigung des Nervensystems gekennzeichnet. Sie ist naturherdische Erkrankung. Das Akademiemitglied Je.N. Pawlowskij hat zum ersten Mal eine Gruppe von Erkrankungen mit den Naturherden auf Grund der Expeditions-Labor- und Versuchsarbeiten identifiziert. Der Hauptteilnehmer des natürlichen Herdes ist neurotrophes Virus Enzephalitis.

Die Infektion des Menschen erfolgt durch übertragbare Wege, durch Zeckenbisse.

Die Infektion ist durch Rohmilch und Milcherzeugnissen übertragbar, die an Zecke, Ziegen und Kühen infizieren werden. Wohlbedingungen für den Zecken sind Wälder des gemischten Typs mit Gras. Das gewährleistet das Leben für Tiere, die Zecken ernähren. Die Krankheit hat saisoneller Charakter.



**SECTION du  
FRANCAIS  
et du LATIN**



## **HISTOIRE DE LA FORMATION DES SERVICES DE LA LUTTE CONTRE LA TUBERCULOSE DANS LA REGION AMOURSKAIA**

Tonkonogova M., Pnouchtin O., Tcherednitchenko O., Mechedova M. – et-ts de la 5-eme annee.

Les dirigeants scientifiques - Voit L.N., Nasarkina S.I.

En janvier 2006, soixante-quinze ans se sont ecoules depuis que le service de la lutte contre la tuberculose etait ne dans la region Amourskaia. La prevalence de la tuberculose dans notre region inquietait ainsi les travailleurs de la sante que toute la societe. Dans les annees 20 du siecle passe sur les pages du journal "Amourskaia Pravda" on a publie beaucoup de fois des articles qui elucidaient les causes de la tuberculose et sa mortalite. On posait la question sur l'ouverture d'une institution dans la lutte contre cette maladie terrible.

En janvier 1931 le premier dispensaire antituberculeux etait ouvert a Blagovetschensk. C'est E.F. Sadtchikova, qui etait la premiere a la tete de ce dispensaire. Le service antituberculeux crayait avec de grandes difficultes. Pendant les premieres annees ce service se distinguait par une mauvaise base materielle et technique et son amelioration commencait a partir des annees 70 du siecle dernier. Dans les annees 60 – 70 on forme de nouvelles unites du dispensaire antituberculeux dans notre region. On a commence a appliquer les methodes de la phtisiologie du traitement de la tuberculose.

En 1971 on a deploye les lits d'hospitalisation pour le traitement des malades avec la tuberculose : 370 lits – a Blagovetschensk, 40 lits – a Svobodnyi, 55 lits – a Seia, 75 lits – a Poiarkovo, 80 lits – a Raichichinsk, 50 lits – a Belogorsk, 10 lits – a Tynda, 10 lits – a Ekaterinoslavka, 13 lits – a Arhara. C'est Kocitsina, qui etait le premier medecin-phtisiologue dans notre region, elle a passe la specialisation d'apres la tuberculose a Leningrad. Pendant les annees 1932 - 1958 elle etait a la tete du service antituberculeux dans la region Amourskaia. La situation avec la formation des specialistes dans ce domaine a ameliorer quand en 1956 on a organise le cours de la phtisiologie a l'institut de medecine d'Etat a Blagovetschensk. Le chef de ce cours est devenu l'assistant du professeur N.V. Netoudykhata. Pendant les annees 1969 – 2000 c'est N. Ia. Rosenfeld qui dirigeait la chaire a l'institut et le service de la phtisiologie dans notre region. Elle trouvait beaucoup de temps et d'efforts pour la formation des specialistes de la phtisiologie. En 2007 le service antituberculeux etait reorganise. Tous les etablissements antituberculeux de la region ont ete soumis au dispensaire antituberculeux regional avec les phtisiologues et les medecins de la therapie generale de ce domaine.

A present l'aide antituberculeuse se trouvent sur 711 lits du dispensaire antituberculeux regional. On a cree l'aide ambulatoire a 17 cabinets de phtisiologie des etablissements municipaux de la sante publique. 65 medecins de phtisiologie travaillent dans notre region. Les specialistes de ce service pretent toutes les sortes de l'aide hospitaliaire aux malades avec la tuberculose. Au cours des annees de l'existence de ce service au dispensaire et a ses filiales on a cree l'ecole des specialistes qualifies qui sont connus par les idees nouvelles et par le devouement a sa profession.

Malgré de la situation épidémiologique composée, le service de phthisiologie mène tout le complexe des mesures de la stabilisation et l'abaissement de cette maladie et de la mortalité de la population avec la tuberculose, l'assurance de la base matérielle du service antituberculeux, l'organisation des mesures profilactiques.

### **LAPAROSCOPIE COMME UNE METHODE DU DIAGNOSTIC ET DU TRAITEMENT CHIRURGICAL DE LA TORSION DES ANNEXES DE L'UTERUS**

Tonkonogova M. , Semis-ool N., Pnuchtin O. – et-tes de la 5-eme année.  
Les dirigeants scientifiques – Charchova O.A., Nasarkina S.I.

La torsion des annexes de l'utérus dans la structure des maladies gynécologiques aiguës n'est pas trop fréquente, mais c'est une pathologie dangereuse. D'après la littérature la torsion prend la cinquième place parmi les affections gynécologiques urgentes et se produit chez les femmes moins de 3 % de tous les groupes d'âge.

Le but de notre travail était l'étude des changements cliniques, macroscopiques et pathologiques des annexes de l'utérus avec la torsion et le traitement chirurgical adéquat. Sur la base de l'hôpital clinique municipale au cours de l'année passée on a été identifié huit cas de la torsion des annexes de l'utérus. L'âge de femmes de 20 à 45 ans indique que cette pathologie se présente dans la période de reproduction. La clinique ressemble aux maladies à « l'abdomen aigu ». La majorité des patientes avec ce diagnostic entrent à l'hôpital. Les patientes se plaignent plus souvent de douleurs abdominales, soudaines, inattendues, parfois avec des contractions utérines, après les exercices physiques ou de rapports sexuels. Les femmes avaient la faiblesse, la nausée, le vomissement. Les résultats des examens ont permis de révéler la fréquence des symptômes cliniques particuliers : 1) l'augmentation progressive de la douleur – 70% , les nausées et les vomissements – 50% , les saignements du tractus génital – 21 % ; 2) l'examen vaginal chez 90 % des malades, on détermine une consistance bradyélastique près de 7 – 8 cm avec la douleur pendant l'examen. La torsion des annexes de l'utérus est une pathologie chirurgicale aiguë. Il est nécessaire d'établir le diagnostic très vite, parce que l'augmentation du temps avant du commencement de l'opération peut mener à l'invivabilité des tissus, au risque de perdre des annexes de l'utérus et à la péritonite. Dans tous ces cas on a effectué une échographie des organes du petit bassin, qui a permis de déterminer la présence du liquide libre dans le petit bassin, le degré de la vascularité des annexes de l'utérus et la formation pathologique à l'étude de la dopplétrie. Actuellement on compte que la laparoscopie est « le standard d'or » dans le diagnostic et au traitement de la torsion des annexes de l'utérus. C'est la laparoscopie qui donne la possibilité de diagnostiquer à 100 % la torsion des annexes de l'utérus, apprécier le degré de la lésion des tissus et ordonner le traitement. Lorsque l'intervention chirurgicale a été réalisée par le diagnostic et la laparoscopie, qui ont été réalisées à toutes les femmes. En deux cas on a fait la détorsion des annexes de l'utérus et la cystectomie. En six cas on a été réalisée l'annexectomie en raison de l'impossibilité sauver les annexes de l'utérus (4 cas – en raison de la

torsion totale et des changements necrotique dans les tissus ; 2 cas, ce sont les grandes cystomes de 7 a 12 cm, le manque de tissus ovarien sain chez les femmes de la reproduction agee). Comme le resultat des etudes pathologiques, c'est un decelement des kystes dans le corps jaune de l'ovaire avec l'hemorragie en 4 cas, le cysadenome serieux – en 2 cas et le kyste folliculaire – en 2 cas.

Conclusion : la torsion des annexes de l'uterus, c'est un etat pathologique urgent qui ont les femmes en age de la reproduction. La consultation attardee des patientes, le diagnostic et le traitement ambulatoire attardes conduit a la perte des organes. Un diagnostic precoce, rapide et le traitement chirurgical epargnant au maximum, c'est une priorite qui permet de garder les fonctions des regles et de la procreation. La laparoscopie est « le standard d'or » dans le diagnostic et au traitement de la torsion des annexes de l'uterus.

### **VITAMINE C**

Glouchakova D., Oorjak M. - et-tes de la 4-eme annee.

Les dirigeants scientifiques – Simonova N.V., Nasarkina S.I.

La vitamine C, ou l'acide ascorbique, est indispensable a la formation des fibres elastiques (collagene) contenues par exemple dans les parois des vaisseaux sanguins, la partie profonde de la peau, le squelette, les tendons, les ligaments ou les gencives. Elle contribue egalement a l'absorption et au stockage du fer, ainsi qu'au metabolisme de la carnitine.

La carence en vitamine C (scorbut) est devenue tres rare ; elle se traduit par des saignements de gencives, des ecchymoses, une secheresse de la bouche et des yeux, des douleurs articulaires et musculaires, de la fatigue et de l'anemie. Elle peut entrainer un coma mortel.

Au dela de la prevention et du traitement du scorbut, les autres proprietes attribuees a la vitamine C sont la lutte contre la fatigue, l'amelioration des defenses immunitaires, la reduction de la duree du rhume, ainsi que la prevention des maladies cardiovasculaires, de certains cancers et de la cataracte. Aucun essai clinique n'a pas montre l'efficacite de la prise de la vitamine C dans la prevention des maladies cardiovasculaires ou du cancer.

Les personnes sujettes aux calculs urinaires et les personnes souffrant de maladies ou l'on observe une accumulation du fer dans l'organisme, comme, par exemple, l'hemochromatose, la drepanocytose ou la thalassemie, doivent s'abstenir de prendre des doses elevees de vitamine C de maniere prolongee. Les apports nutritionnels conseillees sont de 100 mg par jour pour un adulte et de 120 mg par jour chez la femme enceinte. Les fumeurs ont des besoins accrus en vitamine C : il leur est conseille d'en ingerer entre 200 et 250 mg par jour.

La vitamine C est surtout presente en grande quantite dans les poivrons et les piments, les agrumes (citrons, jranges, etc.), les legumes de la famille des choux, les epinards, les fraises et de nombreux autres fruits.

Les cynorrhodons contiennent de la vitamine C (7% de leur poids), mais aussi des carotenoide et des flavonoides. Utilises dans des completements alimentaires destines a lutter contre la fatigue, les cynorrhodons existent egalement prepares en

confiture.

### **REMEDES ACTUELS DE LA THERAPIE DE L'INFECTION D'IMMUNO-DEFICITE ACQUISE**

Savelieva K., Terentieva E. - et-tes de la 3-eme annee.

Les dirigeants scientifiques – Boubenets O.V., Nasarkina S.I.

L'infection du syndrom immuno-depression acquise etait decouverte en 1983 et s'est repandue sur les continents du globe terrestre, c'est-a-dire elle a recu le caractere de la pandemie. Les succes a l'etude de l'etiologie, de la pathogenese, de la therapie, des methodes du diagnostic de cette maladie et quelques mesures de sa prophylaxie, tout cela contenue rester comme le phenomene biologique grave, qui emporte la vie de la partie active de la population. Cette infection n'a pas perdu les proprietes propres aux maladies malignes agressives, c'est une receptivite des gens a la contagion. On ne peut pas trouver les causes essentielles plus graves et perilleuses pour l'humanite au cote du processus infectieux. De quelle maniere faut-il assurer la prophylaxie specifique de cette maladie et trouver le traitement de garantie ? La plupart des combinaisons chimiques a toute epreuve cedent par son activite aux autres remedes. La societe medicale de tous les pays met son esperance en quatre remedes : Zidovudine, Didanosine, Zalcitabin et Stavudin.

Zidovudine (Azidontimidin, AZT) – le premier remede de licence pour le traitement de SIDA. Il etait synthetise aux Etats-Unis en 1964, mais il etait connu comme le remede contre les tumeurs. En 1980 les collaborateurs de la firme «Wellcome» l'ont synthetise et depuis 1987 il s'adoptait a la therapie du SIDA.

Didanosine (Didesoxynosin, DX 1) comme AZT, est une derivee des Didesoxynucleozides. Ce remede est destine pour le traitement avec Zidovudine des formes de l'infection d'immuno-depression acquis. Les indications essentielles au traitement, c'est la diminution de la quantite CD4- lymphocytes dans le sang des malades qui emploient AZT. Ce remede permet de retablir le niveau des lymphocytes et diminuer la concentration de l'antigene P24 dans le sang.

Zalcitabin (Didesoxytidin, DDC) comme Didanosine est une derivee des Didesoxynucleosides et etait recommande au traitement des infections stables a AZT. Il favorise aussi au retablissement au niveau passe de CD4-lymphocytes.

Stavudine (DCT). Il est prouve que ce remede garantit l'augmentation du niveau CD4 –lymphocytes dans le sang. Il est distingue en principe de trois remedes precedants par la structure chimique. Stavudin peut devenir le leader dans la serie nouvelle des remedes specifiques.

### **ENDOCARDITE RHUMATIQUE**

Terentieva E., Belaieva Y. - et-tes de la 3-eme annee.

Les dirigeants scientifiques – Perfilieva S.S., Nasarkina S.I.

Les maladies rhumatiques, ce sont les maladies caracterisees par la lesion systematique des tissus conjonctifs et des vaisseaux, determines par la contravention

immune. L'endocardite c'est une forme cardio-vasculaire du rhumatisme.

L'endocardite rhumatique, c'est une inflammation de l'endocarde, dans ce processus entraînent les cordes tendineuses. C'est une endocardite chordale et l'endocarde pariétal des oreillettes ou les ventricules, c'est-à-dire l'endocardite pariétale. Les valvules mitrales sont lésées plus souvent (65-70% de la cardite rhumatismale). La deuxième place occupe une affection des valvules mitrales et aortiques (25%), sur la troisième place se trouve une affection des valvules aortiques. Dans une endocardite rhumatique on marque les changements dystrophiques et nécrobiotiques de l'endothélium, l'intumescence mucoïde et fibroïde et la nécrose de la base conjonctive de l'endocarde, la prolifération cellulaire (la granulomatose) dans l'endocarde et la formation des thrombes sur sa surface. On souligne quatre sortes de l'endocardite valvulaire rhumatique : l'endocardite diffuse ou la valvulite ; l'endocardite verruqueuse aiguë ; l'endocardite fibroblastique ; l'endocardite récurrent-verruqueuse.

L'endocardite diffuse ou valvulite se caractérise par une affection des valvules, mais sans modification de l'endothélium des applications thrombotiques. L'endocardite verruqueuse aiguë provoque les lésions de l'endothélium et la formation des applications thrombotiques en vue des verrues. L'endocardite fibroblastique se développe comme le résultat de deux formes précédentes l'endocardite qui sont pénétrées à la fibrose et à la cicatrisation. L'endocardite récurrent-verruqueuse est caractérisée par la désorganisation réitérative des tissus conjonctifs des valvules par la modification de l'endothélium et des applications thrombotiques au fond de la sclérose et du renflement des valvules.

Ce sont la sclérose, l'hyalinose et la déformation des valvules qui se développent en résultat de l'endocardite. Ils se soudent l'un à l'autre, la sclérose et la calcification de l'anneau fibreux du cœur. L'orifice atrio-ventriculaire devient étroit, il a un aspect de « la bouche de poisson » et se forme le vice cardiaque. Les cordes tendineuses sont aussi épaissies, raccourcies et sont soudées l'un à l'autre.

#### **PARTICULARITES DU COURS DU SYNDROME CORONAIRE AIGU CHEZ LES FEMMES**

Terentieva E., Belaieva Y. , Beloukhin V. - et-tes de la 3-eme annee.  
Les dirigeants scientifiques –Menchikova I.G., Chpiltchouk L.I.

Les maladies cardio-vasculaires occupent la place principale à la structure de la mortalité de la population adulte, de la Russie et composent 55% du nombre total des morts. On sait, que le syndrome coronaire aigu (SCA) chez les femmes se développent pour 10-15 ans plus tard, que les hommes. Longtemps cela est lié avec l'effet cardioprotecteur des hormones de femmes. Cependant les années dernières on marque la croissance de la fréquence de (SCA) chez les femmes, y compris l'âge fertile.

D'après les données de l'organisation mondiale de la santé publique, l'infarctus du myocarde (I.M) est la cause de la mort 45% des hommes et 55% des femmes. Conformément à l'étude de Framingham, le début de la maladie ischémique du cœur (MIC) chez les femmes souvent est la stenocardie chez les hommes en 46%

des cas est l'infarctus du myocarde. En même temps l'ischémie du myocarde sans douleur se développe souvent chez les femmes (le pronostic défavorable). D'après les données de quelques auteurs, 63% des femmes mortes de l'IM., qui n'avaient pas de la manifestation typique de la maladie. On pose la question de diagnostic de SCA à temps chez les femmes et de la révélation des facteurs importants de risque de la MIC.

Le but de notre recherche est l'étude des particularités du cours clinique du SCA chez les femmes. On a été faite l'analyse rétrospective des 130 historiques de la maladie des femmes traitées dans le service de la cardiologie urgente de l'hôpital clinique de la ville de Blagovetschensk, à l'âge de 41 à 93 ans. Chez 57,6% des patients a été diagnostiquée la sténocardie instable, chez 42,4% - l'infarctus du myocarde, d'eux 73,5% avec l'onde Q, sans onde Q - 26,5%. Tous les malades, comme un jeune et de l'âge avancé, ont eu des facteurs de risque (FR) la maladie coronarienne, tels que : hypertension artérielle - 97%, charge de l'hérédité et de 89%, une dyslipidémie - 79%, l'obésité est de 64%, le tabagisme est de 42%, le diabète sucré de 43%. Il convient de noter que les femmes de moins de 55 ans, le plus souvent indiquent la combinaison de 3 et plus de FR (79,5%), chez les patients âgés - la combinaison de 2 FR. L'analyse de la situation sociale a montré que chez les 78,3% des femmes avec SCA le travail a été lié à la psycho-émotionnel. Chez 42% des patients sont souvent enregistrés anxieux et dépressifs de l'événement. Dans 69% des cas SCA a été diagnostiquée chez les femmes âgées de plus de 65 ans des années. Chez 18% des patients IM ont développé de nouveau, une rechute de la maladie a été marquée dans 27,5% des cas. IM répandu antérieur a été observé chez 47,2% des patients, IM de la cloison antérieure -9,8%, postéro-diaphragmatique - 39%, circulaire -4%. Chez les femmes âgées, souvent, s'est déroulée avec des complications, des troubles du rythme et de la conduction détectés chez 79% des plus de 75 ans, chez les femmes avant l'âge de 55 ans, dans 15% des cas.

Ainsi, avec SCA avant l'âge de 55 ans, il est noté une combinaison de ces facteurs de risque, comme l'hypertension artérielle, l'obésité, la dyslipidémie, le tabagisme. Chez les femmes âgées, le plus souvent ont le diabète sucré et l'hypertension artérielle. Chez les patients âgés, le plus souvent, on a observé le cours atypique de SCA et sans douloureuse de l'ischémie du myocarde.

#### **PARTICULARITES DE LA PNEUMONIE HORS DE L'HOPITAL CHEZ LES PERSONNES AGEES ET LES VIEILLARDS**

Gonakova V., Gourtsieva A., Pachkevitch E. - et-tes de la 3-eme annee.

Les dirigeants scientifiques - Sklar I.V., Nasarkina S.I.

Les pneumonies hors de l'hôpital sont les maladies plus répandues. Selon plusieurs recherches l'incidence des affections de la pneumonie hors de l'hôpital varie de 11,6% chez les patients jeunes et l'âge moyen, et 44% - chez les malades après 60 ans. Les affections des personnes âgées sont à 2 fois élevées, la fréquence de l'hospitalisation est à 10 fois élevées que chez les jeunes. La létalité de la pneumonie chez les patients plus de 60 ans atteint 14-20% et occupe la 4-ème place parmi toutes les causes chez les malades du groupe d'âge (Tchutchalin A.G., 2014).

Le but de notre recherche était une étude des particularités de la clinique de la pneumonie hors de l'hospitalisation chez les personnes âgées et des vieillards. On a fait une analyse rétrospective de 99 dossiers médicaux de patients atteints de pneumonie hors de l'hôpital, qui étaient traités dans le service de pneumologie de l'hôpital clinique municipale de Blagovetshtnsk à l'âge de 65 à 97 ans. Les hommes se composaient 54,8%, les femmes – 45,2%. Les patients âgés se composaient 53,7%, les vieillards – 44%, les macrobiens – 2,1%. Les infections respiratoires aiguës ont précédé le développement de la pneumonie chez 40,3% de patients. La pneumonie a été rapportée pour la première fois dans 62,7% des cas, une pneumonie répétée chez 37,8% de patients. On a remarqué que 59,9% de malades âgés et des vieillards avaient une pneumonie de gravité moyenne et 38,7% des malades avaient la maladie grave. Tous les patients avaient : hypertension (63,1%), une cardiopathie ischémique (57,2%), la bronchite chronique (34,5%), obésité (11,2%), diabète (7,9%). La complication la plus fréquente avait la pneumonie avec l'insuffisance respiratoire aiguë (40,5%). La pleurésie exsudative se rencontre moins fréquente (9,5%). Dans les trois premiers jours 23,8% de patients ont été hospitalisés, pour 4-7 jours – 44%, pour 8-14 jours c'étaient 13%, après deux semaines avec les premiers symptômes de la maladie – 6%. 13,1% de patients ne pouvaient nommer le commencement de sa maladie. Le plus souvent les patients se plaignaient à l'essoufflement, toux, fatigue, perte d'appétit. Chez 49,7% de patients a révélé l'absence de toux productive. À l'examen on a remarqué l'inhibition, l'apathie. Chez 5,3% de patients, la maladie débute par des signes d'arythmie. Il n'y avait pas de fièvre chez 70,3% de malades. Dans l'analyse des données de laboratoire on a révélé une leucocytose chez 48,8% de patients, une leucopénie – chez 4%, les leucocytes du formule déplacement à gauche – chez 22%, l'anémie – chez 22,7%. 10,7% de cas il y avait une lymphocytopénie. La caractéristique la plus constante est une augmentation de la vitesse de sédimentation, la protéine positive C-réactive, une hyperfibrinogénémie – 93,5%.

La radiologie des organes du thorax a montré la pneumonie latérale chez 18,2% de malades et la pneumonie lobaire du côté droit chez 69,9%. L'ensemencement au crachat on a trouvé les pneumocoques en 31,9% de cas, le bacille de hémophilie – en 25% de cas, la klebsiella – en 15,5% de cas, le bacille du colon – en 12% de cas. On a trouvé les blastomyces du genre de *Kandida* dans les titres faibles en 13,1% de cas.

Ainsi, l'analyse a montré la pneumonie hors de l'hospitalisation atypique chez les personnes âgées et des vieillards, la présence de la pathologie grave. La cause la plus fréquente de cette pneumonie chez les personnes âgées était le pneumocoque.

### **SILICOSE COMME MALADIE PROFESSIONNELLE**

Terentieva E., Savelieva R. - et-tes de la 3-ème année.

Les dirigeants scientifiques – Korchunova N.V., Nasarkina S.I.

La silicose se présente une des maladies professionnelles. Elle se produit après l'inhalation prolongée de poussières contenant le silicium bioxyde libre. La silicose

pulmonaire se rencontre souvent chez les personnes liées à l'exploitation de l'industrie : minière, métallurgique, porcelaine et construction mécanique. Le plus grand danger pour l'homme présente les poussières de petite dispersion, le diamètre des particules est de 2 à 3 nm. Ils pénètrent facilement dans les bronchioles et les alvéoles et développent la fibrose et d'autres pathologies.

Pendant une longue période de temps la maladie de la silicose n'inquiète pas le patient, ce qui s'explique par sa chronicité. La symptomatologie initiale est rare : l'essoufflement, en particulier pendant une activité physique ; les douleurs à la poitrine ; la toux sèche rare ; le crachat. Les maladies concomitantes se joignent à la maladie essentielle, par exemple : l'asthme bronchial et la bronchite chronique. L'apparence des malades n'a pratiquement pas changé, mais l'étude de roentgenologie et un examen attentif du patient peuvent détecter les premiers symptômes de l'emphysème, de la diminution de la mobilité des marges pulmonaires et du relâchement de la respiration. Dans certains cas on peut déterminer la silicose pulmonaire sur la respiration et les râles secs. Dans les formes graves de cette maladie la toux devient permanente, avec beaucoup de crachats, il arrive la douleur et le sentiment d'oppression dans la poitrine, une cyanose. Quelques patients ont une hémoptysie et la violation de l'activité du système cardiovasculaire. Le contact par la suite avec la poussière contenant le quartz conduit au développement du processus hypertrophique et provoque des changements dans la muqueuse des voies respiratoires supérieures.

La prévention de la silicose est dans les mesures d'assainissement, comme la lutte avec les poussières d'air à la production, la diminution de la concentration de poussières dans les lieux de travail, l'utilisation des appareils respiratoires, des examens médicaux périodiques.

#### **ASPECTS MORPHOLOGIQUES DU BLOCAGE INTRAPELVIEN D'APRES CHKOLNIKOV-SELIVANOV-TSODYKS**

Terentieva E., Belaieva Y. - et-tes de la 3-ème année.

Les dirigeants scientifiques –Piskoun S.I., Chpiltchouk L.I.

Les lésions du bassin en temps de paix consistent à 3-18% du nombre total de traumatismes. Cette maladie est généralement accompagnée par un choc hémorragique sévère. La mortalité dans ces lésions est de 14%.

En considérant cette circonstance, la nécessité du blocage simple et solide augmente. La méthode est très répandue de l'anesthésie de cette région est le blocage intrapelvien d'après Chkolnikov-Selivanov-Tsodyks.

L'anesthésie pelvienne est un moyen solide de la lutte à la douleur et les réflexes des perturbations dans les fractures du bassin. Il montre un long effet analgésique pour toute la période de traitement, permettant la réalisation de la gymnastique médicale dans les premiers jours après le traumatisme.

Technique de l'anesthésie. Le patient d'habitude, sur le dos. La peau dans la zone de la colonne vertébrale antérieure est iliaque traitée avec de la teinture d'iode. 1 cm en dedans de la colonne vertébrale antérieure aiguille fine la peau anesthésie avec 1-2 ml de solution de 0,25% de la novocaïne. Ensuite, la longueur de l'aiguille

de 14 a 15 cm, monte sur une seringue avec novocaïne, injecte a travers la zone de peau sous anesthésie la colonne vertébrale de l'avant vers l'arriere, passe a l'intérieur de la surface de l'os iliaque. En injectant la solution de novocaïne, l'aiguille est avance en arriere a un 12-14cm de profondeur. La promotion de l'aiguille doit etre precedee par l'introduction de la novocaïne. Tout le temps vous avez besoin de sentir la proximite de l'os iliaque. Lorsque vous effectuez cette technique le fin de l'aiguille est dans la fosse iliaque interne, qui est injecte 0,25% solution de novocaïne.

La solution de novocaïne est injecte en une quantite de 400-500ml sur le cote de la fracture a la fracture unilaterale, a la fracture bilaterale-la solution doit etre administrer a 250-300 ml de chaque cote. Dans les fractures ouvertes, les fractures avec lesions aux organes pelviens a la solution de novocaïne est conseille d'ajouter 200 000 a 400 000 unites de penicilline.

Pour eviter les fuites de l'aiguille de la novocaïne sur la seringue a la prochaine rempli devrait fermer l'ouverture dans le pavillon de l'aiguille de pressage de la balle ou le déplacement de l'aiguille avant de retirer la seringue. Apres la cession de l'aiguille d'anesthésie est retire, et l'endroit de l'injection enduit avec de la teinture d'iode.

Pour la premiere fois les auteurs ont publie une description de cette anesthésie dans sa monographie « Les lesions du bassin et des organes pelviens » (1966).

L.Chkolnikov (1900-1994) – traumatologue, orthopediste sovietique. Redacteur en chef de journal de traumatologie et membre du conseil de plusieurs societe. L'auteur de 125 articles scientifiques et plusieurs livres.

V.P.Selivanov (1921-1989) –medecin honore de la RSFSR (1966). Le chirurgien, osteopathe, traumatologue. Il est fondateur de l'ecole de la traumatologie a Novokouznetsk. Il a travaille sur la creation de methodes ameliorees de diagnostic et de traitement des patients, il a apporte une contribution significative aux differentes sections de la medecine. L'auteur de publications scientifiques sur la traumatologie.

V.M.Tsodyks est representant de l'ecole de la traumatologie et de l'orthopedie, l'auteur de 119 publications, deux monographies et 25 inventions.

### **BASALIOMA**

Gourtsieva A., Pachkevitch E. - et-tes de la 3-eme annee.

Les dirigeants scientifiques – Perfilieva S.S., Nasarkina S.I.

Le basalioma (l'epithelioma basocellulaire) c'est une tumeur epitheliale maligne, qui se developpe a partir de cellules basales atypique de l'epiderme et de l'epithelium folliculaire. Elle est caracterisee par une croissance tres lente, accompagnee d'une infiltration inflammatoire et de la destruction des tissus environnants, et de l'absence de la tendance a former des metastases. Le tableau clinique. On peut trouver cette maladie surtout chez les personnes agees et les vieillards. La localisation frequente c'est le visage, la partie chevelue de la tete. Elle est caracterisee par la croissance tres lente, ce qui augmente en dimensions pendant des annees. L'epithelioma basocellulaire ne peut pas metastaser. On ne voit que la croissance perepherique, qui detruit les tissus impliques. En raison de ces

caracteristiques on nomme le basalioma comme la tumeur de la croissance destructive. Ces possibilites dans les certaines conditions (par exemple, en raison de la radiotherapie inadeguate) transforment le basalioma en cancer metatypique. Certains auteurs rapportent cette tumeur a la precancerose. Le basalioma commence comme une seule papule plane compacte ou hemispherique a 2 – 5 mm de diametre, il a la couleur blanc rose ou de la peau normale. Les sensations subjectives sont absentes. La papule augmente lentement et pendant quelques annees elle atteinne a 1 – 2 cm. Dans le meme temps sa partie centrale se divise et recouvre par la croute sanguinolente, après sa rejection on peut voir une erosion sanglante ou l'ulcere superficiel. Sur la peripherie on voit le traversin etroit qui se compose des papules miliaries legerement rosatre. Parfois sa couleur peut etre de nacre ou brun. L'ulcere forme augmente en dimensions et secicatrise dans la partie centrale. Selon le caractere de sa croissance, le basalioma peut se transformer a la grande plaque plane (10 cm et plus) avec la surface desquamative ou au noeud de champignon sur la surface de la peau ou a l'ulcere profond qui detruit les tissus y compris les os (ulcus rodens, ulcus terebrans).

Le diagnostic differentiel est realise avec la verrue seborrheique, la maladie de Bowen, la keratose actinique, le melanome, une variete de naevus. Le traitement : l'excision chirurgicale, la radiotherapie, la therapie au laser, la cryotherapie. On limite l'ablation de la tumeur aux tissus sains. A present on utilise la cryodestruction, la diathermo-coagulation, les onguents de prospidine ou de colcamine et d'autres.

#### **ATHEROSCLEROSE. L'ASPECT ACTUEL ET LES MECANISMES DE SON DEVELOPPEMENT**

Terentieva E., Belaieva Y. - et-tes de la 3-eme annee.

Les dirigeants scientifiques – Matytsin A. P., Maksimenko V.A., Nasarkina S.I.

L'atherosclerose, c'est une affection de systeme des arteres du calibre grand et moyen, accompagnee par des accumulation des lipides, l'augmentations des fibres, la dysfonction de l'endothelium de la paroi vasculaire ce qui mene au trouble commun et local de l'hemodynamique. Pour la premiere fois le terme « atherosclerose » etait propose de F.J. Marchand en 1904, il entend les modifications morphologiques des arteres qui se sont caracterisees par la combinaison de l'accumulation de la graisse dans les arteres et par les phenomenes du propre du sclerose. On croit que l'atherosclerose presente une unite de nosologie, une maladie particuliere. Les travaux des savants russes N.N. Anitchkov et S.S. Khalatov ont une grande importance a l'etude de ce probleme. Ils ont decouvert la theorie de cholesterine de l'atherogenese. Ces decouvertes nouvelles ont permis de completer cette theorie et de concilier avec les autres theories. Mais on a garde l'essentiel, que « sans trouble du metabolisme du cholesterine il n'y a pas d'atherosclerose ». Cette hypothese s'est transformee aux modifications du metabolisme lipidique qui mene a l'augmentation de la quantite des lipoproteines atherogenes ou a la diminution des lipoproteines antiatherogenes, et a la modification qualitative des lipoproteines qui sont des mecanismes

pathogenetiques essentiels de l'atherogenese.

On croit que le developpement de l'atherosclerose passe par les plusieurs etapes : le premier stade, ce sont les taches lipidiques. Les microlesions des parois des arteres et le ralentissement local de la circulation sanguine jouent le role essentiel pour les depots de graisses dans la paroi vasculaire. Les secteurs de la ramification des vaisseaux sanguins sont expose a l'atherosclerose. La paroi vasculaire devient poreuse et gonfle. Les ferments de la paroi arterielle cherchent a dissoudre les lipides et proteger son integrite. Le deuxieme stade, c'est une liposclerose. Elle est caracterisee par la proliferation dans les secteurs de graisses du tissu conjonctif jeune. Il y a une formation de la plaque atherosclerotique, composee de graisses et des fibres conjonctifs. Elle est encore liquide et peut se dissoudre. Mais il y a un danger, parce que la surface peut se dechirer, et les fragments des plaques peuvent obstruer la clair-voie des arteres. La paroi du vaisseau perd son elasticite, se gerce et s'ulcere, mene a la formation des thrombus. Le troisieme stade, c'est une atherocalcinose. Elle est liee avec l'infiltration de la plaque et la formation des sels du calcium. La plaque atherosclerotique peut se composer de facon stable ou augmente progressivement, deforme et etrecit la clair-voie de l'artere, provoquant des troubles chroniques progressifs de la vascularite . Dans ce cas il existe la probabilite de l'obstruction aigue (l'occlusion) de clair-voie du vaisseau par le thrombus ou par des fragments de la plaque atherosclerotique avec le developpement de la phase de l'infarctus ou la gangrene dans l'artere vasculaire ou d'un organe.

#### **ANTOINE LAMBERT – PIONNIER DE LA CHIRURGIE ABDOMINALE**

Pachkevitch E., Gourtsieva A. - et-tes de la 3-eme annee.

Les dirigeants scientifiques – Piskoun S.I., Nasarkina S.I.

Antoine Lambert (1802 – 1851), un chirurgien francais qui a joue un grand role dans le developpement d'une chirurgie abdominale. Apres des etudes a l'Universite de Paris il travaillait comme medecin-epidemiologiste dans le departement de la Seine, puis comme interne dans plusieurs hopitaux de Paris. Il existe les travaux connus de Lambert, dans lesquels il a decrit les methodes originales de l'application des medicaments en les frottant dans la peau. Un certain nombre de ses articles est consacre aux aspects theoriques de la medecine « les erreurs dans le diagnostic » (1832), « Sur les principes de la cinetique dans les corps organiques » (1830), « Dans quel cas on peut appliquer la doctrine des deviations et des revulsions » (1835).

En 1820 A. Lambert a propose un moyen de la suture intestinale base sur les proprietes qui cousent les surfaces de la membrane sereuse de l'intestin au collage rapide (pendant vingt-quatre heures) et a la formation de la commissure solide dans les jours prochains. J. Douffenhah, qui a fait avec succes pour la premiere fois la resection intestinale avec la suture Lambert dans les conditions cliniques, a nomme ce moyen comme la decouverte exceptionnelle en chirurgie.

La suture Lambert. La suture double Lambert. Pour atteindre l'hermeticite biologique on peut utiliser la capacite du peritoine se coller le rapprochement etroit.

Lambert a utilisé cette qualité et a proposé de mettre les sutures sero-sereuses propres. Cependant il est vite devenu clair que cette matière de suture coupe rapidement le péritoine mince. Plus tard on a commencé à utiliser la suture sero-musculaire qui était plus durable, mais on la nomme aussi la suture Lambert. Ainsi, dans le processus du développement de la suture intestinale optimale il est devenu clair que la suture d'une seule couche (muqueuse - sous-muqueuse ou sereuse - musculaire) n'est pas assurée toutes les conditions vers la suture intestinale. Lambert a proposé la suture double. La première rangée de la suture passe à travers toutes les couches de la paroi intestinale, offrant une résistance et l'herméticité mécanique. La deuxième rangée des sutures, c'était la suture sero-musculaire Lambert, qui garantit l'herméticité biologique.

### **PANNES DE TRANSPORT ET CATASTROPHES**

Khomouchkou Tch., Koujeget A. – et-tes de la 2-eme année

Les dirigeants scientifiques – Guba L.A., Nasarkina S.I.

La Russie, Irkoutsk, AN-124, un avion de transport militaire qui s'est écrasé au bâtiment industriel, situé dans la banlieue d'Irkoutsk. En définitive 60 personnes ont péri sous les décombres.

Les Etats-Unis, 2002. A cause du brouillard il a eu lieu une collision des voitures de masse à la frontière des Etats américains : Géorgie et Tennessee. Avant qu'on a fermé le mouvement des automobiles, 125 voitures sont devenues les participants de l'accident sur la route.

L'Egypte, Ras Garib, 2010. L'autobus des voyageurs, qui transportait des touristes, n'a pas pu tourner parce qu'il roulait à la vitesse grande, il a porté dehors, à la cunette, ou il s'est retourné quelques fois. A la suite 9 passagers ont pris la mort.

L'Indonésie, 2010. L'avion Xian MAGO, appartenant à la compagnie aérienne Merpati, est tombé dans la mer en faisant l'embarquement à l'est de l'Indonésie. L'avion effectuait un vol entre les villes Kajman et Sorong dans la province de la Papouasie Occidentale. L'avion a explosé et est tombé dans la mer.

La République Populaire de Chine, 2011. Six wagons ont déraillé et quatre d'eux sont tombés du viaduc de l'hauteur 20 – 30 mètres en bas, après qu'un train s'était télescopé dans la partie postérieure d'un autre train. Il doit s'arrêter en raison de la foudre, qui l'avait frappé. Plus de 190 personnes ont été blessées.

L'Egypte, 2015. Le 31 octobre l'avion « Airobus A 321 » s'est envolé de l'aéroport de Charme-el-Cheikh à Petersbourg à 6 : 21, l'heure de Moscou, et au bout de 20 minutes il a disparu des radars. Le pire s'est confirmé : les autorités égyptiennes ont découvert les fragments de l'avion au nord de la péninsule du Sinaï, dans les montagnes. Avant l'accident l'avion commençait brusquement à perdre l'altitude du vol. Le dimanche on a précisé : 224 personnes ont péri. La majorité parmi eux sont les Russes. La plus grande quantité sont les habitants de Petersbourg. On nomme deux versions principales : le mauvais état technique de l'avion et un éclatement dans l'avion.

## **PARTICULARITES DE LA STRUCTURE DE LA MOELLE EPINIERE DES NOUVEAU-NES**

Gabrielyan L. – et-te de la 2-eme annee

Les dirigeants scientifiques – Pavlova A.E., Nasarkina S.I.

La longueur de la moelle epiniere des nouveau-nes est pres de 30% de la longueur du corps (14 – 16), y compris : la section cervicale – a 3,8 cm, la section thoracique - a 7,7 cm, la section lombaire – a 2,3 cm, la section sacree – a 2 cm. Le poids de la moelle epiniere presente de 3 a 4 grammes, tout cela est 0,1% du poids du corps (chez l'adulte – 0,04%). Le renflement cervical et lombaire sont bien exprimes, le nombre des sillons est egal a 8 (chez l'adulte – a 4). Le sillon median anterieur est assez profond et contient les arteres centrales anterieures, les sillons posterieurs (median, intermediaire et lateral) s'ebouchent a peine. Sur la surface de la moelle epiniere d'un nouveau-ne on voit quatre sillons longitudinaux, qui peuvent s'aplanir de 6 mois a 1 an. On voit la predominance de la substance blanche en comparaison de grise. Les cornes posterieurs dans la section thoracique presentent le canal central qui est relativement large entre lui et l'espace sous-arachnoïdien, peuvent voir les communications. Les cellules des ganglions spinales sont entierement differencies.

## **LES ETABLISSEMENTS D'ENSEIGNEMENT SUPERIEUR DE LA FRANCE**

Teutschakova A., Soubkova D.– et-tes de la 2-eme annee

Le dirigeant scientifique – Nasarkina S.I.

En France il existe une grande variete des etablissements d'enseignement superieur et une possibilite du choix de la specialisation. Actuellement, plus de 92 universites et pres de 300 ecoles superieures travaillent a la base constante. On peut ajouter cinq instituts catholiques, quelques instituts politiques, beaucoup d'ecoles superieures technologiques, ainsi que les business-ecoles, les ecoles de commerce, les ecoles de la direction et etc. L'instruction superieure en France a la specificite vivement exprimee nationale. Dans ce pays il existe son systeme des diplomes et des gardes, la division specifique en cycles et la relation speciale aux diplomes des etablissements d'enseignement d'Etat : ils, en general, sont cotes beaucoup plus haut que les diplomes des ecoles et des universites privees. Les ecoles superieures ce sont des etablissements d'enseignement les plus prestigieux de la France, quelques d'eux, se rapportent au secteur prive, bien que non tous (dans les ecoles superieures d'Etat l'enseignement, en general, est gratuit, ou a bon marche, cependant il y a un concours tres rigide).

Les Ecoles normales superieures en general se specialisent sur la formation du personnel du corps enseignant dans les domaines : le journalisme, l'art, la medecine et la jurisprudence sous le controle absolu du cote de ministeres differents. Les promus des Ecoles superieures trouvent le travail en France ainsi qu'en dehors du pays, ils peuvent au desir se vouer a l'activite scientifique.

Les etablissements d'enseignement superieur de la France proposent un

spectre large des programmes d'instruction qui ont toutes directions d'étude y compris les plus récentes par notre temps. La plupart des établissements d'enseignement supérieur français soutiennent les relations étroites et amicales de la coopération avec des partenaires étrangers, en pratiquant largement des échanges des étudiants, les stages pratiques dans les pays de l'Europe, de l'Asie, des États-Unis, de Canada. On invite les professeurs et les spécialistes de tout le monde pour la lecture de cours et pour la réalisation des séminaires

Pour comparer les établissements supérieurs de la Russie et de la France il faut dire qu'en France il n'existe pas de rating officiel des universités françaises. En choisissant l'université il faut tout d'abord définir la spécialité, qu'on voudrait recevoir. Après cette information il faut choisir l'établissement d'enseignement supérieur. Cependant, malgré l'absence du rating officiel, selon la règle secrète les universités de Paris et de grands centres régionaux sont cotées plus haut que les universités des petites villes provinciales

#### **GLUCIDES DU LAIT DE FEMMES**

Gabrielyan L. – et-te de la 2-ème année

Les dirigeants scientifiques – Egorchina E.V., Nasarkina S.I.

Les glucides du lait de femmes sous tous les rapports quantitatifs sont une partie prédominante des ingrédients secs. Leur contenu dans la transition du lait au lait de femme mature augmente considérablement. Dans la période du lait colostré à l'énergétique des nouveau-nés, ce sont des graisses qui jouent le rôle prédominant en raison des réserves limitées des glucides de l'organisme. La composition glucidique du lait de femmes est variée. Le lait contient des monosaccharides et des oligosaccharides. Les oligosaccharides constituent une masse essentielle des glucides du lait. La grande importance du lactose est énergétique. Une absence ou un déficit du lactose dans le lait conduit au changement de la biocénose microbienne du gros intestin et au développement de la dysbactériose. Les oligosaccharides du lait ont la capacité de diminuer les propriétés adhésives des microorganismes. La structure des oligosaccharides sont analogues aux récepteurs des cellules épithéliales pour microorganismes. Le besoin aux glucides dépasse le besoin de la protéine et des graisses. Le retour déficitaire des glucides dans l'organisme est perturbé par l'assimilation des ingrédients alimentaires, devient pire la digestion. Mais le retour abondant des glucides est insalubre aussi pour l'organisme d'enfant. À cause de la déséquilibre de l'alimentation se développe l'hypovitaminose, la formation de la graisse et le dépôt de cette graisse dans l'hypoderme, le météorisme. La réactivité de l'enfant change avec le retour élevé des glucides, augmente la sensibilisation de l'organisme qui mène à l'apparition des réactions allergiques.

#### **TREMBLEMENT DE TERRE EN TOUVA**

Syrbykay Tch. – et-te de la 2-ème année

Les dirigeants scientifiques – Guba L.A., Nasarkina S.I.

Le 27 décembre 2012 à la République de Touva on a enregistré un des plus





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