Министерство Здравоохранения Российской Федерации
ФГБОУ ВО Амурская Государственная Медицинская Академия
Студенческое Научное Общество

Ministry of Public Health of Russian Federation
Amur State Medical Academy
Students' Scientific Society

СБОРНИК ТЕЗИСОВ ДОКЛАДОВ

32я НАУЧНАЯ СТУДЕНЧЕСКАЯ КОНФЕРЕНЦИЯ НА ИНОСТРАННЫХ ЯЗЫКАХ

ABSTRACTS

32nd SCIENTIFIC STUDENTS CONFERENCE IN FOREIGN LANGUAGES

19 декабря 2022 г.

БЛАГОВЕЩЕНСК 2022 г.


САМАРСКАЯ ГОСУДАРСТВЕННАЯ МЕДИЦИНСКАЯ
СНО
АКАДЕМИЯ

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- Немецкого языка
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проф. И.Ю. Саяпина— проректор по НР и ИР;
проф. Е.А. Бородин — председатель Совета по НИИРС (ответственный редактор);
доц. И.А. Бердяева — проректор по воспитательной работе;
Н.А.Ткачёва — старший преподаватель кафедры философии, истории Отечества и иностранных языков, руководитель секции немецкого языка;
Е.А. Волосенкова— руководитель секции английского языка;
Л.И. Шпильчук— старший преподаватель кафедры философии, истории Отечества и иностранных языков,руководитель секции латинского языка;
И.А. Синякин — председатель научного сектора - Совета СНО Центра ССУ; технический редактор.

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Руководитель секции: старший преподаватель О.И. Катина
Председатель: Аликулова С.
Секретарь: Французова А.

MEDICAL IMAGE INFORMATION PROCESSING AND RELATED APPLICATIONS BASED ON INTEGRATED ARTIFICIAL INTELLIGENCE ALGORITHMS

Zhang Xinyang- Sophomore
Supervisors:
Qiqihar Medical College

Introduction: Artificial intelligence(AI) technology has made leaps and bounds since its invention. AI technology can be subdivided into many technologies such as machine learning and deep learning. The application scope and prospect of different technologies are also totally different. Currently, AI technologies play a pivotal role in the highly complex and wide-ranging medical field, such as medical image recognition, biotechnology, auxiliary diagnosis, drug research and development, and nutrition. With the continuous development of AI technology, the role of AI in the diagnosis will continue to increase until the robot can complete surgery independently. At that time, AI will change the medical technologies and even the medical model.

NEW TECHNOLOGY OF MRI PRECISE IMAGING BASED ON PRECISE PROBE

Pan Yan- Sophomore
Supervisors:
Qiqihar Medical University

Introduction:How to effectively diagnose cancer caused by malignant tumor is a huge challenge. Mesoporous silicon dioxide are widely used in the field of cancer therapy because of their unique properties, which can be loaded with anti-cancer drugs or imaging materials. However, studies on silicon dioxide loading therapy and imaging groups at the same time are rare. Now, a team of scientists has designed a precise probe based on the characterization, biosafety, fluorescence imaging and magnetic resonance imagin silicon dioxide of multifunctional mesoporous nanoparticles.
This probe has the advantages of precise localization of tumor microenvironment and high detection sensitivity, which can precisely locate the target area in the process of tumor treatment, carry out target area tracking imaging and treatment, and provide personalized treatment for each patient, shorten the treatment cycle, and in the local control rate of tumor and the overall survival rate of patients with greater advantages.

RESEARCH ON BIOMEDICAL NAMED ENTITY RECOGNITION METHOD BASED ON DEEP NEURAL NETWORK

Tao Yichun , the 4th year student
Qiqihar Medical College

In recent years, with the rapid development of biomedical technology and computer technology, a huge amount of biomedical text data has been generated, and how to effectively process and fully utilize these data has become an important issue. Biomedical named entity recognition is an important task in biomedical text information processing and has an important impact on its downstream tasks, such as entity relationship extraction, question and answering systems, document classification, etc. Biomedical named entity recognition aims to identify biomedical entities such as diseases, genes, chemicals, etc. in biomedical texts and label their types. Compared with named entity recognition

tasks in general-purpose domains, there are still many difficulties in carrying out named entity recognition tasks in biomedical domains. Biomedical entities such as chemicals, genes, proteins, etc. covered by biomedical text data usually consist of long sequences, which are not only numerous but also complex in structure. What's more, it is common in the biomedical entities to be recognized of abbreviations, aliases, nesting, mixed case, multiple meanings, and other naming irregularities, making it difficult for existing work to learn feature representations of biomedical text data relying only on a single deep learning model (e .g .convolutional neural networks, bidirectional gated recurrent units, or attention mechanisms To address the above problems, this thesis presents a systematic study of deep neural network-based biomedical named entity recognition methods, with the following main research components. (1) In this thesis, a biomedical named entity recognition model based on combined feature embedding and multi-task learning is proposed (BC_MT Bio NER). The model mainly consists of a shared layer and a task-specific layer, in which the shared layer fuses the contextual word embedding vector generated by Bio BERT with the character embedding vector generated by Char CNN to obtain vector representation information with both word and character features, which effectively solves the problem of inadequate extraction of semantic features of biomedical text data by existing methods. In addition, Bi GRU with global attention mechanism is used in the ask -specific layer to capture adjacent characters and sentence context information, and finally, CRF is used to predict the sequence labels. The model treats each dataset in the 15 biomedical datasets as an independent task, employs a specific module for different tasks, and enables the model to acquire common features among different tasks by training all datasets jointly to improve the generalizability of the model. The experimental results show that the average F1 value of BC MT Bi NER model on 15 commonly used biomedical datasets can reach up to 85.51%. (2) This thesis proposed a deep neural network framework jointed biomedical named entity identification and normalization (BCBA GS Bio NER). By jointly modeling the biomedical named entity recognition task and the biomedical named entity normalization task in the biomedical domain, the interactions between the two tasks are fully utilized to reduce the error propagation problem and to effectively improve the accuracy of the biomedical named entity recognition task using the biomedical named entity normalization task. The framework mainly includes recognition module, query module, and fusion module. In the recognition module, Bio BERT, a pre-trained language model, is used to replace the traditional static word vector representation to dynamically generate contextual word embedding vectors, which are stitched with the character embedding vectors generated by Char CNN and then input into Bi LSTM to obtain more adequate semantic information. In the query module, a feature vector of standard entities is generated using Bio BERT and the correlation between the biomedical entities of the input text and the standard entities is calculated using the attention mechanism. In the fusion module, the feature information output from the recognition module and the query module is fused using the gate mechanism, and finally the labels of the biomedical entities corresponding to the standard entities in the text data are output by the Soft max classifier. The BCBA_ GS_ Bio NER model was experimented on the NCBI and BC5CDR datasets, and the results showed that the model outperformed the comparison model.

GINSENG, BLACK SHUN TABLETS, MOUNTAIN JUJU THREE DRUGS WITH THE USE OF NEW CORONAVIRUS PNEUMONIA INTRA-CLOSED EXTERNAL EVIDENCE OF POTENTIAL TARGET MINING

Jingwen Liu. -Graduate 2nd year student

Pengling Ge, Ph.D., Professor

Heilongjiang University of Traditional Chinese Medicine

Introduction.Coronavirus disease 2019 (COVID-19), referred to as coronavirus. In recent years, there has been an increasing number of research on various types of antiviral traditional Chinese medicines at home and abroad, because of its advantages of low toxic side effects, many active ingredients, diverse targets and abundant resources.

This study intends to rely on the traditional Chinese medicine integrative pharmacology research platform V2.0 (TCMIP, V2.0) to study the potential targets of RHS in the treatment of internal and external decertification of novel coronavirus pneumonia in a multi-level and multi-link integrated manner, so as to provide a theoretical basis for the further application and research of this formula.

2.1 Network pharmacology results and analysis

2.1.1 RHS targets and novel coronary pneumonia disease targets

According to the corresponding targets in TCMIP, a total of 52 related chemical components corresponding to 370 related drug targets were searched, and 748 targets related to COVID-19 diseases were obtained from the GeneCards database. The Venny plot was drawn from the intersection of 370 component targets and 748 COVID-19 disease targets (see Figure 1), and 35 important targets of intersection were obtained, namely the chemical composition of RHS and potential targets for COVID-19 .

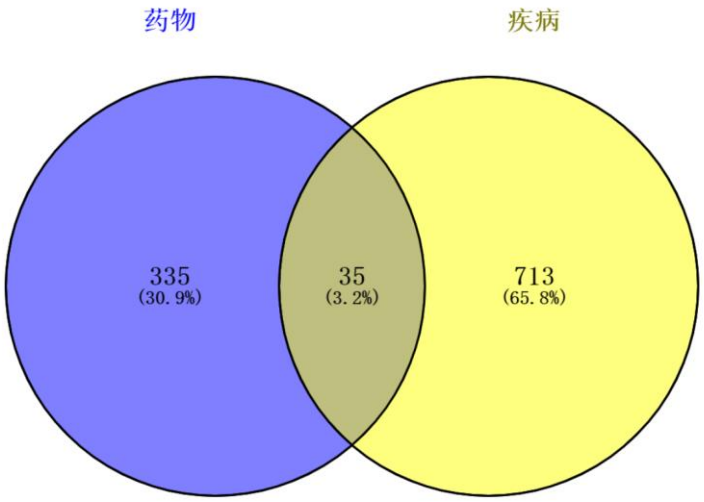

Figure 1. Intersection of drug targets and disease targets 2.2.2 Acquisition of core targets for the treatment of COVID-19 with ginseng, black shun, and dogwood

After obtaining the protein interaction map of potential targets (intersection genes), 25 core targets were obtained by using Cytoscape software, with the median degree double 32. Obtain a core target interaction plot for drug treatment of the disease (see Figure 3), the larger the node, the stronger the gene effect. As shown in Figure 2, the top three genes in the node size ranking are GAPHD, INS, MAPK3, indicating that these three genes play the greatest role in the treatment of COVID-19 by

RHS. The thickness of the line between the nodes indicates the compactness of the nodes, and the thicker the line indicates the closer the connection between the two nodes, for example, the IL6 gene is closely related to the gene IL8 and works synergistically.

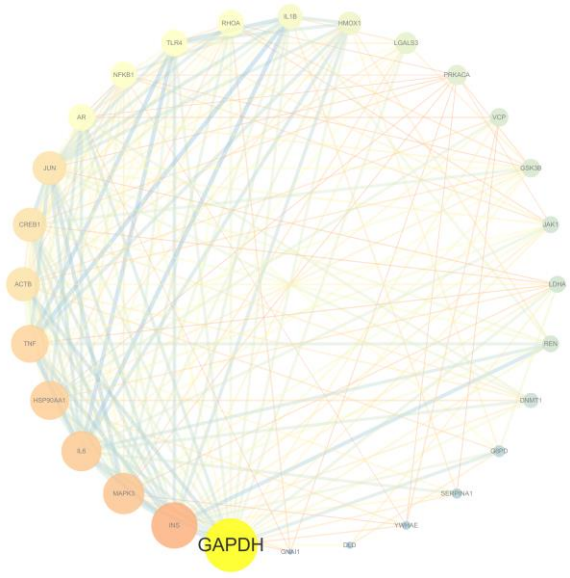

Figure 2 Core target interactions

2.2.3 Analysis of core target function and pathway enrichment and construction of "drug-target-pathway-disease" network diagram

Based on the STRING database, the core target pathway pathway in TSV format was obtained by core target analysis, the table was drawn, and the first 20 pathway processing data were selected for GO pathway analysis to obtain a pathway enrichment bubble chart (see Figure 3).

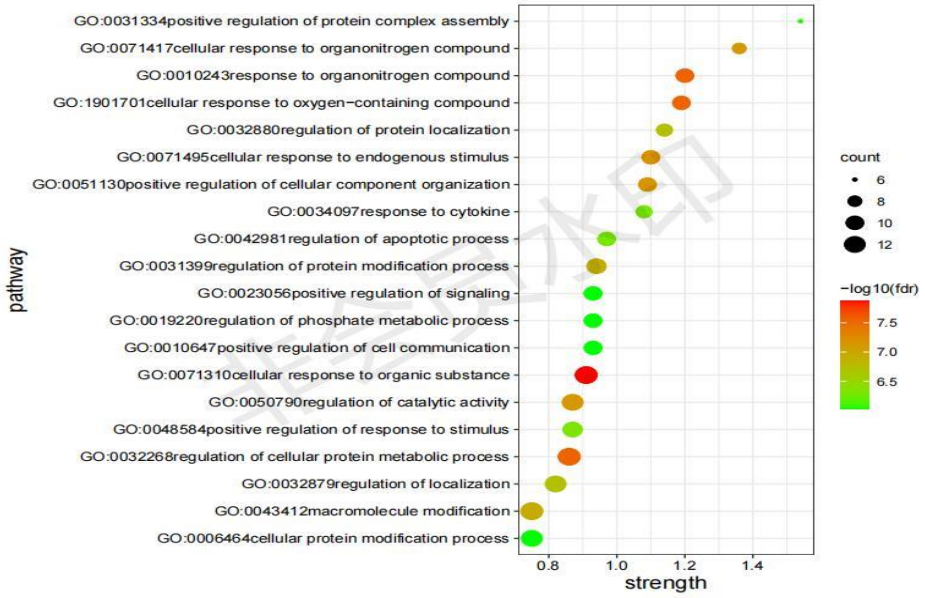

Figure 3 Pathway enrichment bubble chart

Note: GO enrichment analysis chart: the larger the abscissa, the better the enrichment; The redder the color, the higher the correlation between the target and the disease

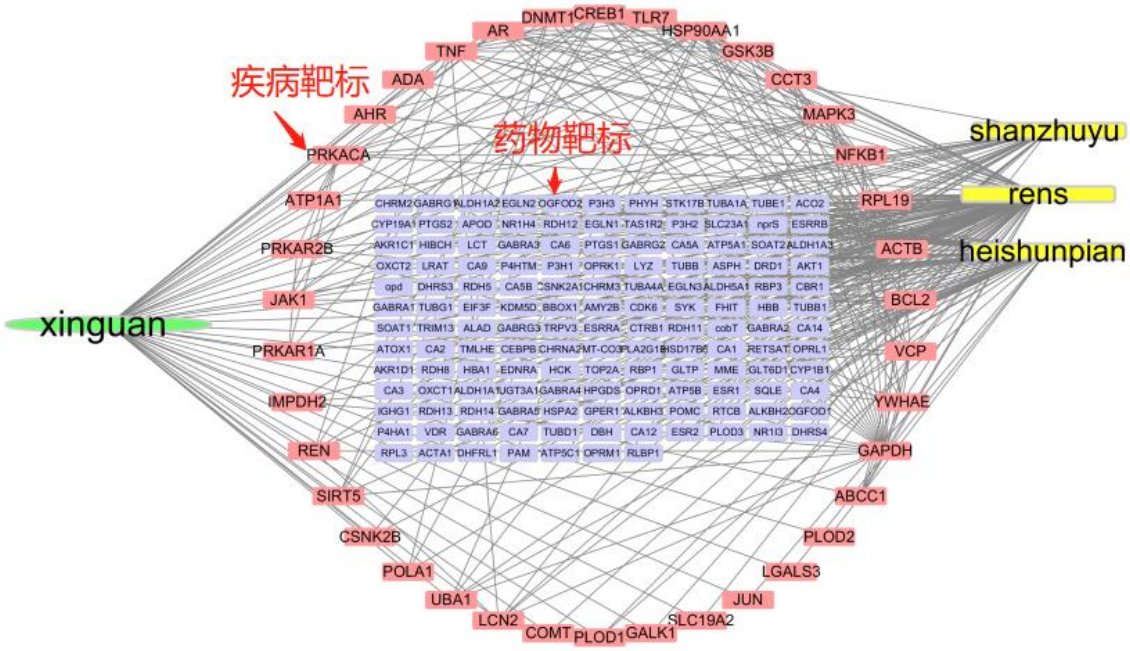

Figure 4.Medicinal herbs-targets-pathways-disease network diagrams

Note: "drug-target-pathway-disease" network diagram: green for disease, red for disease target; Yellow is the drug, and purple is its corresponding drug target 2 molecular docking part: the receptor HSP90AA1 and so on are molecularly docked with the ligand.

A negative value of the binding energy of the molecular docking indicates that there is binding, and a positive value indicates that it is not bound. The smaller the binding score (the larger the absolute value of the negative value), the stronger the binding force. The binding energies of the following three pairs of receptors and ligands are all negative, indicating that the molecular docking of receptors and ligands is meaningful, as shown in Figures 5, 6, and 7.

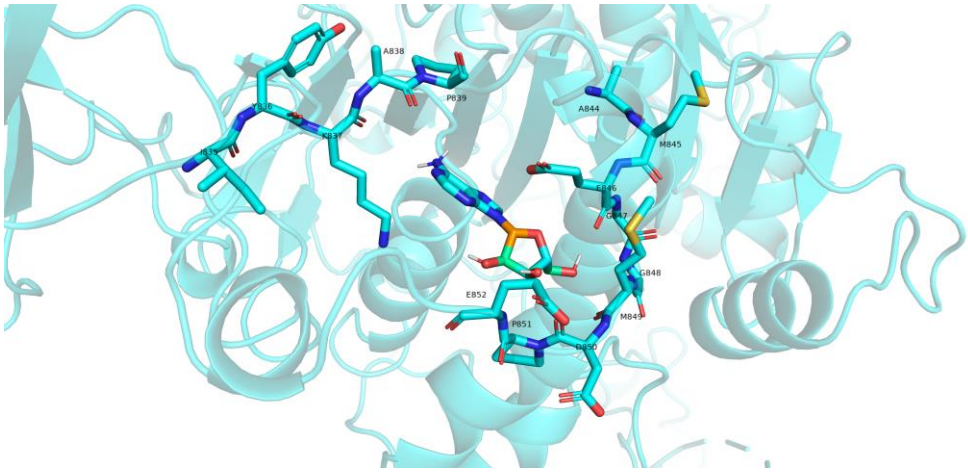

Figure 5. Results of molecular docking of HSP90AA1 with Kaemferol

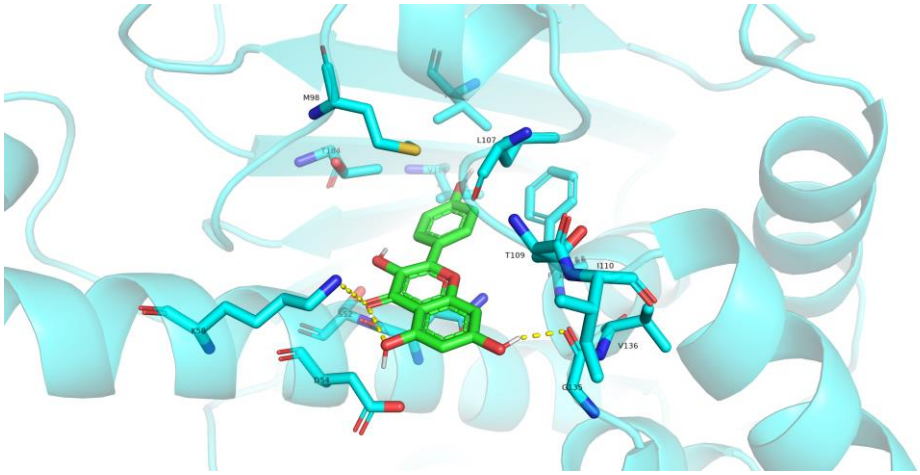

Figure 6 The result of the molecular docking of YWHAE with lexandrin:The yellow dotted line indicates that the two are connected by hydrogen bonds and are well combined

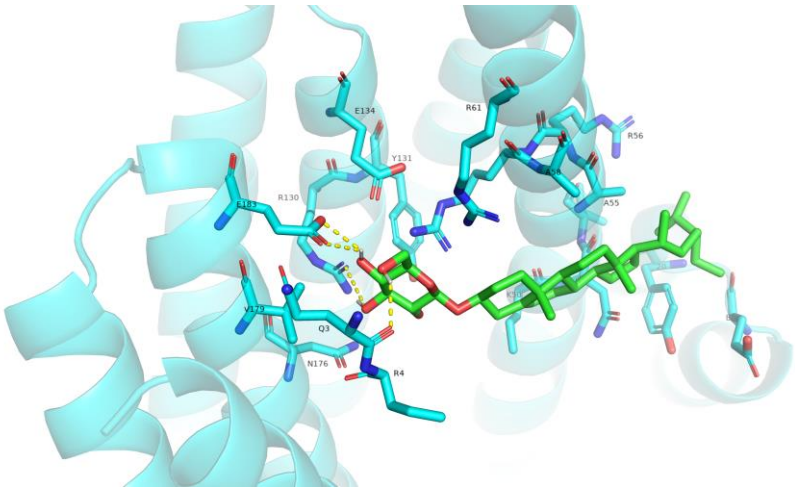

Figure 7Molecular docking results of DNMT1 with denosine:The yellow dotted line indicates that the two are connected by hydrogen bonds and are well combined

DISSCUSSION

This study aimed to explore the potential targets of RHS in the treatment of COVID-19 internal and external closure, construct a formula-disease-target-action pathway, and explore its clinical mechanism of action . This plan first uses Suhe Xiang Pill or Angong Niuhuang Pill to awaken the spirit, and then uses the soup to add flavor to replenish vitality and return to Yang and solidity. Black attached tablets taste spicy, rejuvenating the yang to save the rebellion; Ginseng is sweet, a great tonic for vitality; Dogwood tastes sour, converges yin liquid, black appendage tablets combined with ginseng xingan gan yang, dogwood with ginseng acid ginseng gan yin, so that yang has yin help and biochemical infinity, yin rises and the source is inexhaustible. The network diagram of the three-flavor drug (ginseng, black shun, dogwood)-disease-target pathway was constructed, in which the top five targets were PRKAR28, SIRT5, COMT, ABCC1, IMPDH2, and it was concluded that the targets in some components of ginseng, black shun, and dogwood corresponded to some targets of the new

coronary pneumonia (COVID-19), from which it was concluded that some components of the drugs in RHS were the main components in the treatment of new coronary pneumonia.

KEGG concentration analysis showed that the main targets were mainly focused on TNF signaling pathway, PI3K–Ackert signaling pathway, MAPK signaling pathway, HIF-1 signaling pathway, and NOD-like receptor signaling pathway . The results of the PPI network showed that MAPK3, HSP90AA1, TNF, IL6, and TP53 were considered central genes. Based on these results, we believe that HSP90AA1 is effective in treating SARS-CoV-2 by.

It can be concluded that the above active ingredients may be effective by synergistic effects with 3C-like protease knots for different targets, thereby acting as an adjuvant treatment for COVID-19. However, using the integrated pharmacology platform analysis, there will be cases where the research is not in place, so we need to strengthen clinical trial research to provide theoretical and experimental basis for the treatment of COVID-19 and later drug development.

ACTIVATION PATHWAYS FOR NLRP3 INFLAMMASOMES

Qi Peng-fei - the Level 21 Basic Class 2 Formulaology
Supervisors:Yan Zhong-hong Ph.D. degree researcher
Heilongjiang University of Chinese Medicine

Introduction.Inflammasomes were first discovered in 2002 as multi-protein complexes with the function of inducing inflammation. The assembly and activation of inflammasomes can occur in different organelles such as mitochondria, endoplasmic reticulum, and nucleus. Clinical diagnosis of certain diseases and monitoring of treatment response can be realized through inflammasome imaging systems . NOD-like receptor thermal protein domain associated protein 3 (NLRP3) inflammasome is a well-studied inflammasome,which is mainly composed of NLRP3, apoptosis-associated speck-like protein containing a caspaserecruitment domain (ASC) and caspase-1, and assembled after pattern recognition receptors (PRRs) receive danger signals.NLRP3 is a member of the NLRs protein family and also one of the core molecules in the NLRP3 inflammasome.Conventional studies suggest that NLRP3 inflammasome activation is an essential part of the canonical inflammasome pathway.It is well known that chronic sterile inflammation in DN is closely related to renal impairment. The inflammatory cascade induced by NLRP3 inflammasome and IL-1β and IL-18 also has a significant impact on the development of DN.There are multiple recognized mechanisms or pathways for the activation of NLRP3 inflammasome, such as the massive production of mitochondrial ROS, the reduction of intracellular potassium concentration, and the destabilization of lysosomes.

NF-κB/NLRP3 inflammasome signalling pathway.NF-κB can be activated by a variety of factors, and it can regulate inflammatory response, stress response, pyroptosis and apoptosis.The NLRP3 inflammasome can be activated by NF-κB during this process, linking the perception of metabolic stress in the DN kidney with the activation of a pro-inflammatory cascade.

TXNIP/NLRP3 inflammasome signalling pathway.Generally speaking,thioredoxin-interacting pro teins (TXNIP) can inhibit the antioxidant activity of thioredoxin protein (Trx) when interacting with it.The interaction of TXNIP with NLRP3 can promote the activation of NLRP3 inflammasome.

Nrf2/HO-1/NLRP3 inflammasome signalling pathway.Nuclear factor erythroid 2-related factor 2 (Nrf2) can regulate the intracellular redox balance and has anti-inflammatory effects.Recent studies have shown that the Nrf2/HO-1 signaling pathway can regulate the expression of NLRP3. demonstrated the inhibitory effect of activation of Nrf2/HO-1 signaling pathway on NLRP3 inflammatory activation in different cells. the Nrf2/HO-1 axis was closely related to the production of

ROS, and the production of mitochondrial ROS was considered to be a regulator of the NLRP3 inflammasome. However, it has been reported that mitochondrial electron transport chain (ETC) maintains the activation of NLRP3 inflammasome by relying on polymerase chain reaction to generate ATP.

HIF-1α/NLRP3 inflammasome signalling pathway.Over expression of HIF-2α in macrophages improves insulin resistance and reduces NLRP3 inflammasome activation. various evidences have shown that accumulation of HIF-1αcan significantly increase the expression of NLRP3 in microglia and cardiomyocytes.

PTEN/PI3K/Akt inflammasome signalling pathway.Phosphatase and tensin homologue (PTEN) is a newly discovered tumor suppressor gene, whose protein products have the functions of dephosphorylating and can regulate apoptosis, cell metastasis and cell growth.Meanwhile, in a streptozotocin (STZ)-induced diabetic mouse model, upregulation of PTEN can reduce the phosphorylation levels of phosphoinositide 3-kinases (PI3K) and protein kinase B (Akt/PKB), thereby alleviating inflammation and renal interstitial fibrosis in DN. Inhibit ROS generation and NLRP3 inflammasome activation through the activation of Akt signaling pathway.The PTEN/PI3K/Akt signaling pathway will be affected when the level of ROS in vivo incresed, resulting in increased expression of NLRP3.Evidences suggested that Akt has a direct role in regulating NLRP3. PTEN can directly interact with NLRP3 to activate NLRP3 inflammasome.

In this review, we explored several pathways related to NLRP3 inflammasome activation,involving NF-κB, TXNIP, Nrf2, PI3K/Akt and other important signaling molecules.

ADULT HIPPOCAMPAL NEUROGENESIS IN ACUPUNCTURE TREATMENT OF DEPRESSION.

Shi Yue–the 1st-year postgraduates

Supervisors: Wang Long；Doctor；professor of medicine

Heilongjiang University of Chinese Medicine

Major Depression Disorder is one of the most common mental diseases and the main cause of disability. About 280 million people worldwide suffer from it. It is a complex disease related to many factors such as heredity, neurobiology, psychology, social and culture, and formed by multiple mechanisms. Up to now, the pathological mechanism of depression has not been fully clarified, but the antidepressant treatment for hippocampus has achieved good results in clinical practice. The hippocampus is one of the most severely damaged brain regions in depression, and also one of the most unique regions in the brain - the adult hippocampus can produce new neurons, which is called adult hippocampal neurogenesis

Hippocampal synaptic plasticity is considered to be the cellular mechanism of memory formation. Impairment of long-term enhancement of excitatory synaptic transmission (LTP) leads to cognitive impairment.The new neurons formed by AHN repair the neural plastic injury by promoting the growth of synapses and participating in the recovery of hippocampal function. These neurons can differentiate and replace damaged neurons and brain regions, promote the growth of axons and dendrites, and achieve the effect of remodeling damaged nerves. However, AHN only produces neural plasticity repair within a certain threshold range. When neural plasticity or irreversible pathological damage occurs to brain tissue, the repair effect is very small.

Acupuncture and moxibustion are widely used in clinical pain and neurodegenerative diseases, and its advantages have been confirmed by many studies: not only is the clinical efficacy significant, but also its efficacy continues to exist with the extension of treatment time, and it also has minor adverse reactions. Long term clinical practice has proved that acupuncture has the same efficacy as western medicine in the treatment of depression, and as a non-specific stimulus, its action characteristics are different from those of drugs. It mainly stimulates the physiological regulation mechanism in the body through acupoint stimulation, so as to achieve the balance of yin and yang. Although many studies attempt to analyze the effect of acupuncture intervention, its mechanism has not been fully clarified. But as we all know, as an effective peripheral sensory stimulus, acupuncture has a benign, two-way regulatory effect, which can adjust the excitation or inhibition state of the cerebral cortex, so that the level of neurotransmitters in the brain tends to dynamic balance. Some studies have also demonstrated that: Acupuncture and moxibustion may affect pain and neurodegenerative diseases by mediating neural plasticity. Neuroplasticity, including dendrite remodeling, synaptic transition, long-term potentiation and neurogenesis, is involved in brain development, skill learning, memory formation and regression, and self repair of nerve injury.

Similar conclusions have also been drawn from experiments: rats with newborn MS will show weight gain and significant cognitive deficits in adulthood, and the LTP induced by high-frequency stimulation at hippocampal CA1 synapse is inhibited. After repeated electrical stimulation intervention in adulthood, their behavior defects have been significantly improved, and LTP induction has been restored, confirming that electroacupuncture can enhance LTP at hippocampal CA1 synapse to improve cognitive deficits. Therefore, mastering the basic characteristics and related mechanisms of acupuncture and moxibustion and combining with clinical practice can more effectively develop its treatment ideas for depression, and then better improve the clinical efficacy.

Combining the above contents, we can conclude that it is feasible to enhance AHN to treat depression. Through numerous clinical studies and continuous research and exploration of animal experiments, among many therapeutic methods, acupuncture has high safety, low dependence and significant efficacy in treating depression.

CLINICAL STUDY OF ELECTRO-NAPE ACUPUNCTURE IN THE TREATMENT OF PERIPHERAL FACIAL PARALYSIS

ZHONG Si-tong[1] *YIN Hong-na*[2]

（1:Heilongjiang University of Chinese Medicine，Grade 2022；2：Teacher;Doctor;Chief physician;Professor）

Abstract：Objective ,To observe the clinical efficacy of the treatment of peripheral facial paralysis in electro-nape acupuncture . Methods：60 patients with peripheral facial paralysis admitted to the Second Affiliated Hospital of Heilongjiang University of Chinese Medicine from May 2021 to November 2022 were included in the study ,were randomly divided into observation group (30 cases) and control group (30 cases). The observation group was treated with ordinary acupuncture, and the

control group was treated with ordinary acupuncture combined with electro-nape acupuncture. The H-B scale score and total effective rate of the two groups were compared and analyzed. Results : The total effective rate of the control group was higher than that of the observation group ($P < 0.05$), and the H-B scale score of the observation group was lower than that of the control group ($P < 0.05$). Conclusion : Electro - nape acupuncture is effective in treating peripheral facial paralysis.

CLININICAL EXPERIENCE IN THE TREATMENT OF GENERALIZED ANXIETY DISORDER BY HE TIAO DU REN AN SHEN ACUPUCTURE

Sunwei –Class of 2022 PhD student
Supervisor: Chenyinghua
Heilongjiang University of Chinese Medicine

Generalized anxiety disorder(GAD) is an anxiety disorder characterized by persistent or frequent nervousness with symptoms of hyperexcitability of autonomic functions and fear[1].With the development of society and the increase of various human pressures, GAD has become a chronic disease that is prone to recurrence and requires continuous treatment, which greatly affects the quality of life and physical health of patients[2]. The effectiveness of acupuncture in the treatment of GAD has now been confirmed in numerous clinical trials. Acupuncture has crucial aspects and advantages in terms of efficacy and safety. "Be careful to watch where the yin and yang are and control them for a period of tranquility," Huang Di Nei Jing says. The primary pathophysiology of the sickness is the disorder of yin and yang, and Governor Vessel travels in the back as the "Sea of Yang Vessels," whereas Conception Vessel travels in the abdomen as the "Sea of Yin Vessels." This disease's occurrence is linked to an unbalanced yin and yang of the internal organs, as well as qi and blood. My supervisor, Prof. Chen Ying-Hua, under the direction of National Medical Master Prof. Sun Shen-Tian, summarized and recommended the "He Tiao Du Ren An Shen Acupuncture," which has demonstrated some clinical success in the treatment of mental problems, as detailed below.

Clinical data

From March 2021 to March 2022, all 56 cases were patients with GAD who attended the outpatient clinic of the Department of Acupuncture of the First Affiliated Hospital of Heilongjiang University of Traditional Chinese Medicine, and all met the diagnostic criteria for generalized anxiety disorder in the CCMD-3 Chinese Classification and Diagnostic Criteria for Mental Disorders (Third Edition)[3].

Treatment method

Using He Tiao Du Ren An Shen acupuncture method, the points of Baihui(DU20), Shenting(DU24) as well as Ningshen three points (located 1 inch straight up from the Hall of Indices and 1 point on each side of the inner canthus of the eyes), Yintang(EX-HN3), Tanzhong(RN17), Sun's abdominal acupuncture"abdominal one area", Zhongwan(RN12), Shenmen(HT7), Neiguan(PC6) and Taichong(LR3) were selected.

Operation method: The patient was supine. After routine disinfection of acupoints, Huatuo Yuzhen acupuncture needles with a size of 0.30×40mm were used. Baihui and Shenting acupuncture needles were flat thrust 20 mm backward, and twisting and purging method was performed. Ningshen three

points are flat back stabbing 25 ~ 38 mm, small amplitude twisting purging method; Yintang flat thorn down 13 mm, line twisting and reducing method; Tanzhong flat thorn down 13 mm, the line twist and complement method; Sun's abdominal acupuncture "abdominal Area 1" (0.5 inches below the Xipharoid process and 0.5 inches on the left and right sides, a total of 3 points): 15°with the skin Angle, the downward flat puncture 1.5 inches deep, pay attention to avoid puncturing important organs when entering the needle, small amplitude twist and repair technique, do not lift and insert; Zhongwan downward flat thorn 38 mm, the twisting and twisting method; Shenmen, Neiguan, Taichong are 13 mm straight thorn, line flat supplement flat diarrhea. Each stitch takes roughly a minute, and the needle is left in place for 30 minutes after stitching. A 7-day course of treatment included 7 days of continuous acupuncture, followed by 6 days of respite. The effectiveness was assessed following a total of 4 therapy sessions.

Results

The Hamilton anxiety scale (HAMA) was used, and the efficacy evaluation criteria were formulated with reference to the literature[2]. The total effective rate was 91.1%. HAMA score index = [(HAMA score before treatment - HAMA score after treatment) ÷ HAMA score before treatment] × 100%.

Experiences

GAD belongs to the category of "depression" in Chinese medicine, and is closely related to the heart, spleen, liver and kidney. The basic pathogenesis of GAD is the imbalance of yin and yang of the internal organs and qi and blood, and it is a disorder of yang and yin, yang exuberance and yin debilitation. The He Tiao Du Ren An Shen method should be used, along with the principles of yin and yang harmony, mental calmness, and spirit restoration. The Governor's Vessel manages the Yang meridians, the Yang energy and genuine energy of the body, and is the Yang Vessel's sea; the Conception Vessel regulates the Yin meridians, the Yin energy, essence, and blood of the body, and is the Yin Vessel's sea. The three points of Ningshen, one of which is on the Directing Vessel and is equivalent to the frontal lobe of the brain, work together with Baihui, Shenting and Yintang to awaken the brain and calm the mind; Tanzhong is the qi meeting of the eight points, which has the function of broadening the chest and soothing the heart and lungs; Zhongwan is the qi meeting of the eight points, which regulates the spleen and stomach and fills the qi and blood. Shen Men is the original point of the Heart meridian, with the function of nourishing the heart qi and calming the mind; Neiguan is the point of the Pericardium meridian, which can calm the mind and tranquilize the spirit; Tai Chong is the traditional point of the Abdominal One Area, with 1 point on the Ren Vessel, which is equivalent to the frontal pole of the brain in the Abdominal Holographic Theory, and has a good therapeutic effect. The He Tiao Du Ren An Shen acupuncture method uses twisting and turning to tonify the diarrhea to diarrheal the Yang meridian and tonify the Yin meridian to achieve the purpose of harmonizing the Yin and Yang, calming the mind and fixing the will, which is definitely effective in treating GAD.

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DEVELOPMENT AND EVALUATION OF A NEW PREDICTIVE NOMOGRAM FOR PREDICTING RISK CORRELATORS TO DAILY LIVING DISABILITY AMONG CHINESE ELDERS

Chao-jie Wang – the doctoral candidate
Supervisors: Med. Wei-ping Cheng
Heilongjiang University of Traditional Chinese Medicine

Faced the severe global ageing challenge, an effective approach be need to curb the elders Activity of Daily Living (ADL) disability epidemic. A total data of 1205 participants aged 65 years and older were collected in Heilongjiang province. The factors from demographic information and traditional Chinese medicine (TCM) constitution were selected by LASSO regression and established the high risk predicting model with 70% sample (n=837). The outcome predicting model reveal the low education level, family genetic disease, high aged, Yang-deficiency constitution and Phlegm-dampness constitution were associated with an increased risk of elders of ADL disability. The internal validation included sensitivity analysis, calibration cure analysis and decision cure analysis demonstrated the outcome model with robust description, good agreement and high potential for clinical usefulness. The clinicians and patients monitor their holistic body status and take self-help healthy living medicine included non-drug measured and adjusting lifestyle to prevent and rehabilitate ADL disability.

PREPARATION AND CLINICAL APPLICATION OF QUANXIE OINTMENT

Zhu Ya'nan-PhD (Professional type) class 1, Grade 2022
Supervisors: Yang Suqing, MD, Chief physician
Heilongjiang University of Chinese Medicine

Introduction. Quanxie Ointment is a hospital preparation of the First Affiliated Hospital of Heilongjiang University of Chinese Medicine.In recent years, TCM has been widely recognized and concerned by the international community, and its curative effect has been widely certified in clinical practice.This paper will introduce Quanxie ointment from the theoretical basis of traditional Chinese medicine, preparation method and clinical application, so as to promote the clinical application of Quanxie ointment in TCM external preparation.

1. Preparation Method

Quanxie ointment includes 21 scorpion, 2 centipede, 6g borneol, 375g vaseline.

The manual production process is to melt the vaseline (46-54℃), put it into the scorpion and centipede and stew until the white smoke comes out (about 400-500℃), fry the scorpion and centipede until they are scorch. And then ,when temperature cool down (about 100℃) , add borneol, stirring and cooling.

Pharmaceutical production process is to add scorpion, centipede and vaseline into the fryer according to the above composition ratio and fry. After reaching a certain temperature, it will not be heated any more, and then fry at a constant temperature for about 8 hours. When it is reduced to about 100℃, add the borneol and mixed and added to the vessel after cooling.

2. Theoretical basis of TCM

Quanxie ointment is a preparation of external ointment, which has a good therapeutic effect on the appearance of redness, swelling, itching, festering and festering on the muscle surface.

Among them, scorpion is focused on Qi, and centipede is focused on blood, which can double the effect of clearing heat and detoxifying, activating blood by Qi, dispersing blood stasis and relieving pain[1].

Borneol can clear hot,and detoxifying, remove saprophytic muscle, it can pass through the meat, search the pathogenic wind and open the pore, play the role of reducing fungal infection and relieving itching, to ulcers and rancid[2].

The combination of various medicines can activating blood circulation and removing blood stasis, relieving pain, detoxification and reducing swelling, relieve pathogenic wind and itching, removing saprophytic muscle, effectively relieve skin redness, swelling and itching, ulceration and exudation, dry desquamation and other clinical symptoms.

3. Clinical application

Quanxie ointment may be used alone or in combination with oral decoction, other topical drugs or external therapies. In today's clinical practice, the application of Quanxie ointment mainly includes direct application, making oil yarn strip, and encapsulation after external application. Among them, direct coating is the simplest way. Made of oil yarn can keeping moist, mainly used in some deep wounds, infection risk, prone to suppuration of wounds or ulcers, can avoid pus accumulation, promote ulcer healing; Encapsulation can reduce the humidity volatilization of drugs, and it is mainly used in some hypertrophy, dryness and refractory skin lesions such as plaques, scales and chaps.

The clinical application range of Quanxie ointment can be summarized as “redness”, “swelling”, “heat”, “pain”, “itching”, “dryness”, “crack”, “desquamation” and other characteristics of skin lesions, its applicable population and application range is very wide.According to the clinical experience of contemporary doctors[3-12], At present, Quanxie ointment is mainly used in some peripheral vascular diseases, such as ululcer phase of lower leg venous ulcer, diabetic foot, sores, bedsores, thromboocclusive vasculitis, arteriosclerosis occlusion, and acroartery spasm etc.; Some ulcer diseases, such as sinus tract, fistula, erysipelas, etc.; Some skin diseases,such as chronic eczema, psoriasis, herpes zoster, mycotic infection at hand and foot, skin amyloidosis, contact dermatitis (exudate), neurodermatitis, urticaria, etc.; Some traumatic diseases, such as wound healing, frostbite, chapped, insect dermatitis, snake bite, etc.

4. Certain caveats

However, it should be noted that the Quanxie ointment contains borneol, which should be banned by pregnant women, and the matrix is petroleum jelly, which is greasy and heavy, so it is not used for

bleeding lesions (such as acute eczema).In addition, borneol and vaseline may cause irritation to skin lesions, so they should be prohibited or used with caution for ongoing skin diseases, or special periods when skin lesions develop rapidly and skin is more sensitive.

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RESEARCH PROGRESS OF ACUPUNCTURE FOR POSTOPERATIVE URINARY RETENTION IN CERVICAL CANCER

Author: Tan Jinlang, master student of 2022

Supervisors: Shi S.Leng D S.

Educational services:Heilongjiang University of Traditional Chinese Medicine

Introduction：

Worldwide, cervical cancer is the 4th most common malignancy in women. Currently, surgery is an important treatment for cervical cancer. For patients with stage Ia and IIb, extensive hysterectomy with pelvic lymph node dissection is recommended, but it is often complicated by various kinds of lower urinary tract dysfunction because of the large scope of surgery and the easy damage to the nerve plexus. Urinary retention is the most common postoperative complication, and there is no clear treatment for it in Western medicine, including intermittent open indwelling catheterization, bladder

care, and pelvic floor exercises, but the results are not good. Acupuncture treatment has received a lot of attention because of its unique mechanism of action and significant efficacy.

1.Acupuncture therapy

Ding Xiaohong et al. randomly divided 160 patients with conventional indwelling catheterization after cervical cancer into 2 groups. The treatment group was treated with head acupuncture in the foot sensory area together with acupuncture in the bilateral kidney, bladder and secondary acupuncture points from 5 d after surgery. Results: The rate of urinary retention after extubation and residual urine in the treatment group were lower than those in the indwelling catheterization group, thus confirming the preventive effect of acupuncture. Hong Mei et al. divided 50 patients with postoperative indwelling catheterization into 2 groups according to the order of consultation. Results: The overall efficiency of the treatment group was higher than that of the control group.

2.Electroacupuncture Therapy

Yi WM et al. randomly divided 120 patients after radical cervical cancer surgery into 2 groups: the control group was treated with sham acupuncture at the arm biceps point, and the treatment group was treated with a combination of electroacupuncture at the foot Sanli point, water channel and scalp acupuncture at the frontal side for 5 consecutive d starting from the 6th postoperative day. The results showed that the maximum bladder capacity, initial urinary bladder capacity, maximum urinary flow rate, residual urine volume and bladder compliance were significantly improved in the treatment group compared with the control group; bladder sensory loss, urinary incontinence and urinary retention were significantly reduced in the treatment group at postoperative d15 and d30; and urinary tract infection rate was significantly reduced in the treatment group at postoperative d30.

3.Moxibustion Therapy

Moxibustion is a method of preventing and treating diseases by wrapping moxa in paper and rolling it into a cylindrical moxa stick and lighting it, and warming and burning it on the acupuncture point or the affected area with the help of mild heat and its drug effect, which can help to eliminate evil and warm the meridians through the conduction of meridians. Liu Guobao randomly divided 244 patients with urinary retention after hemorrhoid surgery into a control group and an observation group, with 122 cases in each group. The control group was given conventional treatment such as pelvic floor muscle training, hot physiotherapy and indwelling catheterization, while the observation group was given moxibustion treatment on the basis of conventional treatment.

4.Acupuncture point buried wire

Hong Mei et al. randomly divided 50 postoperative patients with cervical cancer into 2 groups: the control group was given a conventional indwelling urinary catheter, and the treatment group was treated with a combination of acupuncture points at Guan Yuan, Kidney Yu, Yin Ling Quan, Foot San Li and San Yin Jiao on the 7th day after surgery. The results showed that the rate of spontaneous urination was 92.0% in the treatment group and 72.0% in the control group after extubation at 14 d postoperatively; the recovery of bladder function in the treatment group was better than that in the control group. In the control group, the control group was given conventional treatment, and in the treatment group, acupuncture points were added to the control group 24 h after surgery. The results

showed that, in addition to the conventional treatment, the effect of acupoint embedding was significant in preventing urinary retention after total uterine surgery for cervical cancer type II, which significantly reduced the number of postoperative days of urinary catheterization, the amount of residual urine in the bladder, the incidence of urinary retention and the incidence of urinary tract infection.

Summary

Acupuncture treatment for postoperative urinary retention after cervical cancer can effectively relieve symptoms, shorten the course of indwelling urinary catheter and reduce urinary tract infection, and is more effective than general conventional treatment;

(1) Acupuncture treatment for postoperative urinary retention after cervical cancer has many methods with positive efficacy, including head body acupuncture, electroacupuncture, acupoint massage, acupoint embedding and acupuncture combination therapy, etc., which can be used in a comprehensive manner to improve the clinical effect;

(2) Acupuncture for postoperative urinary retention after cervical cancer is mostly due to deficiency of both spleen and kidney, and the strength of Qi transformation.

(3) Urinary retention after cervical cancer is mostly due to the deficiency of both spleen and kidney and the weakness of qi-transformation. Therefore, acupuncture points for urinary retention after cervical cancer are mostly chosen from the lower abdominal points, and together with the selection of acupuncture points according to the evidence, the function of tonifying the kidney and promoting water is achieved.

RESEARCH PROGRESS OF ACUPUNCTURE INTERVENTION IN ANGIOGENESIS AFTER ISCHEMIC STROKE

Author: Gong R, master student of 2022

Supervisors: Shi S.Leng D S.

Educational services:Heilongjiang University of Traditional Chinese Medicine

Introduction：

1. The current situation of the ischemic stroke

The treatment of rt-PA intravenous thrombolysis in the very early stage of cerebral infarction can timely restore the blood supply and save the ischemic penumbra damage, which is the most effective drug treatment for the disease proved by evidence-based medicine.

However, the currently recognized "2018 Guideline for the Diagnosis and Treatment of Acute Ischemic Stroke in China" shows that the time window of safe thrombolysis is limited to 4.5 h of cerebral infarction. If the time window can be extended, it can win more treatment opportunities for patients. Therefore, finding effective ways to extend the time window is the focus of current research.

2. Angiogenesis

When cerebral infarction does not occur, the endothelial cells of blood vessels are in a resting state, and angiogenesis is a dynamic process that promotes neoangiogenesis through the activation of endothelial cells.

The angiogenesis after cerebral infarction is closely related to the balance between proangiogenic factors and angiogenesis suppressors.

VEGF is the cytokine most closely related to angiogenesis. VEGF when the blood and oxygen supply are insufficient is significantly increased after cerebral ischemia. It can promote new angiogenesis by inducing the proliferation, differentiation and migration of vascular endothelial cells, and promote nerve regeneration and anti-apoptosis, so as to realize the protection of the brain nervous system.

FGF is a non-specific angiogenesis promoting factor, it can upregulate VEGF or directly act on vascular endothelial cells, positively regulate angiogenesis, which bFGF can maintain various ganglia and neurons in the nervous system activity and improve neuronal axon growth ability, can promote the repair of vascular endothelial cells in damaged tissue, participate in its angiogenesis.

ES is an important repressor of angiogenesis that can act by antagonizing VEGF or interfere with endothelial cell adhesion by binding integrin β 1 to the homogeneous extracellular matrix to affect angiogenesis. ES can also compete for the binding receptor of bFGF, block its signaling pathway, and can also induce apoptosis by downregulating the expression of anti-apoptotic cell proteins, indirectly or directly inhibiting angiogenesis from each link.

3. Acupuncture can promote new angiogenesis

Traditional Chinese medicine is very effective in the treatment of acute cerebral infarction, among which acupuncture treatment has significant advantages, and has a good treatment effect on cerebral infarction. Studies have shown that acupuncture can promote angiogenesis and improve the safety of treatment by regulating angiogenesis.

Several literature reports, angiogenesis after cerebral infarction can improve the blood flow of ischemic penumbra, increase oxygen supply, restore nerve function, and can protect the blood-brain barrier to reduce ischemia reperfusion injury, is an important mechanism of brain protection, so we speculate that promote angiogenesis may also be an important way to extend the cerebral infarction thrombolysis time window.

Gu Yahui et al., discussed the effect of nerve cell apoptosis signaling pathway. It has been preliminarily clear that acupuncture can extend the time window from 4.5h to 6 h, and the mechanism is achieved by inhibiting neuronal apoptosis.

Chang Siqi et al., about acupuncture promote angiogenesis prolong cerebral infarction thrombolysis time window shows that from the protein and mRNA expression level, after 6 h thrombolysis, VEGF, bFGF expression level significantly upregulated, the expression level of ES significantly reduced, indicating that injection in cerebral infarction early interventional thrombolysis therapy can by upregulated promote angiogenesis factor and downregulate angiogenesis suppression factor to promote angiogenesis, thus improve the brain protection, prolong cerebral infarction thrombolysis time window.

4. Specific treatment method of common acupuncture treatment for angiogenesis after ischemic stroke

4.1 “Tongdu acupuncture method ”treatment

Acupuncture main point：Fengchi(GB20)、Quchi(LI11)、Zusanli(ST36)、Sanyinjiao(SP6)、Hegu(LI4).

Concrete operations：The patient maintains a comfortable position, acupuncture points with a volume fraction of 75% alcohol disinfection, choose 0.30mm 40.00 mm millimeter needle.

Fengchi(GB20):neutral supplementation and draining method,The tip of the needle is pointed towards the tip of the nose ,In the penetration of about 0.8~1.2 inches;Quchi(LI11):draining method,Strathorn 0.8~1.2 inches;Zusanli(ST36):suppleme-

ntation method,Strathorn 1~2 inches;Sanyinjiao(SP6):supplementation method Strathorns 0.5~1.0 inches.For 30 min each time, hand-manipulating of needle twice and treated once a day.

4.2 Xingnao Kaiqiao acupuncture treatment

The curative effect of the " Xingnao Kaiqiao acupuncture method ”created by Academician Shi Xuemin has been fully affirmed at home and abroad. The "Shuigou(DU26)" and "Neiguan(PC6)" selected in this study are regarded as its important main point.

Xingnao Kaiqiao acupuncture：Neiguan(PC6)、Shuigou(DU26)、Sanyinjiao(SP6)、Jiquan(HT1)、Weizhong(BL40)、Chize(LU5).

Concrete operations：The patient maintains a comfortable position, acupuncture points with a volume fraction of 75% alcohol disinfection, choose 0.30mm 40.00 mm millimeter needle.Neiguan(PC6): twirling draining method,Strathorn 0.5~1 inch;Shuigou(DU26):birdpecking method ,to the eyeball moist or tears,tip about 0.3 ~ 0.5 inches toward the nasal septum; Sanyinjiao(SP6)：lifting-thrusting supplementation method, A 45 degree angle to the skin limb along the medial margin of the tibia；Jiquan(HT1)： lifting-thrusting draining method, Strathorns 1~1.5 Inch, Three smoke movements of the upper limb on the affected side were taken；Weizhong(BL40)：lifting-thrusting draining method, Lie on your back straight leg lift to take the hole, Strathorns 0.5~1 inch,The motion of the affected lower limb was made 3 times；Chize(LU5)：lifting-thrusting draining method, Turn elbow into 120 degree angle, Strathorns 1 inch.

RESEARCH PROGRESS ON THE PHOSPHORYLATION MECHANISM OF TAU PROTEIN IN THE TREATMENT OF ALZHEIMER'S DISEASE BY ACUPUNCTURE

Shaobing zhu 2021

Mentor:Miao Zhang Dr. Acupuncture Points professor

Heilongjiang University of Chinese Medicine

The global aging process is accelerating, and the incidence rate of Alzheimer's disease (AD) is increasing. The latest research data suggest that the incidence will double in Europe by 2050 and more than triple worldwide. As a multifactorial disease, the pathogenesis of AD has not been fully clarified, and it is still mainly hypothesis. At present, its mainstream hypotheses mainly include ß-amylin deposition, tau protein hyperphosphorylation, oxidative stress and inflammatory response. In recent

years, traditional Chinese medicine has made great progress in the research of tau protein mechanism, which has also made great contributions to the prevention and treatment of AD. In this paper, we understand the latest research progress on the Tau protein signaling pathway of acupuncture. Provide ideas for later research and treatment.

The MAPT gene, located on chromosome 17, dominates the synthesis of Tau protein, a protein with overall hydrophilic traits, which is widely present in developing and mature axons and possesses a large number of naturally unfolded regions. When the microtubules are in a stable state, they can play normal physiological functions. After studying the brain tissue of AD patients, it can be found that the purified nerve fiber tangles (NFT) in the brain are rich in highly phosphorylated Tau substances, based on this biochemical phenomenon, it is inferred that the phosphorylation reaction weakens the ability of microtubules and Tau proteins to bind to each other, resulting in the assembly and winding of Tau proteins themselves, and finally abnormal Tau proteins form nerve fiber ganglion winding, inducing the occurrence of AD.

TCM classifies AD as "dementia" and "dementia". The "Medical Enlightenment" says: "When people reach old age, the kidney essence decays and the sea is empty, and the gods have no master". The "Theory of Renzhai Zhifang" also mentions: "Blood stasis is blocked by Qingxiao, and it is 'forgetting'." And it is recorded in the "Secret Book of the Stone Chamber": "The phlegm is the most abundant, and the dullness is the deepest". In summary, the disease of dementia is located in the brain, which is caused by the interaction of deficiency, phlegm and stasis. Among them, kidney deficiency is the foundation, phlegm stasis is the target, deficiency causes phlegm stasis, sputum stasis also causes deficiency, the three affect each other, interact with each other, and finally induce AD.

1. Calmodulin-dependent protein kinase II (CaMKII.) signaling pathway

CaMKII, as an extremely complex protein kinase, is also commonly identified as a Tau kinase, which consists of 12 subunits, of which αCaMKII is one of the most abundant subunits [3]. The activity of αCaMKII is closely related to functions such as memory formation and synaptic plasticity, because it can bind to a variety of proteins on synapses to complete diversified expression. Studies have shown a strong link between abnormal activity of CaMKII and phosphorylation of Tau protein [11]. Wang Zhijie et al. found that compared with before, the neurons in the hippocampal area of rats who had been acupunctured showed obvious changes in the neurons in the hippocampal area of rats who had been acupunctured by electroacupuncture, mainly manifested as an increase in the number of neurons and a decrease in the degree of damage, which played a significant role in the improvement of the rat's learning and memory ability. The mechanism is mainly by reducing the phosphoric acid level of CaMKII. in the hippocampus, thereby inhibiting the process of overphosphorylation of Tau protein, thereby protecting neurons in the hippocampus. Huang Xiurong et al. concluded by acupuncture of the effect of PSD rats Baihui and Yintang points on the CAMKII. signaling pathway that acupuncture of this acupoint can enhance the expression effect of mi-219, while weakening the expression ability of CAMKII. signaling, and finally alleviate the overphosphorylation of Tau protein, thereby alleviating the further progression of AD symptoms.

2. PI3K/AKT signaling pathway and glucose metabolism

In the nervous system pathway, protein kinase (AKT), phospholinositol (PI3K), and GSK3ß signaling pathways play a very important role in the body's life activities, especially affecting the occurrence and development of AD and diabetes. Obstruction of this pathway can lead to abnormal deposition of Aß and overphosphorylation of Tau protein, so activating this pathway can effectively inhibit the overphosphorylation reaction of Tau protein Li Xing et al. stimulated the Baihui point and water gutter point of AD rats with needles, and concluded that acupuncture of these two acupuncture points can effectively increase the expression level of PI3K and ATK protein in the brain of AD rats, thereby activating the PI3K/AKT signaling pathway, which is conducive to maintaining the normal metabolic level of glucose in the brain, and has a significant effect on inhibiting the excessive phosphorylation of Tau protein, which can improve the learning and memory ability of AD patients and alleviate the symptoms of AD.

By summarizing the different pathway research mechanisms, we can find that the mechanism of Tau protein signaling pathway is complex and interrelated, and there is a very strong correlation between different pathways, and changes in one pathway will also affect other pathways, thereby accelerating the process of AD.

Starting from the diseases of Western medicine, using the thinking and treatment methods of traditional Chinese medicine, through the organic combination of the two, we can scientifically and effectively explore a new model of AD prevention and treatment. The pathological research of acupuncture physiotherapy combined with Western medicine can effectively slow down the pathogenesis of AD and achieve the true organic combination of Chinese and Western medicine, which is the embodiment of the gradual modernization and globalization of traditional Chinese medicine.

TO EXPLORE THE PROGRESS OF TRADITIONAL CHINESE MEDICINE IN THE TREATMENT OF HYPERURICEMIA BASED ON JAK/STAT SIGNALING PATHWAY

Huili Huang– the 2th year-student
Supervisors: Ying Tong,Doctor of Medicine, Chief Physician, Associate Professor
Graduate School,Heilongjiang University of Chinese Medicine

Introduction.The Janus kinase / signal transducer and activator of transcription (JAK / STAT) signaling pathway is one of the central communication nodes of cells. More than 50 cytokines and growth factors have been identified in the JAK / STAT signaling pathway, such as hormones, interferons (IFN), interleukins (ILs) and colony-stimulating factors, which are important for initiating innate immunity and coordinating adaptive immunity. JAK / STAT-mediated downstream events generally include hematopoiesis, immune adaptation, tissue repair, inflammation, apoptosis, and lipogenesis. Loss or mutation of JAK / STAT components is associated with many human diseases. JAK is non-covalently associated with cytokine receptors, mediates receptor tyrosine phosphorylation, and recruits one or more STAT proteins. Tyrosine phosphorylated STAT dimerization is then transported through the nuclear membrane to the nucleus to regulate specific genes. Although SATT can be activated by partially overlapping cytokines, different STATs have

non-redundant biological effects. Many papers have reported the importance of JAK / STAT pathway in malignant tumors and autoimmune diseases. At present, many JAK inhibitors have achieved efficacy in the clinical environment, and more drugs are being studied. The purpose of this paper is to provide a theoretical basis for future research by sorting out the research on the treatment of hyperuricemia by Chinese medicine intervention JAK / STAT pathway.

JAK / STAT signaling pathway consists of ligand-receptor complexes, JAKs and STAT. The JAK family consists of non-receptor tyrosine protein kinases. When cytokines bind to their receptors, JAK tyrosine kinases are activated and transmit regulatory signals. JAK protein contains 7 homologous domains, 7 specific domains make JAKs family phosphorylation cytokine receptor, at the same time, phosphorylation with Src homology domain 2 (SH2) signal molecules. To achieve the purpose of phosphorylation signal transduction into cells. STAT protein is one of the downstream signal transmitters of cytokine receptors. It is a downstream target of the JAKs family and is responsible for signal transduction to the nucleus. The immune response initiated by cytokines depends on STAT protein. In the classic JAK / STAT signaling pathway, cell ligands interact with their receptors, causing receptor dimerization. Linkage between ligand and receptor induces transphosphorylation of JAK. Activated JAK induces tyrosine phosphorylation of binding receptors, forming STAT docking sites. At this docking site, JAK phosphorylates STAT, which is then dissociated from the receptor and forms homodimers or heterodimers through the SH2-domain-phosphotyrosine interaction. These dimers are translocated to the target gene promoter and regulate transcription of the target gene .

JAK / STAT signaling pathway and Hyperuricemia.

Hyperuricemia is a metabolic disease that is common in patients with chronic kidney disease (CKD) and worsens with worsening renal function. According to the epidemiological survey, the prevalence of hyperuricemia is more than 13 % in Chinese population . More and more evidence shows that elevated serum uric acid levels can cause renal artery disease, renal inflammation, renal tubular injury, tubulointerstitial fibrosis and uric acid kidney stones and other diseases, and ultimately lead to CKD or end-stage renal disease (ESKD).Kidney is one of the most commonly affected organs in hyperuricemia [1].Recent studies have shown that JAK-STAT signaling pathway members are expressed in damaged kidneys. Wu Yu-Lin et al. [2] found that after mice were induced by PO and HX, the intervention of Sonneratia apetala could significantly increase the phosphorylation level of JAK2 and STAT3 in the kidney of hyperuricemia mice, and the mRNA level of SOCS3 was significantly increased, thus confirming the improvement of hyperuricemia in mice by inhibiting the activation of JAK / STAT signaling pathway. Curcumin is a natural nutritional health compounds, widely found in rhizome plant turmeric.In addition to directly inhibiting STAT3, curcumin also reduces the expression of STAT3 and STAT6 by up-regulating SOCS1, SOCS3 and PIAS3. Dong-Mei Zhang et al. proposed that fructose-induced hyperuricemia and renal insufficiency in rats after curcumin intervention, the model of renal overexpression of rSOCS3 mRNA and protein levels were restored, may be related to renal JAK2-STAT3 activation and SOCS3 overexpression. It was proposed that curcumin increased the level of P-rJAK2 protein and decreased the level of P-rSTAT3 protein in the kidney of fructose-induced hyperuricemia rats, and its regulatory mechanism was related to JAK

/ STAT signaling pathway. In the study of Qian et al., after the mouse model was induced by potassium oxide and adenine, the natural flavonol fisetin protein (Fisetin) was given. The results showed that no matter what kind of administration regimen was used, fisetin regulated the abnormal activation of signal transduction and transcription-3 (STAT3) signal transduction and transforming growth factor-β (TGF-β) signal transduction in HN kidney and uric acid-stimulated TCNK-1 cells, reduced the renal injury induced by hyperuricemia, and improved renal function.

The pathogenesis of rheumatism is complex. At present, the treatment is mainly to relieve pain and control clinical symptoms. Drugs targeting JAK / STAT pathway can be divided into cytokines or receptor antibodies, JAK inhibitors and STAT inhibitors. They have been used in various cancers and autoimmune diseases. In the future, with the support of modern laboratory technology, screening out more clinical application of natural products of traditional Chinese medicine single or compound, multi-dimensional exploration, which is of great significance for mining the application of traditional Chinese medicine in rheumatic immune diseases.

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TREATMENT OF FUNCTIONAL DYSPEPSIA BASED ON SYNDROME DIFFERENTIATION OF PHYSIQUE

Zhang Shijia. –first year PhD student

Tutor: Jiang Deyou, postdoctoral, professor

Heilongjiang University of traditional Chinese Medicine

functional dyspepsia(FD) is a common gastrointestinal disease in clinic. according to modern pathophysiological research, the pathogenesis of this disease is mainly related to increased visceral sensitivity, impaired gastric tolerance and delayed gastric emptying. As a common disease in gastroenterology clinic, FD accounts for about 50% of gastrointestinal specialist clinic in our country. In the treatment, modern medicine mainly includes acid suppressants, gastrointestinal motility-promoting drugs and gastric fundus relaxants. Although FD is divided into five syndrome types in traditional Chinese medicine, there are few cases with single syndrome type in fact. So we start from the physique to study the disease. We proposed that the physique types of patients with functional dyspepsia are mainly divided into: liver depression body, phlegm-dampness body, stagnation body, cold and heat mixed body, yang deficiency body. The main features of liver depression are: bitter mouth, upset, tight facial muscles, not soft expression, dark yellow complexion, often stretching the tongue, the disease often occurs on both sides of the Shaoyang belt, abdominal symptoms are often characterized by tenderness under the two sides, or the muscles under the two sides are stronger than other parts of the abdomen. Phlegm and dampness generally have chest tightness, often accompanied by dizziness, nausea, sweating like oil, thick and greasy tongue coating, and sticky stools. The stagnant

body is strong, the complexion is red and glossy, the tongue is red, the fur is yellow and greasy, the stool is impassable, and its smell is filthy. The nutritional status of the mixed body of cold and heat is good, But compared with the accumulation of stagnation constitution, it is not particularly full, and the stools are loose and filthy, accompanied by irritability, red tongue, yellow and greasy tongue, and pain caused by pressing under the heart during abdominal diagnosis.Yang deficiency body, often showing poor nutritional status, yellow and dark complexion, no luster, fear of cold, loss of appetite, clear and tasteless stool, fat tongue, accompanied by tooth marks, thin white and slippery tongue coating. According to the above five types of constitution, we propose the following treatments. The treatment of liver depression should be based on softening the liver and regulating qi, with Xiao Chaihu decoction as the first choice, regulating qi and relieving depression, softening the liver and spleen; Phlegm-dampness body should be based on resolving phlegm and dehumidification, and according to the differences of various manifestations, choose Banxia Houpu decoction, Sanren decoction, Pingwei Powder and Xiaoxianxiong decoction.; Chengqi decoction is often used to clear intestines for accumulation and stagnation., but on this basis, it is necessary to distinguish the strength of physique, and then choose Dachengqi decoction, Xiaochengqi decoction and Tiaowei Chengqi decoction respectively according to the physique from strong to weak; Cold and heat mixed bodies often choose Xiexin decoction, which combines cold and heat, attack and tonifying, such as Banxia Xiexin decoction, rhubarb and Huanglian Xiexin decoction, Fuzi Xiexin decoction, ginger Xiexin decoction, licorice Xiexin decoction; Yang deficiency body often chooses the decoction of warming and tonifying spleen yang. Including Lizhong decoction, Guizhi ginseng soup, licorice dried ginger soup; It is also common to see several kinds of physique in clinic. If the symptoms of liver depression and stagnation are seen at the same time, it can be considered to be both. Professor Jiang Deyou will generally use Dachaihu decoction at this time; If the liver depression body and Yang deficiency body at the same time, generally use Chaihu Guizhi dry ginger soup. In addition, The combination of several kinds of physique is often used in combination with several prescriptions, and the curative effects have been verified in clinic. ased on Professor Jiang's understanding of the theory of physique and its application to functional dyspepsia, this paper makes a clear explanation on the identification of the physique of patients with FD, and guides the selection of drugs, so as to open up a new solution for the treatment of FD.

OVERVIEW OF TRPA1 CHANNEL IN THE TREATMENT OF COUGH

Peiyao Qin.-First year postgraduate

Supervisors:Xiaoyang Hu、doctor、professor

Heilongjiang University of Chinese Medicine

Introduction.Transient receptor potential (TRP) is a superfamily ion channel, which is formed by six transmembrane fragments and has topological structure and subunit structure. TRP channels can be gated by a variety of mechanisms, including temperature, mechanical stimulation, and active chemicals. They are expressed in almost all cell types and play an important role in maintaining cell homeostasis. According to amino acid sequence homology, TRP channels can be divided into seven

subfamilies: TRPC (normative), TRPV (vanilla like), TRPM (melastatin), TRPP (polycystic protein), TRPML (mucin), TRPA (anchor protein), TRPN (nompC).

Transient receptor potential A1 (TRPA1) is a non selective cation channel in TRPA subfamily that can penetrate Ca2+, Na+, K+, and widely exists in mammalian nerve cells, epithelial cells, skin cells and other types of cells.

Cough is a defensive reflex used to remove excessive secretions and foreign bodies from the respiratory tract. It has been proved that TRPA1 channel can activate the vagal bronchopulmonary C fiber in rodents and rodent lungs. TRPA1 ligand can cause cough reflex in guinea pigs and humans. TRPA1 mediated cough reflex is related to exogenous TRPA1 agonists and endogenous biochemical substances produced by cough related diseases.

The main clinical manifestation of cough is cough reflex caused by throat itching, odor stimulation, etc. Therefore, traditional Chinese medicine believes that cough is mostly caused by wind evil. It is often believed that wind evil subdues the lung, and lung loss is the main pathogenesis of cough. In the preparation of drugs, it is often used to expel wind and expel lung, and to stop cough and relieve asthma. In recent years, it has been found that the mechanism of traditional Chinese medicine in treating cough may be related to TRPA1 channel. It has been found that dispel wind and promote lungs Recipe has an effect on the expression of TRPA1 channel protein in the cough guinea pig model, which can reduce the reactivity of the model guinea pig and reduce the inflammation of lung tissue, which may be related to the down-regulation of TRPA1 channel protein level in lung tissue.

TRPA1 channel can be activated by temperature and can also be activated by traditional Chinese medicine with characteristics. Since ancient times, traditional Chinese medicine has been divided into cold, hot, warm and cool four qi according to its medicinal properties. The four qi have important guiding significance for the compatibility of traditional Chinese medicine. However, the attribution of the four qi of traditional Chinese medicine still lacks modern scientific theoretical basis in modern pharmacology. The discovery of this family's temperature sensing channel is hopeful to provide a basis for the theoretical study of the four qi of traditional Chinese medicine.

The summary and conclusion in this report hope to provide new ideas for the future exploration and research of TRPA1 channel and other TRP channels in traditional Chinese medicine.

RESEARCH PROGRESS OF ZHIGANCAO DECOCTION IN THE TREATMENT OF HEART DISEASE

Zhao Chenyu—the 1st year PhD student

Supervisors: Zhou Yabin, PhD, Prof

Heilongjiang University of Chinese Medicine

Introduction. Zhi Gancao Decoction, also known as Fumai Decoction, comes from Treatise on febrile Diseases by Zhang Zhongjing. It consists of Glycyrrhiza, Ginger, Ginseng, Radix Rehmanniae, Cassia Twig, Donkey-Hide Glue, Ophiopogon Japonicus, Fructus Cannabis, Jujube, which is a famous classical formula of Traditional Chinese Medicine(TCM) for the treatment of heart diseases.

1. Progress of experimental research

1.1 Antiarrhythmic effects

Related animal studies showed that Zhi Gancao Decoction could significantly delay the time of arrhythmia induced by aconitine in rats, and the drug-containing serum of Zhi Gancao Decoction could prolong fAPD, which may be the electrophysiological mechanism of Zhi Gancao Decoction against arrhythmia.

1.2 Effects on viral myocarditis

It was demonstrated that Zhi Gancao Decoction could effectively block the inflammatory response in mice with chronic viral myocarditis and had a positive effect on the pathological damage in mice. In addition, the formula also attenuated collagen proliferation in the myocardial tissue of mice. Other related evidence suggested the possibility that Zhi Gancao Decoction had the potential to inhibit myocardial inflammation in rats with aging models by interfering with the expression of Ang II and IL-1, it is also found that Zhi Gancao Decoction may have potential effects similar to Ang II antagonist.

1.3 Anti-myocardial injury effect

Zhi Gancao Decoction could antagonize the occurrence of arrhythmia during ischemia and reperfusion in rats, and effectively reduce the incidence of myocardial injury. It also could increase the level of SOD and decrease the levels of cTnI and MDA in mice with exercise exhaustion, which confirmed its ability to protect myocardium in rats with recurrent exhaustion.

2. Progress in Clinical Applications

2.1 Angina pectoris of coronary heart disease（CHD）

Angina pectoris of coronary heart disease belongs to the category of "Chest obstruction" in traditional Chinese medicine, which is characterized by severe and persistent retrosternal pain, accompanied by palpitation, edema, cold limbs, shortness of breath, sweating and pallor. Zhi Gancao Decoction is effective in the treatment of the disease, which could significantly improve the clinical symptoms such as chest pain, chest tightness and palpitation, and improve the quality of life of patients.

2.2 Post-PCI

PCI refers to a group of percutaneous interventional techniques, which has practical significance in the treatment of coronary angina of CHD and myocardial infarction, but patients may still experience discomfort such as chest tightness, chest pain after PCI treatment, and may form restenosis and in-stent thrombus. Therefore, further treatment of Post-PCI is particularly critical. Zhigancao Decoction is effective in the treatment of Post-PCI. Recent studies have demonstrated that Zhi Gancao Decoction could significantly improve the chief complaint symptoms and left ventricular ejection fraction of patients with angina pectoris after PCI. Meanwhile, Zhi Gancao Decoction could improve myocardial microcirculation in patients with acute myocardial infarction after PCI, reduce myocardial re-injury through anti-inflammation and coronary dilation, thus improving the cardiac function of patients. In patients with acute coronary syndrome (ACS), the application of Zhi Gancao Decoction after performing PCI could effectively control the incidence of hypotension and improve patients' angina symptoms.

2.3 Arrhythmia

Arrhythmia refers to abnormal frequency, rhythm, origin, conduction velocity or activation order of cardiac impulses. The combination of Zhigancao Decoction and western medicine could significantly improve the level of Ang II in plasma of patients with arrhythmia and increase the therapeutic efficiency. In chronic arrhythmia, Zhigancao Decoction could reduce the incidence of adverse reactions in patients. By observing the dynamic electrocardiogram of the patients with sick sinus syndrome treated with Zhigancao Decoction, it was found that Zhigancao Decoction could obviously stabilize the ventricular rate, improve the cardiac function and alleviate the clinical symptoms of the patients. In the treatment of premature ventricular beats, Zhi Gancao Decoction also played a role, which could effectively reduce the frequency of premature ventricular beats.

2.4 Viral myocarditis

Viral myocarditis is a pathological change of the myocardium caused by viral invasion of the heart, with coxsackie group B virus being the most common cause. Related studies showed that Zhi Gancao Decoction could improve clinical symptoms, reduce myocardial injury and promote repair in patients with viral myocarditis. Numbers of studies have shown that Zhi Gancao Decoction was also useful in the convalescence and migration of viral myocarditis.

2.5 Heart Failure

Zhi Gancao Decoction also has a certain effect in the treatment of heart failure. A clinical study confirmed that Zhi Gancao decoction could reduce the related symptoms of patients with chronic heart failure, improve cardiac function and the clinical efficacy, and reduce the inflammatory response of patients. In elderly patients with chronic heart failure combined with sinus bradycardia, Zhi Gancao Decoction could significantly improve their cardiac diastolic and systolic function and reduce the levels of plasma N-terminal B-type natriuretic peptide (NT-proBNP) and serum heart fatty acid binding protein (H-FABP) levels.

2.6 Dilated cardiomyopathy

Dilated cardiomyopathy is characterized by enlargement of left, right or bilateral ventricular chambers and cardiac systolic dysfunction. The results of a meta-analysis showed that conventional treatment combined with Zhi Gancao Decoction significantly increased left ventricular ejection fraction, cardiac NYHA classification, 6min walking distance and left ventricular mass index, decreased left ventricular end-diastolic diameter, cardiothoracic ratio and alleviated myocardial fibrosis degree in patients with dilated cardiomyopathy. The improvement of these indexes reflected the effectiveness of Zhi Gancao Decoction in the treatment of dilated cardiomyopathy.

Discussion. The efficacy of Zhi Gancao Decoction in the treatment of cardiac diseases has been verified in clinic, but the mechanism of its effect is not clear, which is also the direction of our future research.

SYSTEMATIC REVIEW AND META-ANALYSIS OF ACUPUNCTURE AND COMBINATION THERAPY FOR SJOGREN'S SYNDROME

Tianran Han – the 1 th year-student
Zeguang Li -PHD -Professor
Heilongjiang University of Chinese Medicine

Sjogren's syndrome (SS) is a chronic autoimmune disease mainly involving exocrine glands, especially lacrimal glands and salivary glands [1], which is also a global disease. According to epidemiological surveys, the prevalence of PSS in the population is approximately 0.5% to 1.56%, and the male-to-female ratio is 1:9 [2]. The main clinical manifestations of this disease are dry eyes, dry mouth, fatigue, etc.,but also involve the whole body organs, accompanied by other complications. Its high incidence in middle-aged women accounts for approximately 50% of that in all cases. However, there is still no radical cure for SS , and the quality of life of these patients is often affected by the long course and easy recurrence of the disease [3]. At present, artificial methods, hormones, immunosuppressants, biological agents, and other means are mostly used for treatment; however, there are many adverse reactions, that restricting the extensive application of these methods. Acupuncture is a treatment methods used in traditional Chinese medicine and is provided with the characterized by strong operability, minimal adverse reactions, and high safety. In recent years, many explorations and innovations have been made on acupuncture and traditional Chinese medicine in the treatment of this disease, and certain curative effects have been achieved; however,there is stilla lack of evidence to prove its curative effect. Herein, the treatment of SS was systematically studied using evidence-based medicine. The literature on acupuncture, electroacupuncture, acupuncture, and drug combination treatment for SS was used for meta-analysis, to provide evidence for evidence-based medicine.

Methods: Literature from the establishment of the databases selected until June 2022 was reviewed. These databases include the CNKI full-text Journal Database, Wanfang Data platform, VIP Chinese journal, China Biomedical Literature Database, PubMed, and EMbase databases. Clinical randomized controlled trials of acupuncture and acupuncture combined with medicine for the treatment of Sjogren's syndrome were conducted. Two researchers screened the literature, extracted the relevant data, and evaluated the risk of bias. RevMan5.2 software was used fo rthe meta-analysis.

Results: A total of 22 RCTs with 1635 patients were included. Meta-analysis showed that compared with the control group, acupuncture treatment showed a significant difference in symptom improvement score (MD=0.556 95%Cl [1.24,1.52] RR1.37 P<0.0001), IgA/M/G (MD=1.00 95%Cl [1.25,1.49] RR1.35P<0.00001), SCHERMER test (MD=0.80 95%Cl [1.08,1.38] RR1.22 P<0.0001), the BUT(MD=-12 95% Cl[1.13,1.44] RR1.28 P<0.0001), salivary flow rate (MD=1.00 95%Cl [1.25,1.49] RR 1.36P<0.00001), and ESR (MD=1.67 95%Cl [1.24,1.57] RR1.40 P<0.00001).

Conclusion：The meta-analysis confirmed the superiority of acupuncture and acupuncture combined with medicine over conventional Western medicine alone in improving the symptoms, improving the Schirmer test, increasing the salivary flow rate, prolonging the BUT, and reducing the immune indicators. The reason for the good efficacy of acupuncture and acupuncture combined with medicine

in the treatment of Sjogren's syndrome may be that,on the one hand, after Qi is obtained at the acupuncture points, the meridians and collaterals of the acupoints are unblocked, and the distribution of Qi, blood and body fluid in the whole body is adjusted, thereby achieving the effect of Yin, Ping,and Yang. In contrast, acupuncture can stimulate the immunoactive substances in the blood to a certain extent. After acupuncture at an acupoint, the immunoactive substances in the blood are stimulated, thus exertsing a good adjustment effect on the body. In addition, acupuncture combined with traditional Chinese medicine can achieve an overall harmonizing effect with traditional Chinese medicine. The combination of internal administration and external treatments is conducive to the faster recovery and shortens the disease course to a certain extent. Finally, acupuncture and traditional Chinese medicine have the characteristics of simple clinical operation, obvious curative effect, safety, and cost efficiency, which are worthy of clinical promotion.

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STUDY ON THE MECHANISM OF QINGXUAN RUNMU FORMULA IN TREATING DRY EYE

Zhao Shanshan - the first year - phD
Supervisors: Yao Jing ,doctor,director
Heilongjiang University of Chinese Medicine

Dry eye is a chronic ocular surface disease caused by multiple factors, which is the instability of tear film or the imbalance of ocular surface microenvironment caused by abnormal quality, quantity and dynamics of tears, which can be accompanied by ocular surface inflammatory reaction, tissue injury and nerve abnormality cause a variety of ocular discomfort symptoms and / or visual dysfunction , has become the most common eye disease except ametropia. The global prevalence of dry eyes is about 6.5% and 39.2%, and 1-4 out of every 10 people suffer from dry eyes. With the arrival of the era of "screen reading" and bad eye habits, the incidence of dry eyes in China is increasing year by year. At present, there are about 360 million dry eye patients in China, showing an epidemiological trend that the elderly are more than the young, the women are more than the men, and the disease population tends to be younger.

After years of clinical practice, our research group thinks that dry eye is particularly closely related to lung and spleen, and under the guidance of the theory of "simultaneous treatment of lung and spleen", it is concluded that Qingxuan Runmu formula is an empirical prescription for the treatment of dry eye, which is proved to be effective by clinical and basic research.

Dry eyes belong to the category of "white astringency" and "Shenshui will run dry" in traditional Chinese medicine. "Seven Tips for Syndrome and treatment Criterion" cloud: "the water outside the bead is dry but not clear and moist", "the key to the heart method of ophthalmology": "its syndrome

is not red, not swollen, sand astringent pain, many red silk red veins", it can be seen that the main symptoms of dry eyes are eye pain, eye not moist, lack of tears. Tears are the liquid of the liver and part of the body fluid of the human body. Therefore, abnormal metabolism of body fluid is the core pathogenesis of dry eyes. The formation of body fluid comes from the water valley, mainly through the ascending and clearing of the spleen and the ripening of the stomach. "Huangdi Internal Classic": "drink into the stomach, overflow essence, upper infusion in the spleen, spleen scattered essence, upper return to the lung, regulation of waterways, lower transfusion of bladder, water essence four cloth, five meridians parallel". "Suwen Linglan Secret Book": "the bladder, the official of the state, body fluid hidden Yan." The transfusion and distribution of body fluid is mainly completed under the action of ascending and clearing of spleen and eliminating and descending of lung. The excretion of body fluid is mainly due to the excretion of urine, sweat and feces under the action of the lungs. Therefore, the normal function of lung and spleen plays an important role in regulating the balance of body fluid metabolism, and the dysfunction of lung and spleen can destroy the metabolic balance of body fluid and affect the stability of tear film.Therefore, "simultaneous treatment of lung and spleen" in the treatment of dry eyes has a good TCM theoretical basis in terms of ascending and descending theory and water metabolism.

The prescription thought of Qingxuan Runmu formula is based on the theory of "simultaneous treatment of lung and spleen". From the perspective of body fluid metabolism, the specific prescriptions are Radix scrophulariae, Radix scrophulariae, Ophiopogon, Fangfeng, Angelica, Radix Paeoniae Alba, Atractylodes macrocephala, Platycodon grandiflorum and licorice. Among them, Atractylodes macrocephala Koidz, invigorating the spleen and promoting dampness, and Maidong moistening the lung and spleen, both of which are monarch drugs, treat the lungs and spleen together, make the body fluid generate actively, regulate waterways, and distribute in an orderly manner; nourish formula and nourish the kidney, angelica, tonify blood, soften the liver and nourish formula, are courtier drugs, have the same origin of body blood, increase the source of body fluid, and form Zengye decoction with Ophiopogon, which is beneficial to the formation and excretion of body fluid. Fangfeng is a medicine for the spleen meridian, expelling wind and winning dampness, Platycodon grandiflorum is the medicine for the lung meridian, releasing the lung, carrformulag the medicine up, together as an adjuvant, and plaformulag the effect of lifting the kettle to uncover the body fluid, make the body fluid ascend to the head and face, facilitate urination, and promote the excretion of the body fluid. Licorice harmonizes all kinds of medicine, in order to make the medicine, all drugs are used together to regulate the metabolic balance of body fluid, which is beneficial to the stability of tear film, and fundamentally improve the uncomfortable symptoms such as dry eyes and astringent eyes.

Modern pharmacological studies have confirmed that Ophiopogon saponin D can exert its anti-inflammatory effect by regulating many signal pathways such as NF- κB, PI3K/AKT and AP-1. The total saponins of Platycodon grandiflorum may inhibit the inflammatory reaction by inhibiting the activation of TLR/MyD88/NF-κB signal pathway and the expression of inflammatory cytokines such as IL-1 β, IL-6, TNF- α. Total glucosides of paeony have anti-inflammatory and immunomodulatory effects, and its mechanism may be related to down-regulating the expression of IL-1 β and TGF- β

and affecting the activation of p62 / TRAF6 / NF-κ B signal pathway [13]. The ethanol extract of Fangfeng can inhibit the inflammatory signal pathway of TLR4/NF-κB and exert anti-inflammatory effect.

Our research group has been committed to the clinical and basic research of traditional Chinese medicine in the treatment of dry eyes in the past ten years. The results showed that Qingxuan Runmu formula could down-regulate the levels of IL-1, IL-6 and TNF- α in the horn and conjunctiva of the animal model of dry eyes with excessive evaporation.Affect the expression of TLR4 and MyD88 in horn and conjunctiva , confirm the role of inflammatory reaction in the pathogenesis of dry eyes, and reveal that Qingxuan Runmu formula has a good anti-inflammatory effect.

MPMNS-DPBOC

Wenwen Ma.-the 1st year- student

Supervisors: Fengjuan Han Professor

Introduction: Multiple primary malignant neoplasms (MPMNs), also known as repeated cancer, refers to two or more primary malignant tumors occurring simultaneously or successively in a single or multiple organs of the same host, which may have the same or different tissue types of origin, but there is no affiliation between all tumors. The diagnostic criteria for MPMNs were first proposed by the scholar Billroth in the 19th century, and were revised by Warren and Gates in 1932 and are still in use today. There are three criterias: 1.Each tumor was confiromed as a malignant tumor according to the pathology; 2.The pathological features of each tumor differ from each other; 3.Cases of recurrence or mutual metastasis must be excluded.

Breast cancer is the malignant tumor with the highest incidence and mortality rate in women in the world, and the mortality rate of ovarian cancer is also the highest among gynecological malignant tumors. Nowadays, in the process of clinical diagnosis and treatment, it is found that more and more patients have primary breast cancer combined with primary ovarian cancer, which is called double primary breast and ovarian cancer (DPBOC). Hebei Medical University had done a study, selected 49 diagnosed DPBOC patients, and analyzed the incidence, breast cancer as the first cancer 32 cases, ovarian cancer as the first cancer 17 cases. The number of cases of metachronous DPBOC patients was 42, while the number of simultaneous cases was only 7. 40.8% of the patientshad a family history of tumor, and 44.9% were not menopausal at the time of the first cancer.An increased risk of ovarian cancer after a breast cancer diagnosis was also observed in a retrospective study, especially in a positive family history of breast cancer.

What can we do to prevent DPBOC or MPMNs if a patient with breast or ovarian cancer ? Patients with ovarian cancer should undergo appropriate breast cancer screening, and the duration of screening should be > 5 years. Female breast cancer patients with positive family history and BRCA1/2 gene mutation should undergo clinical monitoring of ovaries to prevent the occurrence of ovarian cancer.

THE ROLE OF LONG NON-CODING RNA IN MULTIDRUG RESISTANCE OF GASTRIC CANCER

Liu Simiao 2nd year Ph.D. student
Supervisors:Xie Jingri Doctor Degree Professor
Heilongjiang University of Traditional Chinese Medicine

Abstract

Objective: To summarize the regulatory effect of long non-coding RNA (lncRNA) on on the mechanism of multidrug resistance in gastric cancer (GC) .

Methods:We search the electronic databases MEDLINE,EMBASE and PubMed without restrictions on year of publication or language.According to previous studies, lncRNAs have a vital role in several different types of cancers owing to their multiple mechanisms of action. Different mechanisms have various functions that could result in multidrug resistance of GC.

Results:LncRNA is a kind of heterogeneous non-coding RNA, which plays a regulatory role in many rumour-related diseases and exerts a wide range of biological functions. GC etiology and pathological mechanism have not been clarified,while lncRNA is a regulator involved in the pathogenesis of GC and is abnormally expressed in GC cartilage, leading to multidrug resistance.

Discussion: At present, there have been preliminary studies on the mechanisms of lncRNA in regulating multidrug resistance of GC.LncRNA participates in the process of multidrug resistance of GC mainly by reducing intracellular drug concentration,regulating abnormal apoptosis of GC cells, dysfuncting of DNA damage and repair, promoting epithelial-mesenchymal transformation (EMT) and inducing autophagy regulatory signal pathway.

Keywords: Drug resistance;Gastric Cancer;Long non-coding RNA;Mechanism

Background

GC is one of the most common malignant tumors and the third largest cause of tumor-related death in the world. Although considerable progress has been made in the comprehensive treatment of GC in recent years, the overall prognosis is not optimistic. The high mortality rate of GC is mainly related to low early detection rate and lack of advanced treatment. About 2/3 of patients are found to have reached advanced stage[2-3].Chemotherapy is the most commonly used treatment for advanced GC, although it is effective in the early stage of treatment. However, after long-term chemotherapy,many patients will develop another fatal problem-multidrug resistance (multidrug resistance,MDR),resulting in a poor prognosis.MDR means that tumor cells are not only resistant to one kind of antineoplastic drugs,but also cross-resistant to other antineoplastic drugs with different structures and targets.Therefore, understanding the molecular regulation mechanism of MDR and identifying effective tumor biomarkers is very important to improve the prognosis of patients with GC. Many studies have shown that MDR, as a carcinogenic or tumor suppressor gene sensitive to antineoplastic drugs, is closely related to the abnormal expression of LncRNA [4-5].Therefore, the purpose of this paper is to summarize the research progress of the abnormal expression of LncRNA involved in the mechanism of multidrug resistance in GC, in order to provide a scientific strategy for clinical treatment.

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THE CURRENT TREND IN THE DEVELOPMENT OF MICROSURGERY IN THE AMUR REGION

Kravtsova E., Kharitonova A.V. – the 3rd year students
Scientific leaders – Doc. Med. Sc., Prof. V.V. Grebenyuk, O.I. Katina

Relevance: There has been a significant increase in severe limb injuries in recent years. Among them the upper limb injuries prevail over lower limb injuries. The consequences of hand injuries with damage of tendons and nerves are flexion and extension contractures of the fingers, the absence of one or another function of the fingers and the hand as well as deep and irreversible trophic disorders. The development of microsurgery has significantly changed the situation. In a short time the approach to the treatment of patients with previously non-severe injuries has been revised.

General study: A clinical example of a successful result of a dissected hand replantation is presented. A 24-years-old male was admitted to the Magdagachinsky CRH with traumatic amputation of the hand. The operation having been recently described as science fiction was successfully performed by the Amur microsurgeons. They sewed on the patient's hand that had been snatched off almost a day before with a circular saw.

A young worker in the Magdagachinsky district had his hand cut off with a circular saw. Within half of an hour the doctors of the local CRH consulted with their Blagoveshchensk colleagues about freezing the limb and transportation of the patient.

"The patient was injured at 5 p.m. on the second day and was delivered to us at 6 a.m. on the third day. The period before hospitalization turns to be 13 hours. He was taken to the operating room at 8 a.m. Prior to that, measures were taken to relieve the shock as the injury was serious. The hand was cooled all this time, it was transported correctly," says orthopedic traumatologist Andrey Sharofeev.

According to experts, in 12 hours such segments lose their viability while in this case over 15 hours have passed since then! However, experienced microsurgeons simply could not lose the chance. After a nine-hour operation and connecting up the blood flow to the arm, they made a forecast: the hand will take root.

"The replantation of a large segment, such as the hand or forearm – a similar case is the fourth one. And annually we have within 10 cases when we sewed on parts of the hand, fingers or parts of fingers. Such operations are considered to have already been mastered by us. I will not say that they are standard, they are all creative," says Sergey Dudarikov, the director of the microsurgery center of the Regional Children's Hospital.

The patient stayed in the Regional Children's Hospital for about three weeks. During this time, he underwent a course of antibacterial therapy. Doctors did everything to save the 24-year-old young man's hand.

After this treatment, microsurgeons gave him a short break, and he went home. And a few weeks later, doctors made a second operation to repair the tendons, and only then there was a rehabilitation course. Everything went well and the patient made grasping movements after a year, and in 5 years the patient subjectively evaluates the functional result of the operation as satisfactory. He works by profession (carpenter) and goes in for sports. Movements in the wrist joint are complete. The muscles of the hand are hypotrophic a little. Tactile and pain sensitivity in the nerve innervation zone have been fully restored. The appearance of the hand is aesthetically acceptable. All the main types of hand grabbing have been restored.

A huge role in the successful outcome of the operation depends on the correct and fast transportation of a person and a detached part of the body. If once you face with a similar situation, then remember that the separated part of the body mustn't ever be treated with any antiseptic substance. If a finger was cut off, it should be placed in a tight dry plastic bag and tied well. After that, it should be put in another bag with ice mixed with water. In addition to this, the bag should be placed in an insulated container, or use three bags for packaging.

If the injury level is just below the elbow, then replantation is possible within 10 hours, and above this "articular" border, the time is reduced to 6 hours. There is a limited duration of viability for each separated segment, during which it is possible to perform replantation (for example, the safety in hours at t° up to +4 is for: fingers – 16, hands – 12, shoulder, forearm, shank and foot – 6, at t° more than +4 is for: fingers – 8, hand – 6, shoulder, forearm, shin, foot – 4).

Conclusion: Thus, microsurgical operations in the Russian Federation are continuously being improved undoubtedly leading to positive results in the treatment of patients after traumatic amputations and socio-economic effect for the country!

HISTOGENESIS OF POST-COVID MYOCARDITIS

Nikolaeva A., Ogurtsov R. – the 2nd year students
Scientific leaders – S.V. Barannikov, O.I. Katina

The bulk of the heart cells are represented by working cardiomyocytes. They have a rectangular shape and are connected together using special contacts - intercalative disks. Due to this, they form a functional syncytium. Cardiomyocytes contain a continuous mass of myofilaments, individual units of which are not clearly identified. The myofilaments are arranged hexagonally so that each thick filament is surrounded by six thin ones. The disruption of the cardiovascular system after the coronavirus infection suggested the medical community to explore this topic.

To date, the largest Russian research center, which has devoted itself to the study of this problem, is the cardiology department of the V.N. Vinogradov Faculty Therapeutic Clinic of the Sechenov University. The study included 15 patients (8 men and 7 women, mean age 47.8±13.4, 24–65 years) with a diagnosis of postcovid myocarditis. During the study of post-covid histogenesis, it was found that in these patients the signs of death (necrosis, lysis) and severe dystrophy of cardiomyocytes were revealed in cardiomyocytes, as well as the presence of interstitium edema in all patients. Cellular infiltrates were represented by lymphohistiocytic elements; in one case, giant multinucleated cells were found in their composition, which made it possible to regard myocarditis as giant cellular. Giant multinucleated cells are formed by fusion or incomplete cell division. And giant cells of foreign bodies are formed first and then - Pirogov-Langhans cells.

A characteristic sign of post-covid myocarditis was coronary disease (inflammation of the walls of the coronary vessels that supply blood to the myocardium). It was detected in 12 out of 15 patients of various ages and sexes. An IHC study with antibodies to the nucleocapsid and spike protein of the SARS-CoV-2 virus showed a pronounced positive expression of antibodies in cardiomyocytes, in vascular endothelium, and infiltrate cells in the endocardium and pericardium (mainly in macrophages).

One of the most significant factors in the development of post-covid myocarditis is the long-term persistence of SARS-Cov-2 in the myocardium (cardiomyocytes, endothelium, macrophages) in combination with high immune activity (high titers of anticardiac antibodies in 14 patients).

MONKEYPOX OUTBREAK 2022

Khotulev V., Tarasovskaya A. – the 3rd year students
Scientific leaders - Cand.Med.Sc. O.V. Bubinets, O.I. Katina

The monkeypox outbreak in 2022 is a break of a zoonotic viral disease of monkeypox observed in many states.

Monkeypox virus is a zoonotic double-stranded DNA virus that causes monkeypox. It belongs to the orthopoxvirus genus of the poxvirus family. It is genetically close to the discrete smallpox virus.

Monkeypox virus is carried by animals, especially primates. Monkeypox virus causes disease in both primates and other animals. It is mainly found in the tropical forests of Central and West Africa. The virus can be transmitted both from animal to person and from person to person.

The first case of infection was confirmed by WHO on 7 May in a British tourist who had recently returned from Nigeria. In Russia, the first case of infection was confirmed on July 12, the patient arrived in the country from Portugal. In total, cases of infection have been detected in more than 100 countries. As of September 1, more than 50.500 cases of monkeypox infection were registered in the world, the largest number is in the USA, Spain, and Brazil.

The incubation period lasts from 7 to 19 days. The disease begins acutely, suddenly, with an increase in body temperature, headaches and muscle pains, dizziness, nausea, and vomiting are also quite possible. The subsequent dynamics of the disease is similar to the symptoms of a smallpox, often mild and moderate forms. The main difference between monkeypox and human smallpox is the presence of lymphadenitis in almost 90% of patients. On the 3rd – 4th day of illness, a rash appears, first on the face, then on the arms, then covers the trunk. The total duration of the disease is 2-3 weeks.

Prevention is reduced to the exclusion of contact with possibly infected animals and people. Meat products must undergo heat processing, and people at risk of infection must immediately isolate. When working with such patients, medical staff must use masks, shields, gowns, shoe covers.

Specific prophylaxis specifically against monkeypox has not been developed, but the effectiveness of the smallpox vaccine has been proven.

In Belgium, from May 23, 2022, a three-week quarantine was introduced for people with monkeypox. According to the latest data, 168 people are infected in the country. On May 24, 2022, German Minister of Health Karl Lauterbach introduced a three-week quarantine for monkeypox infected. He also announced that quarantine is "strongly recommended" for people who have been in contact with the infected. To combat the spread of the disease in the United States, a national vaccination strategy was developed. Two vaccines have been approved for this purpose in the country. U.S. regulatory authorities have announced the start of distribution of tens of thousands of doses of vaccines, and they are working to ensure that hundreds of thousands more doses will be received in the coming weeks. For physicians, the agency informs that the infected person should be isolated, preferably in a negative air pressure room or at least in a separate examination room, to exclude possible contact with other

people. Russia has registered three variants of vaccines developed on the basis of the smallpox vaccines virus that, if effective against the discrete smallpox virus, should also protect against monkeypox virus. Another vaccine is at the registration stage.

LEIOMYOMA CUTIS

Melnikova M. – the 5th year student
Scientific leaders – Cand.Med.Sc., Assoc.Prof. N.E. Melnichenko, O.I. Katina

Leiomyoma is a benign tumor of smooth muscle cells.

There are various types of leiomyomas: multiple leiomyomas, solitary leiomyoma, dartoid leiomyoma, hereditary cutaneous leiomyomatosis (Reed's syndrome), atypical leiomyoma, angioleiomyoma, leiomyosarcoma. They differ in clinical picture.

Diagnosis is based on clinical signs, dermatoscopyand biopsy results.

Surgical excision, electrical excision, laser coagulation (CO2) or cryotherapy of a solitary element; injection of botulinum toxin; taking medications to relieve pain are indicated.

SYSTEMIC ISOTRETIONIN – ASSISTANT IN THE FIGHT AGAINST ACNE

Melisova A. – the 5th year student
Scientific leaders – Cand.Med.Sc., Prof. N. E. Melnichenko, O. I. Katina

Acne (acne vulgaris) is a chronic inflammatory disease, manifested by open or closed comedones and inflammatory skin lessions in the form of papules, pustules, nodes. Significant effects of acne and its consequences have been found on emotional status, daily routine, social relationships, school/work, and interpersonal relationships.

Early initiation of acne treatment leads to less impact on the patient's condition. One of these consequences is post-acne. These are persistent skin changes that appear after acne breakouts. About 95% of patients suffer from post-acne.

Systemic isotretionine is the gold standard for the treatment of severe acne. Monotherapy with isotretinoin is most effective in influencing all links of acne pathogenesis. SI has sebosuppressive, comedonolytic, direct anti-inflammatory properties. The use of SI has led to a significant increase in the effectiveness of acne treatment (up to 80%), and extensive clinical experience has made it possible to expand the indications for its appointment.

APPLICATION OF NALBUFIN IN MEDICINE

Ivanov E., Kurbanova T., Shushakova V. – the 3rd year students
Scientific leaders – Doc.med.Sc. Professor V.I. Tikhanov, O.I. Katina

Nalbuphine (17-(Cyclobutylmethyl) - 4.5 a-epoxymorphinan – 3.6a,14-triol) belongs to the group of opiate receptor agonists-antagonists. Nalbuphine is similar in action to pentazocine, thus has a stronger analgesic effect with fewer side effects and rarely leads to the development of tolerance and physical dependence. It is used for severe and moderate pain after surgery, with myocardial infarction, as a component of premedication and general anesthesia. The sedative effect of the drug is relatively pronounced. The depressant effect on respiration is less than that of morphine. Headache, euphoria or depression, hallucinations, increased sweating, dry mouth, nausea, vomiting, allergic reactions are rarely observed. The drug has little effect on the activity of the cardiovascular system and on the motility of the gastrointestinal tract. The narcogenic potential of nalbuphine is lower than that of morphine and pentazocine. Caution is required when prescribing nalbuphine to patients with respiratory depression, impaired liver and kidney function, with increased intracranial pressure, and

also to pregnant women. The drug passes through the placental barrier and, if used during childbirth, may cause respiratory depression in newborns.

THE INFLUENCE OF X-RAY RADIATION ON THE GROWTH AND DEVELOPMENT OF A FETUS

Bityutskaya A. – the 2nd year student
Scientific leaders – Cand.Med.Sc. D.A. Semenov, O.I. Katina

Currently, there are various ways to study the human body, but one of the most popular is still the X-ray examination. X-ray is a diagnostic method that consists in obtaining a contrast image on film or paper using special beams of certain frequencies.

X-ray examination has many advantages: a high degree of detail, accuracy and reliability of the result. However, this type of examination also has disadvantages resulting in a large dose of radiation that the patient receives. Conditions in which the procedure cannot be performed are called contraindications. One of the contraindications for x-rays is pregnancy. The fetus developing in women is vulnerable to sudden manifestations, so x-rays can be strongly manifested in the formation of an intrauterine human. The hazardous period for the x-ray examination of the abdominal organs and abdominal cavity is the first trimester. Firstly, with this position, X-rays pass through the fetus causing structural changes in its chromosomes. It leads to disruption in the formation of cell primordia, yolk-sac, chorion and amnion, proper cell migration and differentiation. Secondly, the chance of developing pathology of the brain, spinal or bone marrow, circulatory, respiratory and immune systems increases due to changes in the functioning of cellular and extracellular structures. Such violations are lethal and often end in miscarriage. If the pregnancy persists, the consequences will manifest themselves after childbirth in the form of a general or focal disorder of organ systems, the presence of tumors, neoplasms of a different nature, etc.

If there is a situation in which it is impossible to do without an X-ray examination, all necessary safety measures should be taken: put on a lead apron or vest.

It happens that a woman took an x-ray, not knowing that she was pregnant. In this case, it is necessary to consult a doctor who can provide qualified advice on the woman's further actions.

BIOCHEMISTRY OF MUSCLE CONTRACTIONS

Sryvalkin V. – the 2nd year student
Scientific leaders – Cand.Med. Sc., Assoc. Prof. E.V. Egorshina, O.I. Katina

Muscular contraction is a response of muscle cells to the action of a neurotransmitter, less often a hormone, manifesting in a decrease of a cell length. It is a vital function of the body associated with defensive, respiratory, nutritional, sexual, excretory and other physiological processes. All kinds of voluntary movements - walking, mimicry, eyeball movements, swallowing, breathing etc. are performed by skeletal muscles. Involuntary movements (except heart contraction) - peristalsis of stomach and intestines, change of tonus of blood vessels, maintenance of tone of bladder - are due to contraction of smooth muscles. The work of the heart is provided by the contraction of the cardiac musculature.

Myofibril proteins: The contractile elements (sarcomeres) consist of two types of parallel threads, thin filaments of F-actin and thick filaments of myosin. Actin is a globular protein from which microfilaments are formed and is one of the main components of the cytoskeleton of eukaryotic cells. Actin consists of 376 amino acid residues. There are two forms of actin: globular G-actin and fibrillar

F-actin. Globular actin molecules are noncovalently combined forming F- actin. Two chains of F-actin are linked into a helix.
Together with actin, tropomyosin is present in muscle. It is a pulled molecule made of α and β chains and joining F-actin in the gap between two polymers. Tropomyosin is found in all muscles and similar structures. Muscle fibre contraction is controlled by motor neurons, which release the neurotransmitter acetylcholine into neuromuscular synapses. Acetylcholine diffuses through the synaptic cleft and interacts with cholinergic receptors on the muscle cell plasma membrane. Transmembrane ion channels open and the cell membrane become depolarized. The action potential spreads quickly in all directions exciting all muscular cells. A muscle fibre contraction cycle occurs within a few milliseconds.

MECHANISMS OF NICOTINE'S EFFECT ON THE CENTRAL NERVOUS SYSTEM

Sryvalkin V., Karpushko A.- the 2nd year students
Scientific leaders - S.V. Barannikov, O.I. Katina

The desire to maintain good health is an important social need of a man, a necessary condition for a full life, high creative activity and happiness. "Man can live to 100 years", said Academician I.P. Pavlov. - We ourselves reduce this normal period to a much smaller figure with our intemperance, our disorderliness, our ugly treatment of our own organism ". Life expectancy reduces due to bad habits, mortality increases, and inferior offspring is born.
Smoking is one of the main threats to human health. According to the World Health Organization in 2020, tobacco causes 7 million deaths worldwide every year. If the current trend of deaths continues, this number may exceed 8 million by 2030. According to 2019 statistics from Rosstat, 24.2% of Russian residents over the age of 15, that's 29.3 million people, are smokers. This data shows the relevance of an in-depth study of the physiology of the smoking process and smoking-induced changes in body tissues, particularly in the nervous system.
The human nervous system is a highly organized system ensuring coordination of many functions of our body: reception and processing of information from the outside world and from inside of the body, transfer of information about the body state to the brain, coordination of voluntary body movements, regulation of its involuntary functions - breathing, digestion, heartbeat, maintaining body temperature, etc. At the same time, external influences can disrupt its normal functioning. A vivid example is the effect of nicotine and the process of smoking on the human nervous system.
Nicotine is a neurotoxic poison disturbing the harmonic electrochemical processes of the nervous system and causing neurons to die. The effects of nicotine depend on its concentration in the body. At low concentrations, nicotine activates H-choline receptors stimulating the sympathetic system, which acts through the phrenic nerves to the adrenal glands and stimulates adrenaline release. The release of adrenaline results in an accelerated heart rate, increased blood pressure and respiratory rate, as well as increased blood glucose levels. In high doses, nicotine leads to blocking of the nicotinic acetylcholine receptor being the cause of nicotine toxicity. It leads to the opposite effect – toxic resulting in respiratory arrest, paralysis, death.
An additional effect of nicotine is an increase in dopamine levels in the pleasure centers in the brain, namely the septal region adjacent to the corpus callosum, as well as a small part of the striatum, the adjoining nucleus. The dopamine pleasure centre tends to inhibit monoamine oxidase, the enzyme responsible for the breakdown of monoamine neurotransmitters (such as dopamine) in the brain. Nicotine itself is not thought to inhibit the production of monoamine oxidase, other components of tobacco smoke are considered to do this. Increased levels of dopamine excite the pleasure centers of the brain leading to nicotine addiction.

Long-term nicotine addiction depletes the dopamine stores in the nervous system, neurasthenia develops and a "vicious circle" forms: the smoker, who works hard, starts smoking more and more often to "spur" the body, but gets even more overworked. Such people may experience memory problems, sleep disorders, headaches, frequent mood swings, and reduced capacity for work.
Thus, we can say that nicotine has a clear negative effect on the central nervous system, which confirms the need for active tobacco prevention among the population.

PHILOSOPHICAL AND NATURAL SCIENCE THEORIES OF THE ORIGIN OF LIFE

Sryvalkin V. – the 2nd year student
Scientific leaders - G.K. Ezri, O.I. Katina

At present, the origin of life on Earth remains unsolved and therefore urgent problem. There are many theories about it. Opinions of various scientists and thinkers are divided. Among the most popular theories are the following. The first group of theories believes that life originated in the so called "caldrons of life". The second one is that God created all living and non-living things. The third theory suggests that life came to Earth from outer space and settled on the planet. These theories and a great many others have the right to exist because there is no obvious, reliable, accurate and absolute-true proof for any one of the theories. This report briefly reviews a number of theories of the origin of life of a philosophical-religious and scientific nature.
The theory of the ancient Greek philosopher and naturalist of the classical period, Aristotle, is one of the oldest theories of the origin of life on Earth. He argued that "certain 'particles' of matter contain a certain 'active ingredient' which, under the right conditions, can create a living organism". However, it is now generally accepted that the origin of whole living organisms is impossible. The origin of living matter from non-living one seems to be impossible under current conditions.
One of the most popular theories is that of panspermia, which states that life came to Earth from outer space. The "seeds" of life were once purposefully delivered to Earth by representatives of highly advanced civilizations unknown to us. In any case, it is impossible to unequivocally state that life in the universe exists only on Earth and nowhere else. This theory can be attributed to the UFO Religion, which focuses on the belief in the existence of extraterrestrial life and objectively this theory does not give an answer to the question of how life appeared in the universe, but only removes it from the Earth. In essence this theory does not explain how life appeared but answers the question of how life appeared on Earth. Nor does this theory deny the possibility of the existence of God or gods. The logic goes as follows: if God has always existed, he is omnipresent and eternal, then aliens are not like gods. The assumption in this case is that aliens have not always lived as gods, but simply arose much earlier than us.
Furthermore, there are religious and philosophical teachings which hold that the world and life were created by God through a supernatural act of creation. These theories are categorised as philosophical-religious teachings, but they include some ideas that claim to be scientific. One such theory is the 'theory of rational meaning'. It asserts that the complexity and expediency of the structure of living beings and ecosystems is explained by the conscious design of the Creator or some "agent". It argues, furthermore, that this explanation is superior to an undirected process of mutation or natural selection. Representatives of 'intelligent design theory' distance themselves from religion by emphasizing the teleological aspects of the concept, but the concept of design itself implies the presence of a subject of design, i.e. the Creator. At the same time, they believe, the Creator need not be interpreted in a religious sense.

Also, one of the philosophical-religious conceptions of the origin of life, claiming to be scientific, is the concept of scientific creationism. Its proponents claim that it is possible to obtain scientific confirmation of the biblical act of creation and, more broadly, of biblical history (in particular, the Flood), while remaining within the framework of scientific methodology.
The next theory is the theory of biochemical evolution. According to this theory, the formation of life on Earth proceeded in three stages: the abiogenous synthesis of organic substances; the formation of biopolymers; the formation of membrane structures; and the appearance of self-replication. These views (biochemical evolution) have points of intersection with Aristotle's theory: these two theories state that life has arisen from non-living matter.
Conclusion: There are many theories of origin of life of scientific, philosophical and religious orientation. The philosophical-religious theories do not require and do not present a proof, and the scientific theories imply the existence of a proof and in addition have it. The existence of multiple theories is due to the lack of conclusive evidence in favor of one of them. In fact, the theories available are merely guesses, beliefs and reflections.

STUDY OF MODERN NUCLEAR WEAPONS' LETHAL FACTORS

Sryvalkin V.- the 2nd year student
Scientific leaders – Cand.Biol.Sc, Assoc.Prof. V.V. Zaritskaya, O.I. Katina

Weapons of mass destruction (WMD) is a kind of weapon, capable of causing massive losses and destructions with limited involvement of forces and means up to irreversible changes of properties of the environment. The main distinguishing features of WMD: multifactorial damage effect; presence of damaging factors of long-term action and their spreading beyond the object of destruction; long-term psychotraumatic effect; heavy genetic and environmental consequences; complexity of protection of troops and population and elimination of consequences of its use. All of them determine the relevance of its study.
The purpose of our research was to study the factors of nuclear weapons (NW) and to analyze their effects on human body. It was interesting to know what kind of WMD possesses greater destructive power on opinion of students of AGMA. For this purpose 34 respondents were interrogated, majority of them named nuclear weapons.
Nuclear weapons are the most lethal and destructive as compared to biological or chemical weapons. The analysis of the literature makes it possible to identify the following lethal factors of nuclear weapons.
The shock wave is the most powerful damaging factor of a nuclear explosion. It causes injuries to people and animals of various types and severity, and destroys buildings and structures. The distance from the centre (epicentre) of the explosion decreases its destructive power.
Light radiation - is one of the damaging factors of nuclear ammunition explosion, which is thermal radiation of radiant area of the explosion. Depending on warhead power the duration of action varies from fractions of second to several dozens of seconds. It causes different degrees of burns and dazzle in people and animals, melting, charring and burning of different materials.
Penetrating radiation is a flux of gamma-rays and neutrons, emitted into environment from the zone of nuclear explosion during several seconds. In humans and animals, penetrating radiation causes radiation sickness of varying severity. Shelters are a protection against penetrating radiation. Sheltering, folds of land and local objects can reduce the effects of penetrating radiation on humans.
Contamination results from the deposition of radioactive substances from the cloud of a nuclear explosion (radioactive fallout) and can be moderate, strong or hazardous. Radioactive contamination so as penetrating radiation causes radiation sickness. As a protection against radioactive

contamination, shelters, anti-radiation shelters, and personal protective equipment also serve as protection against the penetration of radioactive substances into the body and the body surface.
The impact of radiation contamination on health. A distinction is made between threshold (deterministic) and stochastic effects of radiation exposure. The former occur when the number of cells that have died or lost the ability to reproduce or function as a result of radiation exposure reaches a critical value at which the affected organs' function is impaired. Stochastic (probabilistic) effects, such as malignant neoplasms and genetic disorders, can occur at any radiation dose. With increasing dose increases not the severity of these effects, but the probability (risk) of their occurrence; an electromagnetic pulse (EMP) is a disturbance of an electromagnetic field that affects any material object located within its range.
Nuclear Weapon Waging Factor. The effects of an electromagnetic pulse (EMP) are caused by induced voltages and currents in various conductors. Effects of EMP are shown first of all on electric and radioelectronic equipment. Communication, signalling and control lines are the most vulnerable. Insulation breakdowns, damage to transformers, damage to semiconductor devices, etc. may occur. A high-altitude nuclear explosion can interfere with these lines over very large areas. Protection against EMP is achieved by shielding power lines and equipment. People are not affected by the EMP. According to scientists, penetrating radiation has the strongest impact on the human body.
Thus, nuclear weapons are weapons of mass destruction, the action of which is based on the damaging factors of nuclear or thermonuclear explosion. It is the most devastating and terrible weapons that exist on the planet, with a monstrous power that can destroy all life on earth.

IMPAIRMENT OF MOVEMENT AND ACTION REGULATION IN FRONTAL LOBE LESIONS

Lebedeva K. – the 2nd year student
Scientific leaders – Doc.Med.Sc., Assoc.Prof. T.A. Batalova, O.I. Katina

The frontal parts of the hemispheres, primarily the frontal lobes of the brain, are the center that provides programming of movements and actions, regulation of active processes, and merging of the effect of actions with the initial intentions. The frontal lobes of the brain are the apparatus maintaining the formation of persistent intentions that determine human conscious behavior. Thus, left hemispheric "frontal lobe" patients are usually characterized by general lethargy, prostration, passivity, depression, and dejection. At lesions of the right frontal lobe, more often there were states of complacency, euphoria, carelessness, anosognosia, there was no experience of the illness. In addition, patients with frontal lobe lesions had difficulties in various spheres of activity. For example, when performing visual gnostic tasks, "frontal lobe" patients cannot perform tasks requiring consecutive viewing of images, such as comparing two similar images and finding the difference between them. They cannot find a hidden image in the so-called mystery pictures. In severe cases - against a background of general inactivity - the patients cannot understand the meaning of the image at all and make erroneous inferences about the whole by its separate fragments. In auditory perception, defects of arbitrary regulation appear in the form of difficulties in estimation and reproduction of sounds. In tactile perception, disorders of arbitrary regulation manifest themselves in difficulties in identifying a series of tactile samples by touch. When the frontal lobes of the brain are affected, disorders of voluntary regulation are observed not only in separate kinds of mental activity but also in the behavior of the patient as a whole. Conscious, purposeful behavior in such patients disintegrates and is replaced by simpler forms of behavior or inert stereotypes. For example, a patient with severe bilateral frontal lobe lesion, who accidentally reaches for the bell button, pushes it, but cannot tell the visiting nurse why he or she called for her. Thus, the lesion of the convexital parts of the frontal lobes

of the brain leads to a general disturbance of the mechanisms of arbitrary regulation of various forms of conscious mental activity and conscious expedient behavior. The arbitrary, conscious, speech-mediated subordination of mental processes and behavior as a whole to various programs - not only complex or just given in the instruction, but also relatively simple and often encountered in the past experience - suffers. The mechanism of arbitrary regulation of higher mental functions can be considered as an independent principle of brain functioning, violation of which causes a whole set of defects, or "frontal" neuropsychological syndrome.

DISEASES OF GLYCOGEN METABOLISM DISORDERS

Lebedeva K., Bordacheva K. – the 2nd year students
Scientific leaders – Cand.Med.Sc., Assoc.Prof. E.V. Egorshina, O.I. Katina

Glycogen disease (glycogenose disease) is a hereditary carbohydrate metabolic disease caused by mutations of various genes encoding enzymes responsible for the synthesis and decay of glycogen. The characteristic common sign of glycogenoses is excessive accumulation of glycogen in myocytes, hepatocytes, or disruption of its synthesis in the liver and muscles. Glycogen diseases manifest symptoms of hypoglycemia (a condition characterized by a decrease in the level of glucose in the blood), hepatomegaly (a pathological condition characterized by an increase in the size of the liver), muscle weakness, hepatic, cardiac, respiratory and renal failure.

Characterization of types of glycogen disease:

Glycogenosis Type I (Girke's disease) is a glycogenosis caused by the deficiency of the enzyme glucose-6-phosphatase in the liver and kidneys; it is characterized by enlarged liver and kidney size, cachexia, cramps, coma; is inherited by autosomal dominant type.

Glycogenosis Type II (Pompe's disease) is a glycogenosis caused by glucosidase deficiency, is characterized by the development of heart failure, adynamia, muscle hypotension, growth retardation, disorders of central nervous system functions, and is inherited by autosomal recessive type.

Glycogenosis Type III (Cory's disease) - glycogenosis caused by total or partial absence of amino-1.6-glucosidase activity and (or) glycogen-branching enzyme in the muscles and liver; is characterized by hepatomegaly, muscle hypotonia, hypertrophy of individual muscle groups, cardiac and circulatory problems.

Glycogenosis Type IV (Anderson's disease) - is glycogenosis due to the absence of 1.4-glucan, 6-glucosyltransferase; is characterized by hepatoplasenomegaly, jaundice, hypoglycemia, liver cirrhosis; is inherited by autosomal recessive type.

Glycogenosis Type V (McArdle's Disease) - is glycogenosis caused by muscle glycogen-phosphorylase deficiency; manifests in muscle weakness, muscle spasms, tachycardia, and is inherited by the autosomal recessive type.

Glycogenosis Type VI (Gers' disease) - is glycogenosis due to liver glycogen phosphorylase deficiency, is characterized by growth retardation, expressed by hepatomegaly, moderate hypoglycemia, lipemia, and is inherited by autosomal recessive type.

Glycogenosis Type VII (Thomson's Disease) - is glycogenosis caused by a deficiency in the liver and (or) muscles; it manifests as a metabolic myopathy, hematomegalia.

Glycogenosis Type VIII (Tarui disease) - is a glycogenosis caused by insufficient or total absence of phosphofructokinase activity in the muscles; it is characterized by muscle weakness, increased fatigue and lack of hyperlactation after exercise.

Glycogenosis Type IX (Hag's disease) - is glycogenosis caused by deficiency of phosphorylase kinase B; is characterized by hepatomegaly, lack of appetite; is inherited by recessive sex type.

Treatment of glycogenoses includes dietary therapy (patients are recommended to reduce the amount of fats, sucrose, fructose and galactose to reduce hyperlipidemia and acidosis), medicinal correction of symptoms, and in the development of complications (serious damage of internal organs) surgical procedures are performed.

AGE-RELATED CHANGES AND AGING OF CARDIAC CELLS

Lebedeva K. – the 2nd year student
Scientific leaders – Cand.Med.Sc. D.A. Semenov, O.I. Katina

Cardiomyocytes are the muscle cells of the heart that make up the major myocardial mass. The cells have a rectangular shape and are connected to each other by means of bulk discs. There are three main types of cardiomyocytes: typical cardiomyocytes are predominant type, their function is contraction; atypical cardiomyocytes are non-myofibriril, their function is impulse generation and conductivity; secretory cardiomyocytes are in the right atrium, they secrete the atrial natriuretic factor hormone that causes loss of blood and water reducing blood pressure.

The decrease in the contraction function of the myocardium with age emerges in the decrease of the so-called functional cardiac reserve, the difference between the maximum output of the heart and the base output value at rest. The reasons for this may be several phenomena: a decrease in the number of cardiomyocytes in the organ, age-related changes in arousal processes, and myocardial hypertrophy. After 20 years, the vast majority of myocytes of the working myocardium are only capable of hypertrophy and differentiation is completed. Nevertheless, modern technology allows the detection of small groups of dividing cells in the heart of middle-aged and even elderly people. This suggests that not all cells in the adult heart match the age of their host or even the age of most cells in that organ.

Heart senescence is a complex process involving an increase in the volume of extracellular matrix, change of coronary vessels and their smooth-muscular cells, aging of cardiac fibroblasts. This manifests in a violation of passive mechanical properties of myocardium, tension and diastolic function of the heart chambers. Despite the discovery of myocyte mitotic division in the adult myocardium, the total number of myocardial cells is decreasing with age. This process is mainly the result of apoptosis, and in some cases the consequence of hypoxic or necrotic damage of cardiomyocytes, followed by their replacement with connective tissue (collagen) fibers and the accumulation in the extracellular space of cell residues in the form of so-called cellular «wastes». This, in turn, is accompanied by hypertrophic of heart chambers. In physiological conditions, cell hypertrophy is the result of an adaptation of the heart to increased hemodynamic loads, volume or pressure (for example, in athletes).

In a sense, age-related hypertrophy is also an adaptation process in which the normal work of performing systolic loads and ensuring adequate discharge is redistributed between fewer active cardiomyocytes, taking on additional load in place of lost heart cells. At the same time, the ability of working cells to increase their volume and mass of contraction elements in the cytoplasm decreases with age. Thus, the ratio of the number of young cells that have not lost their ability to adapt to the number of really old cardiomyocytes decreases. This determines the heart's ability to compensate the decrease in its functional reserve with age.

TERMINAL CONDITIONS: GENERAL CHARACTERISTICS, FIRST AID

Bobryshev S., Kim E. – the 2nd year students
Scientific leaders – Cand.Biol.Sc. I.A. Kreshchenok, O.I. Katina

Terminal conditions are states between life and death, the critical level of life dysfunction with a catastrophic decrease in blood pressure, profound disturbance of gas exchange and metabolism. Terminal conditions have an unfavorable outcome - up to 80% of patients die.

The purpose of the study: using scientific literature to identify the essence of conditions and their prevention, as well as first aid.

The founder of the study of terminal status is the Soviet's pathologist Georgy Vladimirovich Shor, who in 1925, at autopsy, faced a discrepancy between the severity of structural changes in organs and the degree of their clinical manifestations.

Terminal status arises as the end of life in old age, the outcome of an uncurable disease, the result of an accident. As practice shows, death occurs most quickly in weakened patients, with fever and an accelerated metabolism. The main pathogenetic factor is progressive hypoxia accompanied by the transition of metabolic processes to aerobic glycolysis. The duration of the status ranges from several minutes to two days.

Clinicians differ the following symptoms: tachycardia resulting into bradycardia, expressed signs of centralization of blood circulation - pallor, grayness or cyanosis of the skin. Breathing is deep and rapid, exhalation is active. However, as the process progresses the depression of the respiratory center develops, respiratory movements slow down, breaths are rare. Independent living is impossible. As a rule, consciousness is absent; normal reflexes of any type at a later stage fade and are replaced by pathological ones; and there is no reaction to pain.

Pathologists, together with resuscitators, identified the following conditions: preagonal status, characterized by impaired consciousness and convulsions; terminal pause, when there is no breathing and the pulse is slowed down, the reaction of the pupils to light is absent; agony or an outbreak of vital activity is characterized by the restoration of consciousness, increased heart rate and the presence of breathing; and clinical death close to biological one. Manifestations of clinical death are considered to be the cessation of breathing and cardiac activity, blood circulation.

The term 'clinical death' is inaccurate because it is a reversible condition. Moreover, the term suggests that a person dies twice. And biological death is an irreversible state in which all attempts to revive are unsuccessful.

Speaking about terminal status, it is necessary to say about first aid. First aid should be provided immediately. It is important to restore airway patency, to start artificial respiration to organize a cardiac massage and perform a precordial beat. However, there are cases when first aid is not provided. Resuscitation is not carried out only for oncological diseases, when there are metastases, and for irreversible brain damages.

Preventive measures to avert terminal conditions are extremely important. These include - careful monitoring of patients' conditions in intensive care units, daily laboratory blood tests, monitoring of the external respiration function and cardiac activity. Any existing deviations should be corrected at an early stage.

Summary: terminal conditions play a crucial role in training of the medical profession, since these conditions are reversible and timely medical care prevents the possibility of biological death.

THE USE OF RONCOLEUKIN IN COMPLEX TREATMENT OF PATIENTS WITH STEROID-DEPENDENT BRONCHIAL ASTHMA

Motalygina A., Tolstova I. – the 6th year students
Scientific leaders – Assoc. Prof. I.V. Kostrova, O.I. Katina

Bronchial asthma (BA) is one of the most urgent problems of great medical and social significance. According to the prevalence, severity of the course, complexity of diagnosis and therapy, and treatment costs, this nosology occupies a leading place among other chronic non-communicable diseases.

In patients with severe hormone-dependent BA, against the background of prolonged intake of systemic glucocorticoids and high doses of IGCS, secondary immune insufficiency is formed. It is characterized by inhibition of the cellular and phagocytic link against the background of activation of the humoral link of the immune system, cytokine imbalance with a predominant prevalence of cytokines produced by T2 cells. Factors forming a severe course of BA: insufficient volume of anti-inflammatory therapy; concomitant diseases (hypertension, coronary heart disease, diabetes mellitus, GERD and others), occupational hazards, low social level, as well as viral and bacterial infections of the respiratory tract, polyvalent sensitization, fungal sensitization, combination of asthma with drug allergy.

In patients with severe hormone-dependent BA, serum cortisol levels are inversely related to the dose and duration of HCG therapy. Therapy of BA patients with systemic steroids in suppressive doses induces and exacerbates cortic dependence.

The use of Roncoleukin against the background of combined basic therapy of severe hormone-dependent asthma is clinically safe and leads to an improvement in the function of external respiration, a significant increase in the content of cortisol in the blood serum, positive changes in the cytogram of BPH, a decrease in the inflammatory process in the bronchi, a decrease in the frequency and severity of exacerbations, an increase in the remission period, the ability to reduce the dose of systemic HCG. In the immune status there is an increase in the proliferative and activation ability of lymphocytes, the change of the immune response from the T2-type to the Thi-type. In patients with severe hormone-dependent asthma with frequent episodes of acute infections (more than 10 per year), it is most advisable to use Roncoleukin or Bestim. Roncoleukin is used with detected defects of cytokine status, as well as to achieve the necessary rapid and significant changes in the immune status. The use of Roncoleukin, Bestim, and Wobenzyme immunomodulators in the complex basic therapy of patients with severe hormone-dependent asthma with concomitant VIN syndrome is justified, safe, and clinically effective. It leads to normalization of altered immune status parameters, correction of secondary deficiency, allows, by reducing the frequency of intercurrent infections, to increase the effectiveness of basic therapy and improve control over the course of the disease.

FOOD SECURITY IN THE RUSSIAN FEDERATION

Bukhunishvili K. – the 2nd year student
Scientific leaders – Cand.Biol.Sc. I.A. Kreshchenok, O.I. Katina

Every year, the question of how to feed a person, the population of the country, the world, is becoming more acute for the state and the world economy. Ensuring food security is one of the most acute global problems of our time. Almost 10% of the world's population is hungry, and despite the measures taken, the number of hungry people is only increasing. Agriculture is the basis for ensuring food security in any country in the world and requires mandatory state support.

Food security should be considered at four levels: international, national, regional and local. The goals, objectives and main directions of the state socio-economic policy in the field of ensuring food

security of the Russian Federation are reflected in the Doctrine of Food Security of the Russian Federation, approved by Decree of the President of the Russian Federation №20 of 21.01.2020. Food security of the Russian Federation is a state of socio-economic development of the country, in which the food independence of the Russian Federation is ensured, physical and economic accessibility of food products meeting mandatory requirements (in volumes not less than rational norms of food consumption necessary for an active and healthy lifestyle) is guaranteed for every citizen of the country. Russia fully provides its citizens with basic types of food: grain, meat and fish products, sugar, vegetable oil and other products. However, the reasons for the problems of availability of food products in our country may be a decrease in the level of income of the population, inflation, as well as excessive demand for various types of products. For example, in 2020, during the pandemic, the population bought buckwheat, flour, canned food, which led to a shortage of goods.

The issue of food adulteration is acute. Counterfeit dairy products, meat and fish products are most often detected. In this regard, the state pays close attention to business activities aimed at the production and turnover of food products, including their sale to the final consumer. The state of Russia's food security has become extremely acute in recent years due to the sanctions of a number of states and external economic restrictions. Problems arose with the supply of ingredients and raw materials for production, as well as packaging.

There was a rise in the price of products, which affected the availability of food for citizens. Thus, food security is an integral part of national security and the key to public health.

THE ROLE OF NEW CORONAVIRUS INFECTION IN OPHTHALMOLOGICAL PRACTICE

Bukhanovskaya Yu. – the 6th year student

Scientific leaders – Yu. Shchegortsova, O.I. Katina

The eyes are one of the ways in which the SARS-CoV-2 virus enters the human body. Pathogens can get into them with the hands - that is why during a pandemic it is recommended to wash or disinfect them often, try not to touch your face.

According to the American Academy of Ophthalmology, an outbreak of coronavirus infection can cause viral follicular conjunctivitis.

It is known that transmission of SARS-CoV-2 most often occurs by airborne through close contact with infected patients or through direct contact with infected people or contaminated objects. Social isolation and personal protection are essential to prevent the spread of infection. Virus-containing aerosol particles released into the environment during sneezing, coughing and exhalation can enter the mouth, nasal mucosa and conjunctiva. For this reason, WHO states that all healthcare workers being in contact with a patient suspected of having COVID-19 should cover their eyes, mouth, and nose with goggles, masks, filter masks, and a face shield.

Transmission of the new coronavirus through the ocular surface and mucous membranes is of great concern to ophthalmologists. In 2004 S. Loon et al. published a study made in Singapore in which they collected tears from 36 patients with suspected SARS over 12 days and analyzed them by PCR. Eight of these patients were subsequently serologically diagnosed with SARS, while lacrimal fluid samples from 3 patients (37.5%) tested positive by PCR. The study noted that ophthalmologists and other healthcare professionals work in close proximity to patients' eyes and this may be a way of transmitting infection. Infection can be transmitted by applanation Goldman tonometry, contact lenses and spectacle frames.

G.D. Seitzman, T. Doan stated that the healthcare industry accounts for 11% of virus infections and occurs mainly through airborne transmission. They noted that the risk of contamination with this

infection is much higher with slit lamp examination and other ophthalmic imaging applications where there is closer face-to-face contact because the number of viruses are especially high in the nasal cavity. Since SARS-CoV-2 can survive in the air for at least 3 hours, they recommend not talking during the slit lamp examination and keeping the examination time as short as possible.
The main complaints with conjunctivitis, with which a person comes to an ophthalmologist:
• redness of the eyeball, swelling of the eyelids and mucous membranes of the eyes;
• the appearance of pain, itching, burning sensation in the eyes;
• the occurrence of lacrimation, sensitivity to light;
• discharge from the eyes (they may be purulent or mucous, thick, watery, yellow, green).
How to cure conjunctivitis:
- viral - with the help of warm compresses, an aqueous solution of furacilin, as well as preparations containing interferon and acyclovir;
- Magnetotherapy device "Solnyshko" (AMnp-02 Magniton) with a low-frequency alternating magnetic field. During the procedure, the charged particles of the body interact with a low-frequency magnetic field having a pronounced anti-inflammatory and analgesic action;
- ultraviolet lamps "Solnyshko" (quartz and bactericidal) as a complex therapy and general prevention.
It is extremely important to educate patients to take precautions to prevent infection through the ocular surface. Patients should be advised not to rub their eyes and to avoid any contact of unwashed hands with their eyes. Hygiene should be strictly observed, especially when using contact lenses, and the use of glasses should be recommended instead of lenses if necessary.

THE MAIN RISK FACTORS OF ISCHEMIC HEART DISEASE

Kozlova A. – the 5th year student
Scientific leaders – Cand.Med.Sc. I.P. Soluyanova, O.I. Katina

Ischemic heart disease (IHD) is a general concept that combines acute and chronic pathological processes with a similar pathogenesis. The development of the disease is directly related to the lack of oxygen that enters the heart muscle. Due to oxygen starvation, the myocardium begins to lose its ability to perform its functions. The more the site of the defeat, the stronger the clinic of the disease will be expressed. In some cases, blood circulation in coronary vessels stops so sharp that there is an acute oxygen deficiency with all the consequent consequences.
There are main risk factors of ischemic heart disease.
Smoking. Smoking produces a very significant increase in the risk of suffering an infarction. It is one of the most common risk factors and, at the same time, one of the most preventable.
High Blood Pressure. It damages artery walls and can accelerate the atherosclerosis process. Quitting smoking, losing weight and exercising are a few ways of reducing blood pressure. These also have a very positive influence on the state of arteries.
The chance of suffering an infarction increases with age. This increment is significant in men over 45 years and women over 55. This age difference between men and women regarding the onset of greater risk is due to the influence of hormones on the blood vessels.
Hypercholesterolemia. Elevated LDL cholesterol or triglyceride levels have been linked to a greater risk of coronary disease. However, a high HDL cholesterol level offers protection against an infarction. A healthy diet and regular exercise are excellent ways of increasing the amount of HDL cholesterol.
Diabetes. Increased blood glucose levels (sugar levels) have been associated with a greater risk of an infarction. It is important for individuals to maintain good control over their blood sugar, either with

tablets or insulin. Losing weight, eating an appropriate diet and exercising regularly can all be of great help when it comes to controlling sugar levels.
Genetics. A family history of angina pectoris or infarction (heart attack) can imply a genetic predisposition. If your family background includes men under 55 or women less than 65 years old who have suffered an infarction, then this should be taken into account. If a family member has experienced an infarction at an older age it is most likely due to normal ageing rather than a genetic component.
Obesity. Being overweight is increasingly common in today's society and worsens the other risk factors. Even losing just a little weight can be very beneficial for the cardiovascular system.
Stress. Stress and anxiety trigger hormonal mechanisms that can, in the long term, damage arteries.
Drugs. Some drugs, e.g. cocaine or amphetamines, can modify how the arteries work and cause a vascular spasm; the artery contracts and stops the blood flow. Cocaine consumption is a relatively common cause of heart attacks, especially in the younger population.
Preeclampsia. Women experiencing preeclampsia during pregnancy or autoimmune diseases may have an increased risk of suffering a future infarction.
Thus, it can be concluded that the problem of ischemic heart disease has been and remains very relevant and, definitely, significant for modern society as one of the main causes of population decline. Therefore, it is very important to take actions to prevent or control them.

HISTORY OF DEVELOPMENT OF THE DEPARTMENT OF PHYSICAL CULTURE WITH A COURSE OF THERAPEUTIC PHYSICAL CULTURE

Sakharova E. – the 5th year student
Scientific leaders – Cand.Ped.Sc. F.S. Mironov, O.I. Katina

Since 1988, the head of the department is Candidate of Pedagogical Sciences, Associate Professor F.S. Mironov. Scientific and methodological work has been intensified. In 1990, 1991, 1994, 1996, 1998, 2000, 2011 the collections of scientific papers were published under the editorship of F.S. Mironov and O.A. Mironova, associate professor, the head of the course of exercise therapy and VC. The data of scientific problems studied at the department were published in these collected articles.
Five regional, two zonal, three youth scientific and methodological conferences were held with the involvement of leading scientists from the Far East region, students and schoolchildren from the Amur region. The staff of the department works on scientific problems: "Assessment of the level of the physical and functional state of students and their dynamics in the learning process". The second direction: "Motivation of students' education in the medical academy and the role of the department of physical culture in the formation and training of students". The pedagogical staff of the chair participates in this work. The results are reported at Russian, zonal, regional conferences. Students of the academy are involved in this problem.
Annually, since 2001, the ASMA Department in cooperation with the Faculty of Physical Culture of the Belarusian State Pedagogical University and the Regional Sports Committee for Physical Culture and Sports hold the Far Eastern scientific and practical conferences with the publication of collections of reports. In terms of educational research work (ERW) of students meetings of circles are held. The final cathedral conference is annually conducted in the following blocks: natural science, biomedical, cultural and historical, educational, psychological and emotional.
Guidelines for self-study of students and the population of the Amur Region were published by F.S. Mironov, A.V. Kramarenko, L.V. Dmitrieva, Yu.L. Uzlov, O.A. Mironova. Students of a circle take part with reports at regional conferences and a separate section at student conferences of ASMA.

The Honored Worker of Physical Culture and Sports of the Russian Federation A.S. Zheleznichenko, Honored Worker of the Higher School of the Russian Federation A.L. Kuklashov, the head of exercise therapy course, Honored Doctor of the Russian Federation O.A. Mironov have been working at a chair over thirty years.

Excellence in physical culture and sports of Russia confer to Yu.L.Uzlov, V.I.Mironenko, young employees Candidates of Medical Sciences S.A. Alatartsev and V.S. Fomina, S.V. Reznikova, O.V. Koptsev.

Over the past decade, the academy has trained more than ten Candidates for Masters of Sports in orienteering and power triathlon (powerlifting) and athletics as well as kettlebell lifting. A team of kettlebell lifters consisting of A. Panko, V. Gigaev, A. Telesheva, A. Pavlik twice won the final competitions of medical universities of the Russian Federation - twice became prize-winners. Men's track and field team led by V.I. Mironenko is a multiple winner of relay races in honor of Victory Day and the autumn relay race. The orienteering team led by Yu.L. Uzlov is a leader of the city and regional competitions.

TELOMERES - THE "BIOLOGICAL CLOCK OF THE CELL". THE ROLE OF TELOMERASE IN ONCOGENESIS

Bobryshev S., Matafonova A. – the 2nd year students

Scientific leaders – Doc.Med.Sc., Prof. E.A. Borodin, O.I. Katina

Telomeres are end sections of chromosomes consisting of hundreds of repeating strictly defined nucleotide sequences (TTAGGG)n. At telomeric sections of chromosomes, DNA is bound to telomeric DNA-repeats by proteins forming a nucleoprotein complex-structural telomeric heterochromatin. This sequence is organized into a T-loop structure. The T loop binds to specialized proteins, including the Shelterin complex consisting of six proteins: TRF1, TRF2, RAP1, TPP1, TIN2, and POT1. This protein complex protects telomeres from DNA repair mechanisms and regulates telomerase activity. Lack of Shelterin causes telomere unsealing, signaling damage to DNA section that can lead to homologous directed DNA repair, non-homologous joining of DNA ends, aging, or apoptosis. Some of the telosome proteins are involved in DNA damage response mechanisms, such as DNA protein kinase. Others take part in nuclear organization, such as laminin-associated proteins (LAP) and silent information regulator (Sir) proteins, which are also involved in epistatic control of telomere length.

With each cell division, telomerase shortens by 3-6 nucleotides per cell cycle, as eukaryotic DnA polymerase is unable to synthesize a copy of DnA from the very end due to the problems of end-DNA replication manifested in the inability to fully restore the telomere length at each DnA resynthesis. As an incomplete replication of linear DnA molecules results out of removal of the end RNA - capping, the 5'-end of the daughter chain shortened is observed.

The division limit of somatic cells is defined by the Hayflick limit and is approximately 50-56 in humans. Thus, human cell telomeres shorten by approximately 150-300 nucleotides over the course of a lifetime. Reaching the minimum telomere length capable to protect chromosomes from damage is a signal for cells to exit the mitotic cycle. On this basis, telomeres are considered to be the "biological clock of the cell".

Telomerase, a ribonucleoprotein enzyme that adds repeated specific DNA nucleotide sequences (TTAGGG) to the 3' end of the DNA at telomere sites using the RNA matrix, thus preventing telomere shortening, counteracts these events.

This enzyme consists of telomerase reverse transcriptase (TERT), telomerase RNA (hTR or TERC), and dyskerin (2 molecules of each compound). The two telomerase subunits are encoded by 2 different

genes. TERT is shaped like a mitten, which allows this compound to attach to the chromosome and also to add single-stranded telomeric sites. TERT is a reverse transcriptase that creates single-stranded DNA from a single-stranded RNA as a template.
Telomerase activity is usually absent in cells of normal tissues from which the tumor originates (the only exceptions are hematopoietic stem cells, testicles, and fetal ovaries).
Telomerase activity of tumor cells contributes to a high proliferative potential, while telomere incompleteness during ongoing cell division forms genetic instability, causes additional mutations and chromosomal aberrations underlying tumor progression.
At present, we can predict the development of the following trends designed to suppress telomerase activity in tumor cells:
- oligonucleotide antibodies, which have the advantage that the RNA matrix of telomerase ensuring its active interaction with the telomere is at the same time highly tropic to bind to nucleic acids, including oligonucleotide antibodies.
- introduction of normal chromosome 3 containing a telomerase suppressor into tumor cells;
- use of dendritic vaccines which stimulate the formation of cytotoxic T-lymphocytes to hTERT-fragment of telomerase.

DIAGNOSIS OF THROMBOPHILIA IN YOUNG PATIENTS AND THE EFFECTIVENESS OF SECONDARY PREVENTION OF THROMBOGENESIS WITH DIRECT ORAL ANTICOAGULANTS

Krivutca V. – the 6th year student
Scientific leaders – Prof. V.V. Voitsekhovsky, O.I. Katina

The term "thrombophilia" refers to a predisposition to thrombosis with an early onset at a young age, a burdened family history, a severity of thrombosis that is disproportionate to a known causative factor, and episodes of thrombosis recurrence.
Purposes of the study are to examine patients of young age who have had a reported fact of thrombosis of various localization with the absence of an obvious causative agent for markers of hematogenous thrombophilia and to evaluate the possibilities of using the direct oral anticoagulants for secondary prevention of thrombosis.
Material and methods. Totally, 81 patients (50 men, 31 women) aged 17 to 45 years were examined. Somatic diseases that also included secondary thrombophilia complicated by thrombosis were excluded. The age of the examined people: 5 patients aged 17 - 20 years, 28 persons were 21 – 30 years old, 38 individuals were at the age of 31 - 40, 10 examined patients - 41 - 50 years. In 32 patients (38%), the disease debuted with pulmonary embolism; in 11 cases (14%) – with ischemic stroke; in 3 (5%) - myocardial infarction; in 35 (43%) - venous pathology of the lower extremities. In 30 patients recurrences of vascular complications were already reported at the time of diagnosis.
Results. In 72 people (43 men, 29 women) the following markers of thrombophilia were detected: 30 patients had F5 Leiden mutations, prothrombin F2 G20210A in 15 patients, MTHFR in 25 people, antithrombin III deficiency in 6 and protein C in 13, hyperhomocysteinemia in 30, primary antiphospholipid syndrome (APS) - in 20 patients. Six patients had a mutation in only one gene, while in the remaining cases a combined form of thrombophilia was diagnosed. In 55 cases, there was heredity for pathological thrombus formation.
Acute thrombosis was treated according to the national and international guidelines. For the purpose of secondary prevention of thrombosis dabigatran (Pradax) was prescribed to 37 patients; duration of admission is from 12 months to 9 years; the dose of the drug was selected individually from 150 to 300 mg per day. Rivaroxaban (xarelto) was prescribed to 25 patients for 12 months to 6 years; the

dose of the drug is 10-20 mg per day. The drug apixaban (eliquis) was prescribed to 10 patients (30-50 years old), the duration of treatment was from 6 months up to 2 years, dosage - 5-10 mg per day. After the dabigatran administration only one patient had a relapse of PE due to low adherence to treatment. Other patients had no recurrence of thrombotic complications. Hemorrhagic complications were not diagnosed while using dabigatran and apixaban. Five patients treated with rivaroxaban experienced minor nosebleedings; three patients hadn't experienced it when the dose was reduced from 20 to 15-10 mg; two patients were put to dabigatran use. No life-threatening bleeding was reported. Angiovit was prescribed for hyperhomocysteinemia. Their commercial preparations were used in patients with congenital deficiency of protein C and antithrombin III.
Conclusion. Timely diagnosis of a variant of hematogenous thrombophilia in young patients with thrombosis and the appointment of adequate therapy contributes to a relapse-free course of the disease.

PSYCHOPHYSIOLOGY OF EMOTIONAL STATES

Sukhov Z. – the 2nd year student
Scientific leaders – Doc.Med.Sc, Assoc.Prof. T.A. Batalova, O.I. Katina

The concept of "state" is currently a general methodological category. The study of states is stimulated by the needs of practice in the field of sports, psychohygiene, educational and work activities. In the most general terms, "state" denotes the characteristic of the existence of objects and phenomena, the realization of being at the given and all subsequent moments of time.
From the point of view of the effectiveness of the activity performed, two classes of functional states are usually distinguished:
1. the state of adequate mobilization, when all systems work optimally and meet the requirements of the activity;
2. the state of dynamic misalignment, in which various systems either do not fully provide activities, or the systems operate at an excessively high level of waste of energy resources.
By physiological nature, a person is always active. Therefore, the functional states of a person differ in the degree of activity of functional systems: resting states and working functional states. The latter change in the process of human work, therefore, there are phases of change in working capacity: pre-start, starting, working out, stable working capacity, fatigue and recovery.
Approaching the functional state as a process, the following generalized typologies of states are identified:
1. Borderline or transitional; the observed shift in the values of physiological indicators is considered as a norm due to specific conditions of vital activity.
2. Stress states characterized by mobilization of protective mechanisms and increased activity of regulatory mechanisms.
3. States of overstrain characterized by a shortage of adaptive reserves and a marginal load on homeostatic mechanisms.
4. Premorbid states in which there are: a) the stage of depletion of regulatory mechanisms with nonspecific homeostasis disorders; b) proper premorbid states.
The main function of psychophysiological states is the adaptation of the organism to the changed conditions of existence. The same condition is included in several, since it corresponds to several classification grounds at the same time.

THE PROSPECT OF ROBOTICS WITH HUMAN REPRODUCTIVE FUNCTION

Bezubtsev D. – the 3rd year student
Scientific leaders – Doc.Med.Sc., Prof. V.V. Grebenyuk, O.I. Katina

Relevance: Exclude the pathology of newborns, interrupted pregnancy, including unwanted.
Goal: To improve the demographic indicators of the population of the Russian Federation.
Own research: In an effort to better study the human reproductive system, scientists of the I. I. Mechnikov Northwestern State Medical University have created a simple model of the female reproductive system in the laboratory. We, in online forums, analyzed this medical experiment, the purpose of which is to launch a reproductive cycle with the addition of a hormone stimulating the formation of follicles to the system. This stimulated the mouse ovaries to produce estrogen. After 14 days, the specialists added luteinizing hormone, which prompted the ovaries to release an egg and produce the hormone progesterone. The egg remained in the ovarian cavity, but the second cavity, covered with tissue from the female fallopian tubes, began to act as if the egg was passing through it. In this model, as in women, the tissues in the fallopian tubes contain cilia. It is they who move the eggs to the uterus. Hormone receptors were produced in the third and fourth cavities "lined" with human tissues of the uterus and cervix. This medical experiment clearly demonstrated the possibility of in vitro fertilization using robotics.
Conclusion: Thus, humanity is striving for the moment when robotic women with an artificial reproductive system will be created. Currently, robots are being developed with a built-in ectogenesis system, which is an artificial reproductive system for carrying a human child. A mechanical uterus will be built into the robot's system, in which fetal development is possible with the help of special devices.

HISTORY OF MEDICAL REHABILITATION DEVELOPMENT

Olkhovskaya E. – the 4th year student
Scientific leaders – Cand.Med.Sc. S.V. Reznikova, O.I. Katina

The term "medical rehabilitation" in the Russian scientific literature refers to the restoration (rehabilitation) of the physical and psychological status of people who have lost this ability due to illness or injury.
Rehabilitation as a way of restoring the impaired body functions has been known since ancient times. Ancient Egyptian doctors used some methods of occupational therapy to restore their patients more effectively. Doctors of Ancient Greece and Rome used physical activation of patients and occupational therapy in medical complexes. In these countries the massage was widely used as a hygienic and therapeutic tool.
Since 18th century, medical rehabilitation in Europe has been increasingly combined with elements of psychological support for patients. In 19th century, the rehabilitation therapy center moved to the USA. Since the beginning of 20th century, there has been an increasing number of institutions that use various types of physical activity of patients to solve psychological problems.
Medical rehabilitation began to develop intensively during the First World War. Orthopedic hospitals for the treatment of war invalids were established in the UK by that time, in which occupational therapy was widely used, conducted under the guidance of specialists. This experience has been used in our country.
After the Second World War, rehabilitation services and centers began to be created in different countries. Rehabilitation became the subject of concern of public organizations and became a separate discipline. The first rehabilitation center was established in Leningrad on the basis of the multidisciplinary hospital No. 40 of the Sestretsky district in 1980.
At the moment, rehabilitation is intensively developing in our time. Medical rehabilitation is a set of measures aimed at restoring the lost abilities of the patient as much as possible after various diseases. This is an active process, the purpose of which is to achieve full recovery of functions disrupted due

to illness or injury, or, if this is unrealistic, optimal realization of the physical, mental and social potential of a disabled person, the most adequate integration of him in the society.

ON CARDIOVASCULAR RISK FACTORS - HISTORY AND PRESENT DAY

Martynov S., Eremin A. – the 2nd year students
Scientific leaders – Doc.Med.Sc., Prof. E.A. Borodin, O.I. Katina

Relevance: Among many problems of both theoretical and clinical medicine, cardiovascular disease (CVD), which is the leading cause of death worldwide, is a sad priority. Therefore, different aspects of heart disease are important for students throughout their years of study at the ASMA, and the knowledge gained is used in many fields of medicine, as well as in their own ontogenesis. Purpose of the work is to analyse the problem and study the risk factors of CVD. For this purpose the method of scientific-theoretical research is used. We applied the reserve of scientific sources in the databases: "PubMed", "e-Library", "Scopus", etc.

According to WHO, cardiovascular disease causes around 17 million deaths annually, accounting for 31% of all other causes of death in the world's population. Heart disease now accounts for 16% of all deaths worldwide. In the 21st century, heart disease also remains the leading cause of death worldwide for more than 20 years: it has never taken as many lives as it does today. RosStat has recorded a steady increase in cardiovascular diseases and over the last five years a negative increasing trend has been noted: cardiovascular disease mortality in Russia is higher than in many European countries and accounts for about 58% of the total mortality rate. In terms of the number of deaths per 100 thousand people in Russia it is 2 times higher than in European countries and 1.5 times higher than the world average. In Russia the mortality was: 2000 - 1231373 people, 2010 - 1151917 people, 2020 - 841207 people. The Amur Region – mortality amounted: 2000 - 3.661 persons; 2010 - 6.784 people; in 2020-5.136 individuals.

The second aspect demanded for the purpose of creative research is the epidemiology of CVDs, which studies and explains the onset of the diseases of civilization enveloping the world. In the late 1950s, the international medical community drew attention to the rising prevalence of coronary heart disease (CHD) and the high mortality rate from CVDs. The association of blood pressure (BP) and high cholesterol (CH) with coronary heart disease (CHD) and mortality was first shown by the Freming Study (FI). The Freming Scale also showed that, in addition to gender, age, high blood pressure (BP) and cholesterol (CH) content, factors associated with unhealthy lifestyles (smoking, low physical activity, obesity) were important causes of CHD. FI introduced the concept of "risk factor" (FR), which is now generally accepted. The underlying causes of CVDs are age-related factors in the context of urbanization and technological progress, and, as a consequence, changing dietary patterns and decreasing physical activity in the population. The study of risk factors has become a prerequisite not only for their analysis in the diagnosis of diseases, but also constitutes a modern system of preventive work among the population for parents, children, starting from school age, for all age groups. The gender aspect of CVDs is also relevant, including the problem of atherosclerosis.

We have taken an interest in nutritional factors, including dietary cholesterol that enters the human body including the chicken egg in the human diet. According to scientific data, one chicken egg contains between 185-186 mg of cholesterol. The product is the most optimal in terms of the content of essential and substitutable amino acids for humans, but data on the optimal rates vary considerably. There is no standard norm for the body, as it will be individualized due to: genetic predisposition, age factor, degree of physical activity, constitutional features of the person. Scientists are inclined towards 500 mg of cholesterol per day, which defines the possibility of eating 2 eggs per day provided additional cholesterol is obtained from other foods. In animal experiments, food phospholipids (PL)

have an effect on liver lipid metabolism, cholesterol levels, and bile acid synthesis. In animals, the level of lipids in the liver depends on the FLs consumed in the food, and this may be a consequence of the mediating effect of FLs on lipid absorption in the intestine. Choline in the diet is essential for the health of the liver itself. The main, but not the only source of choline, is an egg yolk. Studies have shown that, when eggs are consumed, blood cholesterol levels do not rise and increased plasma HDL cholesterol levels help to prevent CVD, thus HDL levels are inversely proportional to the development of atherosclerosis. Egg phospholipids (EPs) are an important component of all dietary intake of EPs, which in turn are involved in processes inextricably linked to CVD pathology: absorption of cholesterol and other lipids, lipid metabolism in the liver and inflammatory reactions. The increase in HDL associated with egg-FL intake may increase reverse cholesterol transport and slow down atherogenesis. At the same time, an atherogenic factor such as trimethylaminoxide (TMAO) is increased in plasma with heavy egg intake, but these studies are promising for the next decade to date. However, awareness of risk factors for CVDs, including atherosclerosis, implies an action: researching one's own heredity to establish genetic predisposition, avoiding smoking and alcohol, correcting diet and weight, physical exertion to reduce the risk of stroke and heart attack, and, of course, medical check-ups.

THE MAIN RISK FACTORS OF ARTERIAL HYPERTENSION

Sayapina M. – the 5th year student
Scientific leaders – Cand.Med.Sc. I.P. Soluyanova, O.I. Katina

Arterial hypertension is a condition in which systolic blood pressure is 140 mm.hg or more and/or diastolic blood pressure is 90 mm.hg or more (provided that these values are obtained as a result of at least three measurements made at different times against the background of a calm environment, and the patient did not take drugs that change blood pressure the day before the measurements).

Arterial hypertension affects about 25% of the adult population. With age, the prevalence increases and reaches 65% in people over 65 years of age. Isolated systolic arterial hypertension predominates in old age, while it occurs in less than 5% of the population under the age of 50. Before the age of 50, arterial hypertension is more common in men, and after 50 years — in women.

The main risk factors for arterial hypertension are:

Heredity - long-term observations of large groups of the population show that blood pressure increases more often in people who have patients with arterial hypertension among first-line relatives.

Age – in men, the risk of developing hypertension increases after 35 years, in women after 45 years.

Overweight - there is a close correlation between overweight and increased blood pressure. Overweight increases the risk of hypertension from 2 to 6 times.

Irrational nutrition - studies indicate that the use of table salt in an amount exceeding the physiological norm leads to an increase in blood pressure. The average salt intake should not exceed 5-6 g.

Low physical activity - studies show that people who lead a sedentary lifestyle or are untrained, the risk of developing hypertension is 2 times higher compared to those who lead a more active lifestyle or are trained.

Excessive alcohol consumption - regular alcohol consumption leads to an increase in blood pressure in both men and women.

Psychoemotional stress - many people are subjected to stressful influences in everyday life, at work, in the family, which also contributes to an increase in blood pressure, especially various types of acute stress increase blood pressure.

Thus, it can be concluded that most of the risk factors can be controlled, and only some cannot be changed. The more risk factors a person has, the higher the probability of developing the disease. Therefore, it is very important to take actions to prevent or control them.

FEATURES OF DEONTOLOGY IN RENDERING PRIVATE MEDICAL SERVICES

Khotulev V., Tarasovskaya A. – the 3rd year students
Scientific leaders ¬– Cand.Med.Sc. E.V. Magalas, O.I. Katina

Private medical practice is the provision of medical services by medical workers of non-state and municipal healthcare systems at the expense of personal protective equipment for citizens or at the expense of enterprises, institutions and organizations, including medical insurance organizations, in accordance with concluded agreements. Blagoveshchensk has more than 120 institutions providing private medical services. Between 2000 and 2010 in conditions of rising prosperity, commercial medicine has become more in demand. To date, the mass clinic in the country of the republic is 38%. In an atmosphere of rigid competition, the main tasks of a private clinic are to retain existing customers, as well as attract new ones.

Among the priority criteria for choosing a clinic are: the qualifications of doctors, the effectiveness of treatment, the accuracy of diagnosis, a wide range of services, and innovative diagnostic technologies. For many consumers, the primary reason for deciding whether or not to be treated at a given private clinic is the first impression of meeting a doctor. And here the appearance, the level of culture, and the manner of behavior matter.

Deontology is an element of business within private medicine. Most of the complaints of patients in private clinics about poor service are caused by the indifferent, cold, and often abusive attitude of the staff. It should be noted that meeting of the requirements of dissatisfied patients occurs not at the expense of the attending physician, as a result of communication with which the patient had claims, but at the expense of the clinic.

However, it should be remembered that even the deontologically correct provision of medical services cannot face the so-called “consumer terrorism” - a situation where a patient illegally tries to receive a discount, free service or financial compensation through complaints and threats. Clinics, without delving into what is happening, admit their guilt and fulfill the requirements of an unscrupulous consumer: they pay compensation, conduct expensive diagnostics at their own expense and organize treatment. Therefore, it is very important to improve the legal literacy of all clinic staff.

Deontological principles operate in the same way in both public and private clinics. There should not be a stereotype that the attitude towards the patient in state hospitals is obviously terrible, and in private centers it is unambiguously excellent. The patient remains to be a patient at all stages of providing him with medical care, in any of the institutions, when talking with any medical worker. Therefore, knowledge of deontology is a guarantee of high-quality medical care services.

FEATURES OF THE LIPID COMPOSITION OF NERVOUS TISSUE

Karpushko A. – the 2nd year student
Scientific leaders – Cand.Med.Sc., Assoc.Prof. E.V. Egorshina, O.I. Katina

Lipids are a diverse group of bioorganic substances with a common property — solubility in nonpolar solvents.

Lipids are very important for humans. They are present in food, are found in the composition of medicines, they are actively used in various industrial sectors. Lipids are present in all cells of the human body. Derived from food, they are a source of energy.

In turn, the lipid composition of the brain is unique not only in terms of the high concentration of total lipids, but also in terms of the content of their individual fractions here. Almost all brain lipids are represented by three main fractions: glycerophospholipids, sphingolipids and cholesterol, which is always found in a free, not esterified state, characteristic of most other tissues.

There are practically no triglycerides and free fatty acids in the brain. The white and gray matter of the brain differ both in concentration and in the distribution of individual lipids. White matter contains less water, significantly more lipids and proteolipids. Based on raw weight, white matter contains 3 times more lipids than gray one. Phospholipids in white matter make up slightly less than half of all lipids, and in gray – 2/3 of the total amount of lipids. Gray matter is much richer in gangliosides, all other differences in the lipid composition between white and gray matter is primarily due to the presence of myelin. Lipids are not only structural components of the central nervous system, but also the most important participants in functional activity. The brain is characterized by high lipid content (approximately 50% dry weight).

The brain has a high ability to synthesize fatty acids; in the brain, practically, there is no β-oxidation of fatty acids; the rate of lipogenesis in the brain varies at different times of the postnatal period; the constancy of the composition of lipids in the mature brain confirms the low rate of their renewal in general; phosphatidylcholine and phosphatidylinosite are updated the metabolism of cholesterol, cerebrosides, sphingomyelin, phosphatidylethanolamine occurs slowly in the brain; the rate of cholesterol synthesis in the brain is high during its formation. With age, the activity of this process decreases. Synthesis of cerebrosides and sulfatides proceeds most actively during myelination.

DISORDERS OF MOVEMENT AND ACTION REGULATION IN HYPOTHALAMIC LESIONS

Bordacheva K. – the 2nd year student

Scientific leaders – Cand.Biol.Sc. S.N. Gasanova, O.I. Katina

Hypothalamus is the supreme autonomic center, the coordination place of nervous, endocrine, and humoral regulation of vital functions of the body. Hypothalamic area has connections with all parts of nervous system. Afferent pathways terminate to hypothalamus from cortex, extrapyramidal system, optic tubercle, sensory organs. It is also the main subcortical center of autonomic functions integration. Hypothalamic lesions cause hypothalamic syndromes being a combination of autonomic, endocrine, trophic disorders.

Etiological factors of hypothalamus lesions: infections (flu, rheumatism, tonsilogenic intoxication); allergic factors; craniocerebral trauma; intoxications - medication, industrial; inflammatory diseases of internal organs by type of repercussion; psychogenic (caused by connections with limbic system); cerebral vascular diseases (hypertensive disease, atherosclerosis, vasculitis).

Clinical classification of hypothalamic syndromes.

1. Neuro-endocrine-exchange syndrome: non-sugar diabetes, hypothalamic obesity, Icenko-Cushing's disease, Babynsky–Fröhlich's syndrome, acromegaly, persistent galactorrhea-amenorrhea syndrome, Morgagni-Stevart-Morel's syndrome.
2. Disorders of thermoregulation: hyperthermia (permanent, aroxismal), hypothermia, chills-like hyperkinesis, "chill" syndrome.
3. Neuromuscular syndrome (myasthenic; myopathic; myatonic; myoplegic.)
4. Nerve and trophic syndrome, including malignant exophthalmus, altered hair growth, osteoporosis, atropathies, gastrointestinal ulcers.
5. Sleep and wakefulness disorders: hypersomniac conditions, narcolepsy, Pickwickian syndrome, periodic hibernation syndrome, hypothalamic insomnia.

6. Psychopathological syndrome: depressive, hypochondriacal, neurasthenic.
7. Autonomic-vascular-visceral syndrome characterized by the occurrence of crises (sympathetic-adrenal, vagoinsular, mixed autonomic-visceral).
8. Hypothalamic epilepsy: stereotypical structure of vegetovascular-visceral crises, different degrees of consciousness disorder, tonic seizures are characteristic.
Thus, only one small part of the brain plays an important role in human life. If a person loses part of his brain, it is likely that he will not be able to live on his own.

NEUTROPHIL EXTRACELLULAR TRAPS

Bordacheva K. – the 2nd year student
Scientific leaders – S.V. Barannikov, O.I. Katina

Neutrophils, also known as neutrophil granulocytes or polymorphonuclear leukocytes, are the most numerous white blood cells in the human bloodstream. They play a key role in innate immune defense against bacteria, fungi, viruses, and they pose a potential danger to the host.
Mechanisms of antimicrobial and cytotoxic action of neutrophils include phagocytosis, formation of reactive oxygen species (ROS), and degranulation of several microbicidal factors such as α-defensins, cathelicidin, elastase, cathepsin G and lactoferrin. Neutrophils also have a remarkable capacity for de novo biosynthesis of chemokines C-X-C and C-C; pro-inflammatory, anti-inflammatory and immunoregulatory cytokines, as well as angiogenic and fibrogenic factors.
Comparatively recently, another way of destroying pathogens by means of traps has been studied. In 2004, Brinkmann with coauthors reported about the release by neutrophils of a cellular network of chromatin fibrils carrying antimicrobial peptides and enzymes released from granules capable of killing Gram-positive and Gram-negative bacteria. Such a cellular network is called neutrophil extracellular traps (NVTs) by the way of its protective action.
It was found that NVLs are composed of strongly decondensed chromatin fibrils and have a diameter of 15 to 17 nm. The fibrils, formed from components of neutrophil nuclei, form complexes with microbicidal globular proteins such as elastase, cathepsin G and myeloperoxidase, which are normally stored in neutrophil granules.
NVL are released into the extracellular space, where microbes are trapped in the chromatin network; this limits their spreading and allows the concentration of factors by the neutrophils themselves, thus enhancing the microbicidal action. The release of NVL represents the main defense mechanism in cases where the size of the pathogens makes the process of phagocytosis impossible.
The movement of neutrophils toward the area of inflammation induces the release of a special form of NVL called aggregated NVL, which binds to proinflammatory cytokines such as IL-1β and IL-6, forming compounds with them - sequestrants. The cytokines then undergo degradation by serine proteases, after the NVL network works.
Studies in the last 5 years have shown the effectiveness of NVLs in protecting the body against fungal microspores. Thus, NVLs can also act as regulators of the inflammatory process, as they can act as a key component in the initiation and resolution of inflammation.

VACCINATION OF A NEW CORONAVIRUS INFECTION. CURRENT DATA

Galushko D., Dragomeretskaya E. – the 4th year students
Scientific leaders – Cand.Med.Sc., Assoc.Prof. E.G. Kulik, O.I. Katina

The new coronavirus infection (COVID-19), which has assumed the character of a pandemic since March 2020, continues to spread at a high rate, despite enhanced prevention and treatment

measures implemented worldwide. Vaccination is considered to be one of the most promising methods of combating COVID-19. Currently, a number of vaccines from various manufacturers are already available and an active vaccination campaign is underway. The speed of the emergence of new vaccines against SARS-CoV-2 raises legitimate questions about the thoroughness of studying their effectiveness and safety in clinical trials and is a cause of concern both from the general population and from some representatives of the medical community. There are three main approaches to the creation of vaccines – application for the synthesis of a whole virus, its individual components or genetic material.

After the first cases of a new coronavirus infection COVID-19 appeared in Russia, a new drug Gam-COVID-Vac (trade name “Sputnik V”) was created and studied on animals and healthy volunteers in the shortest possible time on the basis of existing developments. It was the very first vaccine in the world developed by the N.F. Gamalei National Research Center for Epidemiology and Microbiology. August 11, 2020 it was registered. The Sputnik V coronavirus vaccine belongs to a vector type in which another attenuated or non-replicative virus is used to deliver the target virus, in the structure of which particles of a pathogenic microorganism are embedded. According to the developers, the body is provided with immune protection for up to 2 years with an efficiency of 91.6%. In early May 2021, a vaccine, Sputnik Lite, was registered in Russia, which is the first component of the Gam-COVID-Vac.

Vaccines consisting of individual fragments of the virus, such as proteins, are called subunit. Subunit vaccines due to the use of smaller components can reduce the frequency of allergic reactions. Subunit vaccines for the prevention of COVID-19 are "EpiVacCorona" from the FBUN SSC VB "Vector". According to the developers, the vaccine is effective against all strains of SARS-CoV-2, since when the virus mutates, the key proteins included in the composition do not change their structure. Whole virus vaccines include inactivated, live attenuated, and viral vector-based vaccines. For the production of the first two types of vaccines, the target virus causing the disease is used but in an inactivated or weakened form. The inactivated virus is not capable of replication, so its use in the vaccine is safe. Examples of such vaccines for the prevention of COVID-19 are CoronaVac vaccines from SinovacBiotech, as well as the Russian KoviVak vaccine from the M. P. Chumakov FNCRIP of the Russian Academy of Sciences. This vaccine does not contain antibiotics and preservatives. The immunological efficacy is 85%. There are no severe local and systemic reactions.

According to WHO recommendations, vaccination is indicated for all people who do not have contraindications, including those who have already had COVID-19, due to the risk of re-infection, and people with concomitant pathology, due to the fact that the benefits of vaccination exceed the possible risk.

THE CENTURIES OF THE GREAT WAY OF ANATOLY ALEXANDROVICH SMORODINTSEV

Novotorzhentseva A. – the 5th year student
Scientific leaders – P.K. Soldatkin, O.I. Katina

Smorodintsev Anatoly Alexandrovich is the son of a doctor. After graduating with honors from Tomsk University (1923) and having worked for three years as an assistant at the Bacteriological Institute, he moved to Leningrad to specialize in microbiology at the Institute of Experimental Medicine and simultaneously combines the position of head of the bacteriological laboratory of the Central Institute of Obstetrics and Gynecology in Leningrad.

As head of the Department of Bacteriology (1933-1937) at the Leningrad Institute of Epidemiology and Bacteriology named after L. Pasteur, Anatoly Alexandrovich, together with Academician

Pavlovsky, organized his first expedition to the regions of Siberia and the Far East. Studying the clinic and epidemiology of a severe infection associated with tick bites, they first developed and tested an anti-tick vaccine on the expedition members, including themselves, which allowed to dramatically reduce the frequency of severity of tick-borne encephalitis and mortality from it. In 1936-1938 A.A., Smorodintsev developed the world's first weakened influenza vaccine.

Together with his talented colleagues, he developed and implemented a polio vaccine, which he tested on his granddaughter. In 1959, about two million children in the USSR were vaccinated with the vaccine. Widespread immunization has led to a sharp decrease in morbidity and in some areas to complete elimination with this disease. In addition, scientists have synthesized a vaccine against mumps and rubella.

Under the direct supervision of A.A. Smorodintsev, a measles vaccine was produced in 1960 at the Leningrad Pasteur Institute, which began to be widely used throughout the USSR in 1967.

In 1936, he was awarded the title of professor due to the brilliant quality of the results of the scientist's research. In 1958, he defended his thesis on "The development of experimental viral infection and immunity in animals against the background of radiation sickness". In 1970, there was a defense on the topic "Interferon induction in humans and various groups of interferon inducers during influenza epidemics in the USSR".

Anatoly Alexandrovich Smorodintsev is a virologist with a capital letter (bacteriologist, immunologist), professor, the founder and the first director of the Influenza Research Institute, full member of the USSR Academy of Medical Sciences, academician Petrovskaya A.N., WHO consultant, the head of the Laboratory of Childhood Infections at the Pasteur Institute. Anatoly Alexandrovich is the winner of the Stalin (1941) and Lenin (1963) prizes. He was awarded with the Orders of Lenin, Friendship of Peoples and the "Badge of Honor", medals and many awards. The scientist is rightfully considered to be one of the world's largest authorities in the field of virology, epidemiology and specific prevention of viral diseases.

SKIN. AGE FEATURES OF THE ORGAN

Zaharchenko M. – the 2nd year student
Scientific leaders – O.I. Katina

Age-related features of the skin after 30 years of age: the processes of keratinization begins in the skin, the number and quality of connective tissue elements that ensure its elasticity decreases, the complexion becomes duller and uneven, the contours begin to sag and dissolve. With an age the epidermis becomes thinner, although the number of cell layers remains unchanged. The number of melanocytes decreases as the skin ages, making it thinner and more transparent.

After 40 years of age, the dermis begins to thin, with destruction of fibrous structures. The reduction of cellular elements, thickening of vessel walls, and atrophy of sweat glands occur. The rate of basal cell division decreases, the basal layer thins, in turn, the horny thickness increases. As a result of this process, the skin, especially dry skin, becomes similar to parchment. At the level of the dermis, collagen and elastic fibers thicken, their arrangement becomes more chaotic, the regeneration process slows down. The skin loses elasticity. Gradual disturbance of microcirculation leads to a decrease in trophicity.

The formation of lines and wrinkles - internal factors in the development of wrinkles and lines are: age, gender, genetic predisposition, and race. External factors: UV radiation, weather and climate effects, diet, and addiction to tobacco and alcohol.

Foods that can slow down skin aging: tomatoes, oily fish, pumpkin seeds. These foods can help us maintain healthy and clear skin, fight with wrinkles and help to slow down aging.

FETAL HEMOGLOBIN. THE ROLE OF FETAL HEMOGLOBIN IN LIFE OF A FETUS. WHY IS IT REPLACED AFTER BIRTH

Oprishko O., Zaharchenko M. – the 2nd year students
Scientific leaders – O.I. Katina

Hemoglobin F (HbF) is a fetal type of human hemoglobin. HbF is a heterotetramer protein consisting of two α-chains and two γ-chains of globin, or hemoglobin α2y2. This variant of hemoglobin is also present in the blood of an adult, but normally it is less than 1% of the total amount of hemoglobin in the blood of an adult and is determined in 1-7% of the total number of red blood cells. However, in the fetus, HbF is dominant, the main one.

The role of fetal hemoglobin in fetal life:

1) Carrier role: HbF has an increased affinity for oxygen and allows a small volume of fetal blood to perform oxygen-supplying functions effectively - it is the main oxygen carrier;

2) Distinctive composition: HbF has less resistance to destruction and less stability in a physiologically wide range of pH and temperatures. HbF has a composition different from adult forms of hemoglobin, which allows it to bind oxygen more strongly. Thus, the developing fetus can extract oxygen from the mother's bloodstream passing through the placenta found in the uterus.

Why is it replaced after birth? During the last trimester of pregnancy and shortly after the birth of a child, HbF is gradually replaced — during the first few weeks, in parallel with an increase in blood volume — by "adult" HbA, a less active oxygen transporter, but more resistant to destruction and more stable at different blood pH and body temperature values. Such substitution occurs due to a gradual decrease in the production of gamma chains of globin and a gradual increase in the synthesis of β chains by maturing erythrocytes.

Hereditary hemoglobinopathy occurs due to mutations of genes responsible for the synthesis of certain amino acids in the beta chain of globin, in which, after the birth of a child, there is no gradual replacement of HbF with adult HbA.

ACID-BASE BALANCE DISORDERS

Semenova S., Titova V.-the 2nd year students
Scientific leaders- Cand.Med.Sc., Assoc. Prof. E.V. Egorshina, O.I. Katina

Essential in the life of the organism is ABB - the ratio between substances that have acid and alkaline reactions. The result of this balance is the constancy of the blood pH value of 7.36-7.44. Only within these limits cells can actively function and their enzyme systems work.

Under conditions of normal life, the body is exposed to the effects of acidic or basic compounds in connection with the intake of a variety of foods and the formation of metabolic products, changes in the functioning of the excretory systems. The regulation of ABB is supported by powerful systems - chemical and physiological regulation. Violation of ABB is acidosis and alkalosis.

Acidosis is a life-threatening condition in which the acid-base balance in the body is disturbed. As a result, blood pH drops below 7.35. Acidosis in humans occurs due to an increase in the concentration of organic acids and ketones, which are metabolic products, or a decrease in their concentration due to the intake of certain types of food.

Acidosis occurs when carbon dioxide and carbonic acid accumulate in the body due to a violation of external respiration or an increase in the level of carbon dioxide in the environment. This form of acidosis is called gas (respiratory) acidosis. Respiratory acidosis accompanies broncho-obstructive diseases, for example it occurs during attacks of bronchial asthma. Diseases accompanied by the development of gaseous acidosis: primary lesion of the lungs, neuromuscular diseases, diseases of the

central nervous system, the effect of drugs. Metabolic acidosis occurs with metabolic disorders, diabetes mellitus, hypoxia, fever, starvation, renal failure, acid poisoning. Severe acidosis is life threatening. Initially, acidosis increases respiration, and later causes its oppression, a disorder of nervous activity, up to acidotic coma.

THOUGHT EXPERIMENTS IN ANALYTICAL PHILOSOPHY

Krechetova E. – the 2nd year student
Scientific leaders - G.K. Ezri, O.I. Katina

In the XX century, thought experiments became popular in psychology and philosophy. They evaluate possible choices and behaviors in certain situations and tasks. Thought experiments are also used for argumentation in the exact sciences. In philosophy, thought experiments are used to problematize or clarify debatable philosophical concepts and propositions. This circumstance determines the relevance of the topic. The purpose of this article is to consider thought experiments in the analytical philosophy of consciousness as a method of argumentation.

In analytical philosophy, thought experiments reduce the tasks set to the problem of choice on the principle of "what happens if". The most famous experiment is the problem of moral choice in a thought experiment with a trolley (according to the condition of the task, it is necessary to choose to knock down one or five people with a trolley). Similar problems can also be built on paradoxes and choices between two optima. However, according to a number of thinkers, this method is not always accurate.

The problem of human consciousness is of considerable interest in philosophical anthropology. Solving this problem, it is also necessary to consider the interaction of consciousness and brain, mind and body. The solution of these issues can determine the essence of human existence in the world and show its uniqueness.

Consider for example four thought experiments – "Swamp Man", "Brain in Houston", "Philosophical zombie", "Chinese Room". In the first case, the question is asked whether our exact copy, which does not have our memory, will be considered us. Actually, what defines a person is the physical body, the ability to "seem" themselves or the experience of connection with people, memory and experience. In the second case, a person is asked not to be sentimental, not forgetting that the whole body works thanks to one particular organ - the brain, and when it is disconnected from the body, no other organ can help the body, because even life support devices support life in a person with brain damage, and not his death. In the third case, it is clearly shown that a person is not just a biological machine capable only of reacting to various environmental influences. After all, if we admit that zombies (according to analytical philosophers, these are insensitive rationally thinking beings who copy people's emotional reactions) are equal to humans, then there will be a simplification of the nature of human consciousness and thinking. In the fourth case, it is shown that it is impossible to determine the presence of consciousness by external signs (the appearance of the manifestation of awareness is not awareness itself).

Conclusion: So, in analytical philosophy, thought experiments are correct and noteworthy research methods, and their results are arguments. Thought experiments are also actively used in the analytical philosophy of consciousness, where they allow us to study the essence of human consciousness, the criteria for its manifestation, the importance of the degree of awareness and the influence of memory and experience on consciousness and its formation.

THE IMPACT OF SPORTS NUTRITION ON THE HUMAN BODY

Kim E., Protsenko P. – the 2nd year students
Scientific leaders - Doc.Med.Sc., Prof. E.A. Borodin, O.I. Katina

Everyone knows that a person daily spends energy, which he gets with the consumption of food. As for athletes, they use much more energy to achieve their goals. Of course, the amount of food they consume is greater than that of the average person. Athletes use specialized foods to replenish their energy, but it also help build muscle mass and maintain a balance of proteins, fats, and carbohydrates. The daily norm of nutrients for athletes is: proteins - 150-200 g, carbohydrates - 230-250 g, fats - 90 g.

The main types of sports nutrition are proteins (concentrated protein used for building muscles), gainers (allow the body to obtain the maximum amount of energy and form an optimal glycogen reserve in muscles), amino acid nutrition (supports the health of all organs and restores power after heavy physical exertion), creatine (stores energy in muscles and accumulates ATP).

Proteins are the most popular of all nutritional supplements. They contain complete proteins that contain 9 essential amino acids: alanine, arginine, asparagine, cysteine, glutamine, glycine, proline, serine and tyrosine. Their concentration is about 70-95%. Muscle growth in this type of diet is provided by the BCAA complex (valine, isoleucine, and leucine). Protein breaks down into amino acids as it is digested in the body. Amino acids derived from protein prevent muscle tissue breakdown during intensive exercise and promote active muscle growth because they are essential building materials. According to the origin there are the following types of proteins: whey, egg, casein, soy, beef, multicomponent.

Gainers - the main mass of useful substances are carbohydrates. During exercise, glycogen in the muscles, which is the main reserve of energy in animals, is quickly spent. After a workout, the muscles begin to absorb large amounts of carbohydrates (mostly glucose) from the food for the process of glycogenesis.

Immediately after a workout, there is a "protein-carbohydrate window" that lasts about 60 minutes. If you eat an ordinary meal rich in amino acids after exercise, the amino acids will enter the bloodstream only 2-3 hours later, after the protein-carbohydrate window has closed, and the desired effect will not occur. But if you take free amino acids, which are synthesized in 15 minutes, the body absorbs several times more nutrients and, consequently, the effect of training is increased. Amino acid nutrition, precisely, contains these fast-digesting amino acids and helps accelerate recovery after exercise.

Creatine is the second most popular amino acid among athletes after protein nutrition. This amino acid is produced in small quantities in the human body, but for the person, who is actively engaged in sports and plans to increase his muscle mass, this is not enough, so the best solution is to use creatine. Creatine itself is a carrier of phosphate groups in the muscles and thus provides them with additional energy. Correspondingly, it rapidly increases muscle energy and makes the muscles stronger and more enduring. In addition, creatine retains water in the muscles, which greatly accelerates their metabolism and recovery, so that the muscles grow faster and look more resilient and full due to the fluid.

If you take vitamin B6 along with amino acids, you can achieve better results in sports, because this vitamin is used for the synthesis of protein. Sports nutrition plays an important role in training and processes of an active lifestyle. In today's world, biologically active substances are firmly entrenched in our lives: supplementing the daily diet, they play a vital role in the functioning of the body. In athletes a properly selected set of supplements helps to successfully achieve their goals and maintain their health.

FOOD HYGIENE OF TROOPS

Trubnikova A., Komarov D. – the 3rd year students
Scientific leaders – Doc.Med.Sc., Prof. N.V. Korshunova, O.I. Katina

Military operations must be conducted by trained professionals. In order the military could accomplish the tasks set by the leadership, they must have skill, courage, perseverance, etc. But it is also worth mentioning the equipment of the troops and the observance of standards of hygiene during military operations. Nutrition is an indispensable link in the successful accomplishment of the mission.

Combat effectiveness of troops and the state of health of servicemen largely depend on adequate nutrition. Medical control of nutrition in field conditions becomes of great importance; when difficulties in timely provision of troops with food, especially fresh vegetables, and in some cases with preparation and distribution of hot food may occur. Meals for soldiers and officers are organized: on the march (boiler allowance); in offensive combat (personnel in the first echelon receive hot meals at least twice a day, in the second echelon - three times a day); in defensive combat (hot meals are prepared 2-3 times a day, with two meals a day intermediate supply).

Even during World War I, not to mention the wars of past centuries, there were mass phenomena of avitaminosis, food poisoning, and other diseases associated with malnutrition, including infectious diseases, which incapacitated more soldiers than combat injuries. The role of medical control in conditions of possible environmental contamination by radioactive, potent chemicals and biological agents (BS) is especially increasing. The specifics of work associated with the operation of modern combat equipment, the stay of troops in different weather conditions require differentiated nutrition, its adequacy to specific conditions. Under field conditions, especially in summer, it is necessary to observe strictly the sanitary-hygienic requirements when choosing the place for deploying the food-station, when bringing and storing food and drinking water, the maintenance of kitchens, equipment and utensils, as well as food processing and cooking. The area selected for the deployment of the food point must be sanitary and epidemiologically sound. If necessary, it is cleared of debris and foreign objects. If the food station remains in one place for a long time (more than a day) in the summertime, places for washing kettles and toilets are equipped. The waste pit is covered with a lid from improvised materials. The toilets for the personnel of the household section should be located no closer than 75 meters from the kitchens.

Drinking water for cooking must comply with the applicable SanPiN. Food products for military personnel should be supplied only with documents certifying their quality and safety, containing information about their shelf life and storage conditions. The storage conditions and shelf life of all types of food should be observed in accordance with the requirements of technical normative legal acts. Storage of food should be carried out taking into account the commodity proximity.

Conclusion: Thus, food should be in military conditions safe in composition, full in quality, and sufficient with quantity.

THE CATARACT

Ermak V. - the 2nd year student
Scientific leaders – Cand.Med.Sc. D.A. Semyonov, O.I. Katina

The lens is a transparent biconvex body whose shape changes during the accommodation of the eye to see near and distant objects. Together with the cornea and the vitreous body, the lens composes the main refractive medium. The crystalline lens has a curvature radius of 6 to 10 mm and a refractive index of 1.42. The lens is covered by a transparent capsule 11-18 μm thick. It is the basal membrane of the epithelium, which contains collagen, sulfated glycosaminoglycan, etc. The anterior wall of the

lens consists of a single-layer squamous epithelium (epithelium lentis). The epithelial cells become higher towards the equator and form the growth zone of the lens. This zone is a cambial zone for the cells of the anterior and posterior surface of the lens. The new epitheliocytes are transformed into lens fibers (fibraelentis). Each fiber is a transparent hexagonal prism. In the cytoplasm of the lens fibers there is a transparent protein - crystallin. The fibers are glued to each other with a special substance that has the same refractive index as they do. The centrally located fibers lose their nuclei, shorten and, overlapping each other, form the nucleus of the crystalline lens. The crystalline lens is maintained in the eye with the help of the ciliary girdle (zonula ciliaris) formed by radially arranged bundles of inextensible fibers attached to the ciliary (ciliary) body on one side, and to the lens capsule on the other, whereby the contraction of the ciliary body muscles is transmitted to the crystalline lens. Since the lens has no blood and lymph vessels, there is no inflammation in it, and due to the lack of innervation, there is no pain sensation. In 99.9% of the cases, the acquired lens diseases are related to the loss of transparency and only in 0.1 % of the cases it is related to its location (dislocation or subluxation).

The most common pathology of the lens is clouding. Any clouding of both the lens substance and its capsule is called a cataract. According to etiology, acquired cataracts are divided into: senile, complicated, occupational, and traumatic. All acquired cataracts have a progressive nature of their development. Aging cataracts develop in 60-90% of people over 60 years of age. The pathogenesis of cataract development at this age is related to a decrease in soluble proteins and an increase in insoluble proteins, a decrease in amino acids and active enzymes, and a decrease in ATP. Cysteine is converted to cystine. All this leads to clouding of the lens. Pre-aging cataracts are distinguished among senile cataracts - coronal cataracts occur in 25% of people who have reached puberty. The semilunar opacity extends peripherally to the age-related nucleus, presents as a band with rounded edges, which extends along the periphery of the lens in the form of a corona, sometimes with a blue color. Age-related cataracts vary in localization. Typically, a cataract originates in the lens cortex (cortical cataract), the nucleus (nuclear cataract), or under the capsule (subcapsular cataract). Age-related cataracts usually have a cortical localization of opacities (92%), whereas nuclear age-related cataracts are much rarer in 7-8% of cases.

HORMONES OF THE POSTERIOR PITUITARY GLAND: VASOPRESSIN AND OXYTOCIN

Ermak V.- the 2nd year student
Scientific leaders – Cand.Med.Sc., Assoc. Prof. E.V. Egorshina, O.I. Katina

In the pituitary gland, a number of biologically active hormones of protein and peptide nature are synthesized. They have a stimulating effect on various physiological and biochemical processes in target tissues. Depending on the site of hormone synthesis there are the hormones of the anterior, posterior and intermediate lobes of the pituitary gland. Posterior pituitary hormones are vasopressin and oxytocin.

Oxytocin and vasopressin are short peptides consisting of nine amino acids, they differing from each other by only two amino acids. Vasopressin contains phenylalanine instead of isoleucine at position 3 of the N-terminus and arginine instead of leucine at position 8. Antidiuretic hormone (vasopressin) is mainly synthesized in the supraopticnucleus of the hypothalamus. Vasopressin stimulates contraction of vascular smooth muscle fibers with a strong vasopressor effect, but its main role in the body is limited to the regulation of water metabolism, hence its second name antidiuretic hormone. In low concentrations (0.2 ng per 1 kg body weight), vasopressin has a powerful antidiuretic effect by stimulating the reverse flow of water through the membranes of the renal tubules. The final effect of

vasopressin on the kidneys is an increase in body water content, an increase in circulating blood volume (CBC) (hypervolemia) and plasma dilution (hyponatremia and lower osmolarity).
Oxytocin is produced primarily in the paraventricular nucleus of the hypothalamus. The main stimulus of oxytocin secretion into the blood from the posterior pituitary lobe is irritation of the mammary gland nipples during breastfeeding. Another factor in the release of the hormone into the blood is the stimulating effect on the uterine smooth muscle, increases the contractile activity and, to a lesser extent, the tone of the myometrium. In low concentrations, oxytocin increases the frequency and amplitude of uterine contractions, while in high concentrations it promotes an increase in uterine tone, frequency and amplification of its contractions (up to tetanic contractions or development of uterine contractions). Oxytocin promotes cervical contractions before labor and during the second and third periods of labor. The release of oxytocin during breastfeeding produces moderate but often painful contractions during the first weeks of lactation. This serves to coagulate the blood in the placenta's attachment in the uterus.

THE LARGEST ORGAN

Ermak V. - the 2nd year student
Scientific leaders - N.P. Ambrosieva, O.I. Katina

The skin, cutis, is the largest organ of the human body. It is an important part of a person's personality. By the appearance and condition of the skin it is possible to tell a lot about its owner. The skin is a kind of indicator of emotional states: fear and joy, shame and excitement. Often we judge a person, his condition and mood, by the look of his skin.
The skin performs many important functions necessary for human life. First of all, the skin is the boundary limiting the internal organs from the external environment, being not a mechanical cover or shell, but a complex connective tissue covering with a huge number of nerves and blood vessels. Thanks to them the human body is capable both of maintaining and regulating body temperature. On average the area of skin is equal to one and a half square meters, its weight is 2-3 kg, it contains in 1 cm2 6 million cells, 5000 nerve endings, 100 sweat and 15 sebaceous glands, 200 painful points, 10-15 points that feel pressure, cold and 2 - heat.
The skin is very multifunctional. It can accumulate up to a liter of blood, it secretes fat and sweat (in normal conditions about 500 ml of water and salts dissolved in it, as well as end products of nitrogenous metabolism are secreted with sweat), takes part in respiration being carried out thanks to the work of sweat glands, blood vessels and nerve plexuses forming a dense network in the dermis. It also produces vitamin D (under the action of ultraviolet rays in keratinocytes) and accumulates vitamin A (it changes the expression of genes that can cause malignant degeneration and directs cells towards normal development; controls the keratinization process; increases the rate of division and excretion of sebaceous gland secretion), plays a significant role in water metabolism.
The skin can stretch quite a lot. This property is used in treating burns: thin flaps of skin are removed from the affected person, holes are made in them and, stretching them 5-6 times, they are grafted onto the affected place. People have special, as if spare folds in the area of some joints (the back surface of the fingers), deep furrows, also contributing to the formation of folds (palms). And old age adds sacci under the eyes, second and third chins. By the way, the elasticity of the skin is due not only to its own properties, but also to the connection with the deeper underlying fascia, bones, and fatty tissue.
Our natural barrier (skin) prevents excessive friction, pressure, penetration of germs and some chemicals and water, resists at some extent to vibration and temperature. The external environment through the skin affects the internal organs, and they, in turn, have representation in its certain areas.

Doctors have long noticed these properties, and, for diagnostic purposes, the increased sensitivity of the skin as a projection field is taken into account in the clinic.
Skin is connected with all the organs and systems of the body, and is a kind of screen, reflecting the processes occurring in the body.

WHAT IS THE EFFECT OF GLUTAMATE ACCUMULATION IN THE PREFRONTAL CORTEX ON MENTAL FATIGUE?

Sryvalkin V. – the 2nd year student
Scientific leaders – Doc.Biol.Sc., Prof. T.A. Batalova, O.I. Katina

Scientists have proved that if you think too much and too long, it really can deplete the brain - just as physical exercise tires the body. Intense thinking causes cognitive fatigue. This feeling goes along with making it much harder for a person to focus on a task. As scientists have found out, the brain does in fact get tired; it's not an illusion.
When we feel mentally tired, it means that the brain has accumulated too much glutamate, which makes us feel that way. Glutamate is an excitatory amino acid that was only described in detail in the 1950s, even though it is present in more than 90% of the inter-neuronal connections in the human brain. Neurons have been found to control the strength of their signals in the brain by regulating the amount of glutamate they release to other neurons. Glutamate is able to excite neurons so much that they can die.
To prove this, French scientists analyzed with magnetic resonance spectroscopy the state of the prefrontal cortex in two groups of subjected: one performed difficult tasks for six hours in a row, the other - easy tasks. The subjects in the first group who performed difficult tasks were about 10% more likely to make more impulsive decisions by the end of the day, and their pupils dilated less. In the second group, signs of cognitive exhaustion were much less pronounced. High levels of glutamate were found in the prefrontal cortex of subjects in the first group, about 8% higher than in participants in the second group, and higher than in another brain area (the primary visual cortex).
This implies that if we think too much without interruption, glutamate levels in the brain will go up, making us mentally fatigued and noticing a deterioration in our mental performance. This experiment proves that we simply need to take breaks during mental activity, because this feeling is not an illusion, but a real signal of our brain processing.

TREATMENT OF BRONCHIAL ASTHMA AT THE PRESENT STAGE

Lee Gen Min, Balabanova D. – the 6th year students
Scientific leaders – Doc.Med.Sc, Prof. O.B. Prikhodko, Cand.Med.Sc, Assoc.Prof. I.V. Kostrova, O.I. Katina

The need for maintenance therapy of PKS is no longer a factor confirming the presence of T2 inflammation. In general, the status of maintenance therapy of PKS has been revised. Therapy of PKS is considered as an extreme measure for age groups, more attention is paid to polymorbidity and its effect on the control of asthma and its symptoms. Anti-TSLP has been added as a therapy option for patients with or without T2 inflammation and not receiving maintenance therapy of PCR.
Dupilumab has been added as a therapy option for patients without signs of T2 inflammation, but receiving maintenance therapy with PCR.
The upper limit of the blood eosinophil level for the appointment of dupilumab (1500 cells/μl) has been added and the FeNO value has been included as a strong predictor of the response to dupilumab.

Dupilumab has been added as the preferred drug for the treatment of severe asthma along with omalizumab. According to GINA, data on mepolizumab is still insufficient.
Course 1 — the use of low doses of X-formoterol to relieve symptoms is the preferred approach. It is preferable, since the use of X-formoterol as a drug for symptom relief reduces the risk of exacerbations compared with the use of CDBA, provides similar control of symptoms and improvement of lung function.
Course 2 — the use of CDBA for symptom relief is an alternative approach. It is less effective for reducing the frequency of severe exacerbations. It is used if the patient has a good adherence to the regimen of using the drug to control the course of the disease and there have been no exacerbations in the last 12 months.

PATHOGENS OF HUMAN GRANULOCYTIC ANAPLASMOSIS

Orlova S. – the 3rd year student
Scientific leaders – Doc.Med.Sc., Prof. G.I. Chubenko, O.I. Katina

Anaplasmas were discovered by the English veterinarian Tayler in 1910. The disease in humans (Granulocytic anaplasmosis) was first described by the doctor Bakken in 1991 (USA). The infection is common in the UK, Sweden, USA, and Canada. In Russia, the endemic zones are considered to be Primorye, the Altai and Khabarovsk Territories, and the Novosibirsk Region.
The causative agent of the disease is the Anaplasma bacterium, species A. phagocytophilum, A. marginale. The source and reservoir of infection are white-footed mice, roe deer, forest rats, cattle. Carriers of granulocytic anaplasmosis are ixodes mites, mainly of the following species: I. scapularis, I. pacificus, I. ricinus, I. persulcatus. The infection rate of vectors in Russia, according to various data, is 6-19%. The incubation period is 14 days, it can be shortened to 3 days or lengthened to 3 weeks.
After suction of the carrier, the pathogen with saliva enters the thickness of the skin. Anaplasmas are able to penetrate mature neutrophils. Colonies (morules) are formed inside the cytosol. Infected leukocytes activate the secretion of chemokines that attract lymphocytes and macrophages to reproduction. The onset of granulocytic anaplasmosis is acute, with symptoms of general intoxication: weakness, fatigue, moderate headaches. The duration of the fever period may be more than 3 weeks. With the blood flow, anaplasmas are transferred to the spleen, liver, lymph nodes and bone marrow, where hematopoiesis is disrupted due to induced chemokines, which are strong inhibitors of stem cell proliferation.
The most common symptoms are toxic shock, sepsis, acute respiratory failure, pneumonia (1%), myocarditis, neurological disorders (about 1%) – demyelinating polyneuritis, meningoencephalitis.
In laboratory diagnostics, dark-field microscopy of thin blood smears is used. Morules (vacuoles with anaplasmas) are detected in the first week of the disease. PCR is recommended before starting etiotropic treatment. ELISA becomes diagnostically significant starting from the second week of the disease is performed twice with an interval of 2-3 weeks. Differential diagnosis is performed with human monocyticehrlichiosis and pyroplasmosis.

LYELL'S SYNDROME (TOXIC EPIDERMAL NECROLYSIS)

Mikheiko D. – the 5th year student
Scientific leaders – Cand.Med.Sc., Assoc.Prof. N.E. Melnichenko, O.I. Katina

Lyell’s syndrome is a severe, immunoallergic, drug-induced disease that threatens the patient's life being an acute skin-visceral pathology. It is characterized by intense epidermal detachment and

necrosis of the epidermis with the formation of extensive blisters and erosions on the skin and mucous membranes.
Etiology. There is an allergic reaction to drug treatment, idiopathic reaction.
A reaction develops as a result of a combination of an infectious process. Operations of transplantation of bone marrow and internal organs against the background of an infectious process.
Pathogenesis. Haptens are irreversibly conjugated with body proteins, resulting in the formation of a complete antigen. This complex is perceived by the body as foreign, causing an autoimmune attack on organs containing these proteins; first of all the skin, liver, lungs, gastrointestinal tract.
Clinical picture. Acute onset with fever up to 39–40 °C.
The appearance of erythematous spots on the skin and mucous membranes within 2-3 days turning into flabby thin-walled blisters of irregular shape with a tendency to merge, easily torn with erosion of large surfaces. At the height of the disease, the affected surface resembles a burn with boiling water of II-III degrees. Positive symptoms of Nikolsky and Asbo-Hansen.
Treatment. Management tactics - mandatory hospitalization, patients are treated as burn patients, all drugs are subject to mandatory cancellation, hypoallergenic diet, basic, symptomatic, local therapy.
Symptomatic therapy: Narcotic analgesics. Detoxification and rehydration therapy. Replacement therapy with blood components. Plasmapheresis and hemosorption.HBO. Protease inhibitors. Correction of hemostasis. Antibacterial therapy. Hepato- and nephroprotectors.
Local treatment: Blisters opening is not recommended. Irrigation of erosions. GCS aerosols. Creams, oil talkers, dermatol, xeroform, solcoseryl ointments are used. In case of damage to the mucous membranes, astringent, disinfectant solutions are indicated.

ANTIBIOTIC RESISTANCE OF NON-TUBERCULOSIS MYCOBACTERIA

Kontaleva E., Maznyak I. – the 3rd year students
Scientific leaders – Doc.Med.Sc., Prof. G.I. Chubenko, O.I. Katina

Mycobacterioses are a kind of marker of human immunodeficiency. The increase in the number of patients with immunosuppressions of various genesis and the improvement of the quality of laboratory diagnostics are reflected in the frequency of registration of mycobacterioses.
The main pathogen among fast-growing non-tuberculosis mycobacteria are representatives of M. fortuitumgroup. Due to the wide distribution in the environment, representatives of M. fortuitumgroup are able to cause diseases of pulmonary and extrapulmonary localization.
Sensitivity to a wide panel of antibiotics in non-tuberculosis mycobacteria is determined.
For M. abscessus, it is necessary to determine sensitivity to clarithromycin, cefoxitin and amikacin, and preferably to tigecycline, imipene, minocycline, doxycycline, moxifloxacin, linezolid, co-trimoxazole and clofazimine. In many randomized clinical trials, preserved sensitivity has been proven (80%).
M.aviumcomplex determines sensitivity to rifampicin + ethambutol + clarithromycin or azithromycin. Amikacin is prescribed for severe course or presence of a cavity; with resistance to clarithromycin, fluoroquinols ± amikacin are prescribed. It is recommended to use dual antibiotic therapy (macrolide + fluoroquinolones). Fluoroquinolones are not recommended for starting therapy. They are less active against intracellular pathogens.
For M. capsaicin, monotherapy with acrolides or double antibacterial therapy (macrolide+ fluoroquinolones) should not be used; MIC clarithromycin: feelings. ≤8 mg/ml, interval.16 mg/ml, mouth. ≥64 mg/ml; MIC of amikacin: sensitive. ≤ 64 mg/ml, oral. ≥64 mg/ml.
In M. xenopi, sensitivity to clarithromycin is higher than in other MRNTMB.

Therapy should include 4 antibacterial drugs: rifampicin, ethambutol, macrolides and fluoroquinolones (ciprofloxacin or moxifloxacin) or isoniazid. With a severe course of the disease, active bacterial excretion, the presence of a cavity in the lungs, aminoglycosides should be added to therapy. The median survival rate among untreated patients is 10 months, in the case of ongoing therapy – 32 months.
An adequate effect when using a chemotherapy drug is achieved if its concentrations in blood / tissue exceed the MIC values for at least 40% of the dosing interval.

TYPES OF TERRORIST ACTS AND HOW THEY ARE CARRIED OUT

Protsenko P., Sharapova M.- the 2nd year students
Scientific leaders – Cand.Biol.Sc. I.A. Kreshchenok, O.I. Katina

Terrorism is a policy connected with illegal violent actions, with the purpose of destabilizing the public mood in order to achieve the ideas it proclaims. Currently, terrorism is one of the most widespread problems in the world, posing a threat to all mankind.
There are several types of terrorist acts that exist in our time. One of them is political terrorism, the purpose of which is to change the political situation, according to the perceptions of the terrorists. Intimidation of the population, leading to panic among the people, a general alarm and a feeling of fear, allows the population to distrust the government, helps to weaken the influence of the government on the people and implement their political ideas. Political terrorism can be interstate - spreading to several countries, as well as domestic - activities are carried out within a single country.
The next type of terrorism is nationalist terrorism. It is defined by the desire for superiority of one nation over another and often occurs against the backdrop of interethnic conflicts. Its goal is the destruction of the other nation, the displacement of its culture, sometimes the seizure of land. This type is based on a certain ideology of inequality of different nationalities or races.
Often the terrorists' idea is based on the extermination of certain peoples to create their own "ideal" state. Religious terrorism is one of the most common types of terrorist acts. Its peculiarity is the religious motivation of the people who take part in it. Because of the serious propaganda of certain religious beliefs, which are firmly planted in the minds of terrorists and completely change their worldview, this type of terrorism is one of the most dangerous, as people are convinced of the correctness of their actions. There is the incitement of hatred to people because of different faiths. These acts of terrorism have all the characteristics of fanaticism, according to the terrorists they purify the world on the way to the "new era", they consider themselves the chosen ones.
Another type of terrorist act is criminal terrorism. It is often confused with political terrorism, as the methods and means of their implementation are very similar, but they have different goals. The purpose of criminal terrorism is a shift of priorities in spheres of influence in the state, redistribution of financial flows and so on. This type of terrorism is carried out by representatives of various criminal associations.
Ways of committing terrorist acts are a specific set and sequence of means and techniques used by the perpetrator (terrorist, group or association) to commit a terrorist act.
The most frequent ways of terrorist acts are as follows: terrorist seizure committed both openly and from concealment; mining of important industrial, transport, communication, heating, power and water supply facilities, military facilities, residential and administrative buildings, educational institutions, public places; mining of places of long-term stay or routes of movement of an object of criminal encroachment; use of explosive, flammable and poisonous substances disguised as ordinary objects, as well as of explosive, flammable and toxic substances.

The problem of active terrorist activity is extremely relevant today. Terrorist acts are everywhere: in schools, colleges, public events and other crowded places. Our country counteracts terrorism in the form of preventive conversations in educational institutions, the direct fight against terrorism and the elimination of the consequences. Terrorism is a crime that requires constant monitoring and systematic study of its causes, which should be based on operational, informational, analytical and predictive work of security officers.

FREQUENCY OF OCCURRENCE OF DIALYSIS PERITONITIS IN PATIENTS WITH TERMINAL RENAL INSUFFICIENCY

Nikonova Y., Petrova V., Volkova S.- the 6th year students
Scientific leaders – Cand.Med.Sc. E.I. Smorodina, O.I. Katina

Every year, the number of patients with chronic renal failure increases by 10-12%. On the territory of the Russian Federation, 47 years is the average age of patients receiving renal replacement therapy.

According to the report for the period 2019 – and 2020, up to 48 people received renal replacement therapy by the method of permanent outpatient peritoneal dialysis in the Amur Region.

Peritoneal dialysis is a method of extrarenal purification of the body from metabolic products, excess water and electrolytes, exogenous toxins through diffusion and osmosis through the peritoneum as a natural semi–permeable membrane.

In the Amur Region, permanent outpatient peritoneal dialysis was introduced in 2004 on the basis of the dialysis department of the Amur Regional Clinical Hospital.

The average frequency of dialysis peritonitis is more often up to 6 episodes every 18 months.

Over the past few decades, the number of patients with chronic renal failure has increased in the Amur region. The number of patients on peritoneal dialysis increased diametrically to this.

Thus, peritonitis remains the leading complication of peritoneal dialysis, adversely affecting the prognosis of management of patients with chronic renal failure, in most cases leading to death.

RENE LAENNEC - FOUNDER OF AUSCULTATION

Maznyak I. – the 3rd year student
Scientific leaders – Cand.Med.Sc. I.V. Sklyar, O.I. Katina

Laennek Rene Theophil Hyacinth is one of the founders of modern clinical medicine, who has made a great contribution to the development of modern propaedeutics of internal diseases.

In 1816, Laennec invented a stethoscope, and also developed a method of listening to patients with it, which opened a new era in diagnostics. The idea of the invention came during the examination of one of the patients – an obese young lady with serious suspicions of heart disease. Applying hands and percussion in her case did not give any results – adipose tissue interfered. Rene took a piece of paper, rolled it into a narrow cylinder, put one end to the heart area, and put his ear to the other. The result surprised and pleased him – the heartbeats were heard much more accurately and louder in comparison with the usual ear-to-body application for that time. The idea of the value of such a tool visited Laennek immediately. He realized that in this way it is possible to examine not only the chest, but also, for example, the respiratory organs or the fluids poured into the cavity.

With the help of his primitive stethoscope, Laennek established a number of phenomena observed during listening, and gave them names: egophony, metallic ringing, noise (amphoric, blows, terpugas, saws, inflating bellows), puerile breathing, saccaded breathing, percussion transonance, pectoriloxis, chest constriction.

In the history of cardiology, R. Laennek belongs to the description of cardiac noise and the symptom of "cat purring" in mitral stenosis, pericardial friction noise, the idea of the valvular origin of the 1st heart tone, an indication of the role of blood clots in the self-healing of aneurysms. In addition, the following terms belong to him: capillary bronchitis, hemorrhagic infarction, suffocating catarrh, atrophic cirrhosis, acephalocyst. He was the first who introduced the terms "cirrhosis", "tuberculosis", etc. He determined the specificity of the tuberculosis process long before the discovery of the causative agent of the disease and gave it a clinical and pathoanatomical description, indicating that it is associated with the formation of tubercles in the body. Laennek suggested the possibility of a cure, but ironically he himself died of pulmonary tuberculosis.

MONKEYS POX. RELEVANCE OF THE PROBLEM

Smirnova K., Sderzhikova V. – the 5th year students
Scientific leaders – Cand.Med.Sc. N.A. Marunich, O.I. Katina

Monkeypox is a sporadic anthropozoonotic disease caused by the monkeypox virus and is characterized by fever, general intoxication, and skin rashes.

The last case of natural smallpox infection in natural conditions was registered on October 26, 1977 in the Somali city of Marka. After the elimination of smallpox and the subsequent cessation of the use of smallpox vaccines, monkeypox became the most pathogenic for humans among other orthopoxviruses.

The monkeypox virus was not thought to be spread to humans by airborne droplets, but in 2022 human cases skyrocketed. And the reason may be several factors: from the mutation of the monkeypox virus or the spread goes in a different, unconventional way. One of the confirming factors is the registration of sexual contacts between men in Britain and the Pyrenees.

The main way to reduce human infections is to raise awareness of risk factors and educate the public about measures that can be taken to limit exposure to the virus. There is no specific treatment or vaccine for monkeypox, but prior vaccination against smallpox also provides highly effective prevention of monkeypox. The Vector Research Center of Rospotrebnadzor has completed clinical trials of the fourth-generation smallpox vaccine OrthopoxVac. Vaccine based on attenuated live vaccine virus for the prevention of smallpox and other orthopoxvirus infections. The new drug was obtained by sequentially “turning off” six virulence genes in the original virus.

The key to preventing monkeypox is to raise awareness of risk factors and measures to limit exposure to the virus. The U.S. Centers for Disease Control and Prevention advises avoiding contact with animals that may carry the virus, practicing good hand hygiene, and using personal protective equipment when in contact with sick people.

HUMAN PAPILLOMAVIRUS. THE ROLE OF HPV IN THE DEVELOPMENT OF CERVICAL CANCER

Amatova Ch., Kharitonova A. – the 3rd year students
Scientific leaders - Cand.Med.Sc., A. V. Prokopenko, O.I. Katina

The human papilloma virus belongs to subgroup A of the Human papilloma virus family. The HPV virion is spherical in shape, with a diameter of up to 55 nm. A capsid with a cubic type of symmetry has 72 capsomers. The HPV genome is a single ring molecule consisting of a double DNA chain with a length of 8 thousand base pairs.

More than 190 HPV types have been identified and described. Each type differs by more than 10% from the nearest related strain. Of these, more than 30 types of HPV can infect the epithelial layer of

the urogenital tract. Depending on the oncogenic potential, viruses of high (types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59) and low (types 6, 11, 42, 43, 44) oncogenic risk.
HPV transmission routes:
• sexual;
• vertical (from mother to fetus);
• fomite path.
Sexually transmitted HPV is divided into 2 categories:
1. Strains of low oncogenic risk - viruses of this group do not cause cancer transformation of the epithelium, but only lead to the appearance of condylomas and papillomas.
2. Strains of high oncogenic risk can lead to the appearance of cancerous tumors.
There are approximately 12 strains most often detected in oncological diseases (including 31, 35, 33, etc.). Two of them (type 16 and 18) are responsible for most cancers caused by HPV.
Patients infected with HPV types 16 and 18 often do not have any health complaints. Often, the fact of infection can be established only during a comprehensive examination for sexual infections.
The appearance of neoplasms (papillomas, warts, warts) on the skin is possible with simultaneous infection with several HPV strains (for example, with infection with papillomaviruses of types 16, 18 and 1-6).
Cervical cancer. Almost all cases of cervical cancer are observed against the background of HPV infection. HPV types 16 and 18 in women are detected in about 70% of all cases of cervical cancer.

ORPHAN RECEPTORS - PROMISING PHARMACEUTICAL TARGETS

Trakhanov S., Amatova Ch. – the 3rd year students
Scientific leaders – Professor N. V. Simonova, O.I. Katina

Orphan receptors are cellular receptors established by molecular biology methods, the endogenous ligand of which has not been determined.
By their localization in the cell, orphan receptors, as well as other cellular receptors, can be attributed to the superfamilies of membrane, nuclear and cytosolic receptors.
G protein-coupled receptors (GPCRs) are the most abundant receptor family encoded by the human genome and are the targets of a high percentage of drugs currently in use or in clinical trials for the treatment of diseases such as diabetes and its associated complications.
The nuclear orphan receptors for which endogenous ligands have not been identified include nuclear receptor (NR)0B1, NR0B2, NR1D1/2, NR2C1, NR2C2, NR2E1, NR2E3, NR2F1 chicken ovalbumin upstream promoter transcription factor 1 (COUP-TFI), NR2F2 (COUP-TFII), NR2F6, NR4A1 (Nur77), NR4A2 (Nurr1), NR4A3 (Nor1), and NR6A1 (GCNF).These receptors play essential roles in development, cellular homeostasis, and disease including cancer where over- or underexpression of some receptors has prognostic significance for patient survival. Results of receptor overexpression in vivo and in cancer cell lines demonstrate that orphan receptors exhibit tumor-specific pro-oncogenic or tumor suppressor-like activity.
Although endogenous ligands for the orphan receptors have not been identified, there is increasing evidence that different structural classes of compounds activate, inactivate, and directly bind several orphan receptors. Thus, the screening and development of selective orphan receptor modulators will have important clinical applications as novel mechanism-based agents for treating cancer patients overexpressing one or more orphan receptors, obesity, diabetes mellitus, immunodeficiency conditions and also for combined drug therapies.

ALOPECIA IN PATIENTS WITH POSTCOVID SYNDROME

Nikonova Yu. – the 6th year student
Scientific leaders – Cand.Med.Sc., Assoc.Prof. A.V. Zotova, O.I. Katina

The most common symptoms observed within 6 months after COVID-19 infection were hair loss (in 22% of patients).

Alopecia is a frequent long-term consequence of COVID-19. Of course, there was post-infectious alopecia before the outbreak of a new coronavirus infection.

Hair loss after infectious diseases is traditionally classified as telogen alopecia (TA). They are characterized by diffuse hair loss due to the abrupt transition of hair follicles from anagen to telogen. Postinfectious telogen hair loss observed in patients with a history of COVID-19 infection may develop after 4 or 12 weeks from the moment of infection and last up to 6 months or more with the transition to a chronic form.

There are several assumptions about factors that can directly initiate TA: exposure of pro-inflammatory cytokines that damage hair matrix cells; immune-mediated microthrombotic events in the follicular vascular system; psychological and physiological stress; the use of anticoagulants, enoxaparin in particular, as well as hydroxychloroquine and azithromycin.

It was found that alopecia was more common in hospitalized patients compared to outpatient patients (31.7% vs. 24.3%) and in women compared to men (42.3% vs. 6.2%).

Against the background of severe complications of COVID-19, alopecia at first point does not have serious consequences on the patient's quality of life. But during the rehabilitation period, it is no longer possible to ignore the problem of hair loss, since it has a negative effect on the psychological health of the patient. Therefore, to the therapy of resolving other complications in the post-covid period, it is worth adding methods that suspend hair loss and ensure their normal recovery.

NATURAL MOVEMENT OF THE POPULATION IN THE AMUR REGION 2021-2022

Makhmudova A., Lyalina A. – the 5th year students
Scientific leaders – Cand.Med.Sc., Assoc. Prof. E. A. Sundukova, O.I. Katina

The natural movement of the population is a generalized name for the totality of births and deaths that change the population in the so-called natural way.

According to estimates, the resident population of the Amur Region on July 1, 2022 was 767.8 thousand people. In the first half of 2022, the scale of demographic loss increased - over 6 months the population of the region decreased by 4.7 thousand people, or by 0.61% (a decrease in January-June 2021 - by 4.1 thousand people, or 0.53%). The main source of the decline in the population of the Amur Region is natural one - a general decrease in the population by 55% is due to the excess of the number of deaths over the number of births and by 45% - migration outflow from the region. The natural population decline amounted to 2608 people, while in the first half of 2021 the number of deaths exceeded the number of births by 2978 people. There was a decrease in the number of births (by 158 people, or 4.4%) and the number of deaths (by 528 people, or 8.1%). The decrease in the number of deaths was due to a decrease in the number of deaths from diseases of the digestive system (by 18.0%), neoplasms (by 12.5%), infectious diseases (by 10.8%), diseases of the circulatory system (by 5.1%), coronavirus infection (by 0.9%). The overall birth and death rates were 8.9 and 15.8 people respectively, per 1.000 residents of the region. Natural decline in January-June 2022, as in the corresponding period of the previous year, took place in all municipalities of the region. The number of marriages registered with the registry office increased by 8 compared to January-June 2021, the number of divorces increased by 284. There were 1.019 divorced couples per 1.000 married couples (in the first half of 2021 - 897).

Thus, in the Amur Region in the first half of 2022, the scale of demographic loss increased significantly - by 4.7 thousand people, or by 0.61% compared to 2021 - by 4.1 thousand people, or 0.53%. The main sources of population decline in the Amur Region are natural decline, migration, as well as the number of marriages and divorces registered with the registry office.

MENINGOCOCCAL INFECTION AND WAYS OF ITS PREVENTION

Makhmudova A., Matsenko L. – the 5th year students
Scientific leaders – Cand.Med.Sc., Assoc. Prof. N.A. Marunich, O.I. Katina

Meningococcal infection is an acute infectious anthroponotic disease caused by the bacteria Neisseria meningitidis, transmitted by airborne droplets and characterized by a wide range of clinical manifestations.

Meningococcal infection is most relevant for the children's population. It is they who have a generalized form pronounced as meningococcemia and meningitis in 80% of cases. On the territory of the Russian Federation in 2018, 757 cases of MI were registered, of which 159 patients died. In 2019, 873 people fell ill, 151 cases were fatal. In 2021, 315 cases were registered and 45 of them died. In the first four months of 2022, MI was registered in 181 people.

According to statistics, there is a downward trend in the disease, but this can be associated with a mask regimen and sufficient sanitary and epidemic measures, but mortality statistics are still low. Death can occur in the first days of the disease, due to infectious-toxic shock or cerebral edema with herniation of the cerebellar tonsils into the foramen magnum and hemorrhages.

The onset of MI is acute. Parents indicate not only the day, but also the hour of the child's illness. In children of the first months of life, the onset of the disease is manifested by anxiety, they become lethargic, crying is loud, monotonous, they refuse to breastfeed, stiff neck and Kernig's symptom appear. In young children (up to a year), there is a bulging of a large fontanelle, tension, as well as a positive symptom of Lessage.

For the purpose of specific prevention of MI, several types of vaccines are used in the world: 1) polysaccharide mono- and polyvalent vaccines of serogroups A, C, W135 and Y; 2) conjugated monovaccines (against meningococci of groups C and A); 3) conjugated quadrivalent vaccines (ACWY). Currently, for vaccination against meningococcal infection, polysaccharide and conjugate vaccines are used: meningococcal group A vaccine, polysaccharide dry, meningococcal polysaccharide vaccine A + C, Menactra, Meningo A + C, Mencevax ACWY and Menugate, which differ the number of meningococcal serogroups included in the vaccine (A, C, W-135 and Y). All of the listed vaccines are approved for vaccination in the territory of the Russian Federation.

CAUSES OF AMENORRHEA

Makhmudova A., Lyalina A. – the 5th year students
Scientific leaders - I.N. Salko, O.I. Katina

Amenorrhea is the absence of menstruation in women of reproductive age for 6 months. This violation of the menstrual cycle can be physiological, a symptom of various disorders of the reproductive system, neuroendocrine, benign and malignant diseases. Physiological amenorrhea is the absence of menstruation before puberty, during pregnancy, lactation, and postmenopause. Pathological amenorrhea can be primary and secondary: 1. primary amenorrhea - the absence of menstruation at the physiological age of menarche (subject to the development of secondary sexual characteristics) or 3 years after thelarche, as well as the absence of the development of secondary sexual characteristics and menstruation by the age of 13 years; 2. secondary amenorrhea - the absence

of menstruation for 6 months with a previously irregular menstrual cycle, the absence of menstruation for 3 months with a previously regular menstrual cycle. According to the WHO classification, there are 3 categories of anovulation that can cause amenorrhea: I - insufficient production of estrogens with normal or low levels of FSH, normal levels of prolactin, the absence of lesions in the hypothalamic-pituitary region (HPA, hypogonadotropichypogonadism); II - no obvious decrease in estrogen production, normal levels of FSH and prolactin (PCOS, VDKN); III - an increase in the level of FSH, indicating ovarian failure (POI, gonadal dysgenesis).

Causes of amenorrhea with delayed sexual development: malformations of the gonads (gonadal dysgenesis; testicular feminization syndrome), disorders of the hypothalamic-pituitary system. Treatment: hormone replacement therapy for the development of secondary sexual characteristics and menstrual flow, as well as the prevention of metabolic disorders. Patients with a mixed form of gonadal dysgenesis and Swyer's syndrome are indicated for bilateral gonadectomy due to frequent malignancy of the gonads. Primary amenorrhea without delayed sexual development: malformations of the genital organs: gynatresia (absence of natural openings in the hymen and / or vagina) or aplasia (absence) of the uterus.

Among the secondary disorders of the menstrual cycle according to the type of amenorrhea, there are: amenorrhea of hypothalamic origin (amenorrhea against the background of weight loss, psychogenic, ovarian hyperinhibition syndrome, amenorrhea in Itsenko-Cushing's disease); amenorrhea of pituitary origin (hyperprolactinemia syndrome, postpartum hypopituitarism); amenorrhea of ovarian genesis: (polycystic ovary syndrome, ovarian failure syndrome, resistant ovary syndrome), uterine form of amenorrhea (intrauterine synechia). Treatment: Depending on the severity of symptoms and the level of peripheral hormones, hormone replacement therapy (HRT) is prescribed with glucorticoids, thyroxin, and with amenorrhea, sex hormones. To normalize the ovulatory cycle in polycystic ovaries, hormonal contraceptives are prescribed or laparoscopic diathermocoagulation of the organ tissue is performed (according to indications). Hyperprolactinemia, as a factor in the development of amenorrhea, is eliminated by taking drugs - dopamine agonists that lower prolactin levels. With the uterine form of amenorrhea, surgical dissection of synechia is performed.

Thus, amenorrhea is not an independent diagnosis, but a symptom indicating anatomical, biochemical, genetic, physiological or mental disorders.

IRON DEFICIENCY ANEMIA

Bukhunishvili K. – the 2nd year student
Scientific leaders – Doc.Med.Sc., Prof. E.A. Borodin, O.I. Katina

Iron deficiency anemia is the most common blood disease among various anemic conditions. This problem is very relevant in Russia, doctors of all specialties may face it. The body of an adult contains 4 g of iron an average. More than half of it is concentrated in hemoglobin, 27% is contained in muscles in the form of myoglobin, and 7-8% is deposited in the liver. Iron deficiency anemia is a condition in which there is a deficiency of iron in the body, it provokes a decrease in the number of red blood cells. The main causes of this disease are hidden bleeding, insufficient intake of iron with food and inflammatory diseases of the small intestine. Normally, iron enters the body together with plant and animal food. Part of it accumulates in the mucous membrane of the small intestine, and the rest is absorbed into the blood. In the blood, iron binds to the protein transferrin. Iron absorbed into the bloodstream either enters the liver through the portal vein, where it is deposited in the form of ferritin protein, or is delivered to the cells of the red bone marrow, where it is used for hemoglobin synthesis and participates in tissue redox reactions. If disorders occur at any of these stages, iron deficiency develops in the body.

This disease is characterized by the development of two syndromes: sideropenic and anemic. Sideropenic syndrome is manifested by disorders of the skin and mucous membranes. Anemic syndrome is manifested by rapid fatigue, drowsiness, dizziness, frequent headaches, increased heart rate, and low blood pressure. Anemia is confirmed by laboratory data: a study of clinical blood analysis, serum iron, ferritin. When iron deficiency anemia is detected, iron preparations and a diet are prescribed to patients. In severe anemia transfusion of erythrocyte mass may be required. Today, everyone can face the signs of this disease, so you should pay attention to your health and regularly visit doctors. In most cases, iron deficiency anemia is successfully corrected.

MONKEYPOX: WHAT'S NEW IN TREATMENT AND DIAGNOSIS

Lyalina A. – the 5th year student
Scientific leaders - T.A, Dolgikh, O.I. Katina

Monkeypox (MP) is an acute zooanthroponotic natural focal viral infectious disease common in tropical forests and savannas of the equatorial zone of Central and West Africa and characterized by intoxication, fever and vesicular-pustular rash. The causative agent is a DNA-containing rectangular virus - Monkeypox virus (MPXV). The source of infection is sick with MP - people and animals (rodents, primates).

Diseases of monkeys with the appearance of a vesicular rash in them have been known since the 18th century. Subsequently, MPXV was first isolated and identified in 1958 in Copenhagen during an outbreak in colonies of cynomolgus monkeys imported from Singapore. In 2022, the rapid spread of monkeypox among humans in the world has been noted since May 7. On September 1, 2022, more than 50.500 cases of MP infection have already been registered in 100 countries. The largest number was in the USA, Spain, Brazil.

The preferred specific diagnostic method is PCR to detect MPXV DNA in smears of exudates, imprints of skin elements, and crusts. Reagent kits for DNA detection of variola, monkeypox, cowpox, vaccinia viruses by multiplex polymerase chain reaction and reagent kits for DNA amplification of variola, monkeypox, cowpox, vaccinia viruses with real-time hybridization-fluorescence detection have been developed in Russia. It allows establishing the presence of this pathogen for a few hours.

According to clinical guidelines, there are currently no registered drugs for the etiotropic treatment of monkeypox in Russia. Pathogenetic and symptomatic treatment is used, with an emphasis on skin and mucous membrane care. As an antiviral therapy, the drug NIOCH-14, developed by the State Scientific Center for Virology and Biotechnology "Vector", can be used. This drug is a prodrug whose active metabolite ST-246 (tecovirimate) inhibits the p37 envelope protein present in all orthopoxviruses. According to the scientific literature, Cidofovir and Human Smallpox Immunoglobulin are also claimed as alternative antiviral drugs for the treatment of MP.

So, monkeypox, being an acute zooanthroponotic natural focal viral disease, poses a danger to mankind because of its rapid spread throughout the world. This causes further study and development of etiotropic therapy, and modern specific diagnostics - availability for laboratories.

A CASE OF LONG-TERM SUBFEBRILITY IN A TEENAGER

Lyalina A., Makhmudova A. – the 5th year students
Scientific leaders – Cand.Med.Sc. E.L. Chupak., O.I. Katina

Prolonged subfebrile condition in children of different ages remains one of the most problematic symptoms in terms of the volume of examination of the patient to determine its causes and choose

tactics for further management. The causes of prolonged subfebrile conditions in adolescents can be not only functional disorders of the nervous system, but also infectious, endocrine, oncological pathology.

Child K., 13 years-old, was admitted to the Children's City Clinical Hospital of Blagoveshchensk with complaints of an increase in body temperature to subfebrile numbers. From the anamnesis of the disease, it is known that the child often had colds for 5 months of the year, after which subfebrile condition persisted for a long time, and yellowness of the sclera was noted. He was examined on an outpatient basis, hyperbilirubinemia was revealed. He was not examined further and did not receive treatment. A month before admission to the hospital, he suffered a respiratory infection, after which subfebrile condition persisted. On admission, the child's condition was satisfactory, the state of health did not suffer, the body temperature was at normal levels. Sleep was not disturbed. The skin was pink, clean, respiratory rate - 20 per minute. The thyroid gland was not enlarged. There were no any features from the site of organs and systems.

The results of the examination: a clinical blood test, a general urine test - all indicators are normal, without signs of inflammation. Enzyme immunoassay for cytomegalovirus, Epstein-Barr virus did not reveal antibodies, IgG RG = 1.6 was detected for chlamydia pneumonia (respiratory chlamydia, paste infection, antibiotic therapy, interferons, interferon inducers) were prescribed. In the biochemical analysis of blood, hyperbilirubinemia was noted up to 43.7 μmol/l due to an increase in both direct and indirect bilirubin, which persisted in dynamics, markers of viral hepatitis were not detected (DNA diagnostics was performed, Gilbert's syndrome was confirmed), detoxification therapy was performed. Ultrasound of the internal organs, kidneys, heart, electrocardiography, electroencephalography, X-ray of the skull did not reveal pathology. According to the results of ultrasound examination of the thyroid gland, diffuse reduction of the gland, expansion of the follicles of both lobes was found. Considering these data, a blood test was performed, which showed a decrease in T4 to 9.6 nmol/l, the level of TSH was 3.4 μIU/ml, and antibodies to TPO were not detected. The teenager was consulted by an endocrinologist, diagnosed with autoimmune thyroiditis, and prescribed treatment. 3 weeks after the treatment, the body temperature of the teenager returned to normal.

Thus, the case is interesting in that the causes of prolonged subfebrile condition in a teenager were endocrine and infectious pathology. Subfebrile temperature is recorded in a variety of diseases; therefore, in making a diagnosis, an integrated approach is required when examining a patient.

CHANGES TO THE NATIONAL VACCINATION CALENDAR

Lyalina A., Makhmudova A. – the 5th year students
Scientific leaders - E.V. Figurnova, O.I. Katina

On December 20, 2021, the Order of the Ministry of Health of the Russian Federation dated December 6, 2021 No. 1122n “On approval of the national calendar of preventive vaccinations, the calendar of preventive vaccinations for epidemic indications and the procedure for conducting preventive vaccinations” came into effect.

According to the order, vaccination against hemophilic infection is now carried out for all children, and not just those at risk. According to the updated national calendar, the vaccine should be administered to a child at 3, 4.5, 6 and 18 months along with the pertussis, diphtheria, tetanus and polio vaccine.

The next innovation is that the third revaccination against polio will now be carried out at 6 years old, and not at 14 as it was before. This means that a child can be vaccinated already in kindergarten, and not at school.

Also, three vaccinations and the first polio revaccination will be carried out with inactivated vaccine (non-live or IPV), and the remaining two with oral polio vaccine, OPV, containing live attenuated viruses of the pathogen.
According to epidemic indications, vaccination of "Sputnik M" against coronavirus infection of adolescents from 12 to 17 years old has been included in the preventive vaccination calendar for epidemic indications. It will be conducted voluntarily with the written consent of one of the parents.
Now it is allowed to administer any vaccines (with the exception of vaccines for the prevention of tuberculosis) used within the framework of the national immunization schedule and according to epidemic indications, on the same day with different syringes in different parts of the body.
You can get vaccinated against tuberculosis up to 7 years. The new wording in the document implies that if BCG was not done in the maternity hospital (due to medical contraindications or other reasons), then it can be introduced up to school age.
In the near future, it is planned to replenish the national calendar with a vaccination against papillomavirus infection. Adolescents, girls and boys, will be vaccinated from the age of 14.
The new national immunization schedule will be another step in the management of infectious diseases. And we are talking not only about coronavirus, but also about such important infections as polio and hemophilic infection.

TOFACITINIB IN THE TREATMENT OF FOCAL ALOPECIA

Zhalsanova A., Nikulina A. - the 5th year students
Scientific leaders – Cand.Med.Sc., Assoc.Prof. N.E. Melnichenko, O.I. Katina

An innovative direction in modern medicine is the development of a new class of medicines being low-molecular-weight chemically synthesized substances intended for oral administration.
Tofacitinib (TOFA) is the drug of great interest. It is the first oral reversible inhibitor of JAC (Janus-associated kinases) approved for the use in the treatment of rheumatoid arthritis and psoriasis.
Currently, tofacitinib is included in the KR for the treatment of severe forms of FA.
Tofacitinib is a synthetic low-molecular-weight drug whose effectiveness is comparable to biological drugs. But at the same time, it is devoid of immunogenicity.
Janus kinases (JAKs) are important mediators of signaling of many proinflammatory cytokines. Along with STAT transcription factors, they form a fast intracellular communication pathway between the cytokine membrane and the cell nucleus. Numerous inflammatory dermatoses depend on the transmission of JAK–STAT signals. Therefore, inhibition of transmission along this pathway using JAK inhibitors is the means of choice.
Clinical case 1
The girl, 16 years old, was admitted to the "National Medical Research Center for Children's Health", Moscow a year ago with a diagnosis of total alopecia.
She grew and developed according to her age. Vaccinated by age. The disease debuted in January 2020 after suffering from sinusitis.
Due to the loss of hair, eyebrows and eyelashes, she was observed at the place of residence with a diagnosis of nest alopecia, subtotal form. She received outpatient and inpatient treatment (with the use of systemic corticosteroids) - without effect.
After 9 months of treatment:
Treatment:
Externally on the scalp:
1. Clobetazole Propionate ointment 1 time a day under the supervision of a dermatologist by m/ w;
2. Minoxidil lotion 2% 2 times a day - 3 months;

3. Tofacitinib 5 mg * 2 times a day – for a long time.
Clinical case 2
The 8- years- old girl applied to the "National Medical Research Center for Children's Health", Moscow.
Treatment plan:
1. Inosine + Nicotinamide + Riboflavin + Succinic acid 3 ml + NaCl 0.9% - 150.0 in/in drip;
2. Externally on the skin of the scalp and eyebrows - cream Clobetazole propionate 1 time a day at night;
3. Narrowband medium wave therapy UVB 311 nm;
4. Tofacitinib 5 mg 2 r/d per os.

FEATURES OF THE ACUTE CORONARY SYNDROME COURSE IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Kontaleva E. – the 3rd year student
Scientific leaders – Cand.Med.Sc. I.V. Sklyar, O.I. Katina

Ischemic disease is one of the most common diseases associated with chronic obstructive pulmonary disease. Chronic obstructive pulmonary disease increases the risk of developing cardiovascular diseases by 2-3 times. The relationship of these diseases is indicated by common risk factors: smoking, oxidative stress, heredity. The general pathophysiological mechanisms of the development of pro-inflammatory reactions also speak about the relationship of these diseases. In particular, it is a violation of the mechanism of antioxidant protection and the onset of atherosclerotic processes in the coronary vessels. With the development of endothelial dysfunction against the background of increased atherogenesis caused by pro-inflammatory reactions, there is spasm not only of peripheral and coronary vessels, but also of the vessels of the lungs and bronchi. With local damage to the intima of the vessels, the laminar blood flow is disturbed, a turbulent blood flow is formed with activation of platelets, sedimentation of platelets and leukocytes in the affected area of the endothelium. Against the background of respiratory hypoxemia, oxidative stress of the altered blood coagulation potential towards hypercoagulability, smooth muscle cells proliferate, connective tissue grows - a fibrous capsule is formed, which completes the development of atherosclerotic plaque. Since these changes occur within the framework of systemic inflammation involving all organs and systems, the risk of developing cardiovascular accidents increases significantly. The relationship established between these diseases suggests that the classic symptoms in patients with concomitant lung pathology will have a number of features that may make it difficult to make a correct diagnosis.

The aim of our study was to examine the features of the course of acute coronary syndrome in patients with COPD. A retrospective analysis of 26 case histories of patients with acute coronary syndrome in combination with chronic obstructive pulmonary disease, who were treated in the department for patients with acute myocardial infarction of the Blagoveshchensk City Clinical Hospital, was carried out. There were 22 (84.6%) men and 4 (15.4%6) women; the average age of men and women did not differ and averaged 75.4 years. The duration of chronic obstructive pulmonary disease was -19.7 years, stable angina - 7.2 years. Myocardial infarction (MI) with Q wave was diagnosed in 8 (30.8%) patients. MI without tooth 0 - was in 6 (23%) patients, unstable angina - in 12 (46.2%) patients. When analyzing the prevalence of concomitant diseases, it was revealed that arterial hypertension was the most common in 20 (76.9%) patients. An acute cerebrovascular accident was in 3 (11.5%), postinfarction cardiosclerosis - in 4 (15.4%), chronic heart failure - in 18 (69.2%) patients, hypercholesterolemia - in 12 (46.2%) patients, diabetes mellitus - in 8 (30.7%) patients. Among men, 19 (86.4%) patients smoked, among women - 1 (3.9%). History of smoking was 63.5 pack years.

Overweight was observed in 13 (50.0%) patients. The combination of pain in the heart and shortness of breath was detected in 20 (76.9%) patients, which is due to the presence of both pulmonary and cardiac components. On admission to the hospital, sinus rhythm on the ECG was registered in 15 (57.7%) patients, atrial fibrillation - in 4 (15.3%) patients, extrasystole - in 37 (27.0%). The heart rate averaged 95.6 per 1 minute. Anterior MI was detected in 6 (44.5%) patients, inferior MI - in 7 (49.2%), circular MI - in 1 (3.9%). In an echopilercardiographic study, a violation of the systolic function of the left ventricle was observed in 9 (33.9%) patients.

The results of coronary angiography revealed the predominance of multivessel and diffuse nature of coronary lesions. In 12 patients (21.8%), a single-vessel lesion of the coronary bed was revealed, in 19 patients (4.6%) - a two-vessel lesion, in 24 patients (43.6%) - multiple. 39 patients (82%) underwent stenting of the infarct-dependent artery, 16 patients (18%) did not undergo endovascular intervention, and coronary artery bypass grafting was recommended for these patients. The most frequently affected coronary artery is the anterior interventricular branch and the right coronary artery - 97.7% and 97.73%, respectively, the circumflex artery was affected less often - 88.7% of cases, the trunk of the left coronary artery - 2.5%. The most vulnerable coronary arteries of the second order were the branches of the obtuse edge and the posterolateral branch - 13.6% and 11.4% of cases, respectively. Thus, in patients with acute coronary syndrome and chronic obstructive pulmonary disease, in most cases, a combination of shortness of breath and pain was noted, as well as tachycardia and heart rhythm disturbance.

AN OUTBREAK OF SALMONELLOSIS IN KINDERGARTEN N.18 IN GORODETS, THE NIZHNY NOVGOROD REGION

Li Gen Min – the 6th year student
Scientific leaders – Cand.Med.Sc., Assoc.Prof. A.V. Zotova, O.I Katina

Salmonellosis is an acute zooanthroponotic infectious disease with a fecal-oral mechanism of transmission of the pathogen, characterized by predominant damage to the digestive tract, dehydration and intoxication.

Periodically, news reports inform about outbreaks, especially in children's institutions.

For example, on April 21, 2022, a kindergarten in Gorodets (the Nizhny Novgorod Region) was closed for quarantine. The disease in children began with complaints of abdominal pain.

Some of them had a fever. In the period from April 9 to 22, 17 children, seven of them aged 2-7 years, asked for medical help.

Infected children and kindergarten staff underwent a medical examination and laboratory examination. Flushes from environmental objects, water and food samples were also selected. Laboratory tests showed that the children were infected with salmonellosis.

During the inspection of the premises and the food department of the kindergarten, Rospotrebnadzor employees revealed violations of sanitary legislation leading to an outbreak of the disease.

The urgency of the problem of salmonellosis is associated with a long-lasting trend towards an increase in morbidity, the formation of resistance to antimicrobial drugs, and the lack of effective specific prevention.

POSTCOVID GASTROINTESTINAL LESION

Balabanova D. – the 6th year student
Scientific leaders – Cand.Med.Sc., Assoc.Prof. A.V. Zotova, O.I. Katina

In post-COVID syndrome, a long-term persistence of the virus within the gastrointestinal tract is observed. This is proved by the isolation of SARS-CoV viral particles with feces in patients.

The development of gastrointestinal symptoms in post-COVID syndrome is determined by factors such as the direct effect of the virus on angiotensin-converting enzyme receptors of intestinal epitheliocytes, virus-associated changes in the intestinal microbiome with the development of dysbiotic processes, damage to the mucous membranes by systemic and local hyperimmune reactions, and others.

The main gastrointestinal complaints during this period can be combined into two main clinical syndromes: gastrointestinal and hepatobiliary, which are characterized by abdominal discomfort, diarrhea, constipation, vomiting, nausea, jaundice, and elevated liver transaminases.

The most common gastrointestinal symptoms in the post-covid period are diarrhea and abdominal pain. COVID-19 can disrupt the upper esophageal sphincter, causing increased reflux. Also, one of the most common forms of development of post-covid syndrome is viral gastroenteritis. Peptic ulcer of the stomach during a long-term current coronavirus syndrome may have an ischemic genesis. Functional dyspepsia and irritable bowel syndrome are the most significant independent factors associated with the development of gastrointestinal symptoms in patients after coronavirus infection.

Disturbances in the gut microbiota in post-covid syndrome are caused by several factors. The virus can cause: maintenance of colonization resistance to pathogenic and opportunistic bacteria of the intestinal mucosa; regulation of intestinal motor function and degradation of xenobiotics; synthesis of vitamins and metabolism of bile acids; participation in the processes of digestion; formation and maintenance of normal immunological reactions.

SYSTEMIC ISOTRETIONIN – ASSISTANT IN THE FIGHT AGAINST ACNE

Melisova A. – the 5th year student
Scientific leaders – Cand.Med.Sc., Prof. N. E. Melnichenko, O. I. Katina

Acne (acne vulgaris) is a chronic inflammatory disease, manifested by open or closed comedones and inflammatory skin lessions in the form of papules, pustules, nodes. Significant effects of acne and its consequences have been found on emotional status, daily routine, social relationships, school/work, and interpersonal relationships.

Early initiation of acne treatment leads to less impact on the patient's condition. One of these consequences is post-acne. These are persistent skin changes that appear after acne breakouts. About 95% of patients suffer from post-acne.

Systemic isotretionine is the gold standard for the treatment of severe acne. Monotherapy with isotretinoin is most effective in influencing all links of acne pathogenesis. SI has sebosuppressive, comedonolytic, direct anti-inflammatory properties. The use of SI has led to a significant increase in the effectiveness of acne treatment (up to 80%), and extensive clinical experience has made it possible to expand the indications for its appointment.

INTERACTION OF ALCOHOL AND ANTIBIOTICS

Sharapova M.- the 2nd year student
Scientific leaders – Doc.Med.Sc., Prof. E.A. Borodin, O.I. Katina

Before prescribing antibiotics, the doctor always warns patients not drink alcohol during treatment, without explaining the reason. So why are antibiotics so dangerous and why can't they be combined with alcohol?

Antibiotics (from anti and Greek “bĺos” - life) are substances of biological origin synthesized by microorganisms, which inherently both suppress the growth of pathogenic microorganisms and completely destroy them.

Drugs in this group are used to treat the following diseases: dental infections; bacterial pneumonia; skin infections; bladder and kidney infections; streptococcal sore throat; swelling of the brain and spinal cord (meningitis); bacterial ear, throat, nose and throat infections; syphilis (a sexually transmitted disease).

In addition to pathogenic bacteria, antibiotics also kill beneficial bacteria. That is why they must be taken as prescribed by a doctor, and along with them one should take probiotics (live useful bacteria) or prebiotics (products of useful bacteria). Antibacterials in pharmacies must be dispensed only with a prescription.

There are a number of reasons why antibiotics and alcohol should not be taken at the same time. Drinking alcohol in any amount while fighting an infection caused by bacteria can lead to dehydration, disrupt normal sleep patterns, and interfere with the body's natural ability to heal itself. The main constituent of alcohol is ethyl alcohol, and in the human liver it is converted to acetaldehyde (a metabolite of alcohol breakdown) by the enzyme alcohol dehydrogenase. The ethyl alcohol metabolite then continues to be broken down, after which it is eliminated from the body. However, if one takes an antibiotic, it stops the action of the above enzyme and the product of alcohol begins to accumulate, having a toxic effect. The biggest harm the joint use of antibiotics and alcohol brings the liver. Alcohol disrupts the synthesis of fatty acids in hepatocytes (liver cells), and antibiotics can obstruct the bile ducts. This double toxic effect causes the liver to malfunction. Alcohol and antibiotics also have negative effects on other organs, such as: the kidneys; the heart and vascular system; the intestines, stomach; and the brain. Alcohol and many antibiotics are metabolized (broken down) in the liver by certain enzymes (alcohol dehydrogenase and acetaldehyde dehydrogenase). When a large amount of alcohol is consumed in a short period of time, the enzymes begin to break down the alcohol and the breakdown of the drug slows down. As a result - the level of the antibiotic in the body increases, because it is not fully metabolized. This leads to high toxicity and side effects. If alcohol is consumed daily, which is characteristic of alcoholism, enzymes begin to break down antibiotics more actively, resulting in lower levels of the drug in the body. This leads to a delay in the healing process and even antibiotic resistance. It is also important to note that alcohol disrupts sleep patterns, and it is in sleep that the human body produces special proteins of the immune system - cytokines. These substances activate the immune response to pathogens. If they are lacking, the body's defense response slows down. Different groups of antibiotics can cause side effects in some individual cases. A specific list of side effects of a particular medication can be found in its instructions.

From all the work you can make an important conclusion that drinking alcohol, in general, is not the most beneficial action to your body, and in interaction with taking antibiotics - a double impact.

PAPILLOMA OF THE SKIN

Baldanova Ts., Kravchenko A. – the 5th year students
Scientific leaders – O.I. Katina

Viral warts (verruca) are a benign proliferative disease of the skin and mucous membranes caused by human papillomavirus (HPV) and characterized by the appearance of epidermal neoplasms. Human papilloma viruses have tissue specificity - the ability of certain types of HPV to infect tissue peculiar to their localization:

HPV types 1, 2 and 4 are detected with plantar warts;
N 2, 4, 26, 27, 29, 57 types - with vulgar warts;
HPV 3, 10, 28, 49 types - with flat warts;
HPV type 2, 7 - with "butchers' warts";
HPV types 13 and 32 - with focal epithelial hyperplasia;

HPV 5, 8, 9, 10, 12, 15, 19, 36 types - with verruciform of epidermodysplasia;
HPV type 60 - with cystic warts.
Diagnostics: The diagnosis of viral warts is based on the clinical picture and the data of anamnesis, dermatoscopy and histological examination.
Treatment goals:
- destruction of viral warts;
- improving the quality of patients' life.

When choosing a method of therapy, it is necessary to take into account the localization and area of lesions.

WATER-ELECTROLYTE BALANCE

Tarabanko V. – the 2nd year student
Scientific leaders – Cand.Med.Sc., Assoc.Prof. E.V. Egorshina, O.I. Katina

The water-electrolyte balance of the body is the result of a constant exchange of two types:
1) between the body and the environment;
2) inside the body between cells and extracellular environment.

The volume, concentration of electrolytes and pH of body fluids are the main parameters of the internal environment that determine the conditions of normal activity of functional systems.
Water is the main component that provides homeostasis. Water participates in the processes of hydrotation, forms complex ionic systems, surrounds intracellular structures, provides communication between cells, provides dissociation of electrolytes, participates in thermoregulation at the heat transfer stage. All kinds of metabolism take place in the extracellular fluid; it is an intermediary between cells and the external environment, in which they function.
The body regulates the constancy of osmotic concentration (isotonium), electrolyte composition (isoionium), pH (isohydria), volume (normovolemia) of the liquid of all water spaces representing a single hydrodynamic system. The ionic composition of liquid media is different, but the number of cations and anions is equivalent in each. Ions provide one of the components of osmotic pressure, create a biopotential of membranes, are coenzymes, determine pH, participate in energy exchange and gel coagulation. The exchange of ions, water, and substrates between the function sectors is caused by the formation of energy (cell respiration) and the excretion of final metabolites.

ENDOMYOCARDIAL DISEASE: PATHOGENESIS, CLINICAL COURSE FEATURES AND TREATMENT

Olkhovskaya E. – the 4th year student
Scientific leaders – Cand.Med.Sc. E.G. Kulik, O.I. Katina

Leffler's fibroplastic parietal endocarditis (endomyocardial disease) is a form of heart disease characterized by a congealed, poorly functioning heart caused by infiltration of the heart by leukocytes known as eosinophils.
The cause of the disease is unknown. There is an assumption about its connection with various infectious agents, mainly parasitic, which cause the occurrence of eosinophilia. The frequency of occurrence is 0.036% per 100 thousand patients, more often in temperate latitudes and affects middle-aged males (30-40 years).
A key role in the pathogenesis of heart damage belongs to eosinophils, which, being morphologically and functionally defective, are easily degranulated by particles coated with complement immunoglobulins G and C3. In large quantities, eosinophils accumulate in the myocardium, where they secrete the contents of their granules by exocytosis, which has a cardiocytotoxic effect.

In most patients, the disease begins with systemic manifestations - fever, weight loss, cough, skin rash. There may be pulmonitis with infiltrative changes detected by X-ray examination of the lungs. Gradually, signs of progressive congestive heart failure, which is often accompanied by rhythm disturbances, come to the fore in the clinical picture of the disease. In some patients, extracardial manifestations are absent and isolated heart damage is noted in combination with more or less persistent eosinophilia (more than 1.500 cells in 1 mm3), which serves as a distinctive sign of the disease. Echocardiography sometimes reveals signs of valvulitis and vegetation on the atrioventricular valves.

In the presence of an active inflammatory process in the myocardium and small vessels, glucocorticosteroids are used in an overwhelming daily dose of an average of 1 mg/kg of prednisolone orally in combination with cytostatic immunosuppressants, mainly hydroxyurea (500 mg per day). After receiving the clinical effect, they switch to long-term maintenance doses (on average, 10 mg of prednisone per day). In the event of fibrosis, surgical treatment is resorted to endocardectomy, in some cases with a plate or prosthetics of atrioventricular valves.

More than 80 years have passed since the discovery, but even today the exact causes of the disease are not known and no effective treatment of the heart has been found. Half of the patients die within two years after the appearance of the first symptoms of heart damage.

MENTAL DISORDERS IN MYOCARDIAL INFARCTION PRACTICE

Ignatova I.– the 6th year student
Scientific leaders – Assoc.Prof. I.V. Kostrova, O.I. Katina

Idiopathic fibrosing alveolitis (IFA) is the disease of lungs with unknown etiology with amorphological picture of usual interstitial pneumonia which is characterized by the progressing of pulmonary insufficiency in the investigation to development mainly in interstitial tissue of lungs of the not bacterial inflammation leading to the progressinginterstitial fibrosis. Synonyms of IFA are "idiopathic pulmonary fibrosis" – the term most often used in the American literature and "cryptogene fibrosing alveolitis", received the greatest diffusion in the Europe. IFA belongs to the group of the idiopathic interstitial pneumonia (IP) including also nonspecific IP, cryptogene organizing pneumonia, sharp IP (Hammana-Rich's syndrome), respiratory bronchiolitis, associated with an interstitial disease of lungs, desquamative IP and lymphoid IP. IFA is the most frequent form of idiopathic pneumonia to which share 80-85% of all cases fall. Data on prevalence of IFA vary considerably. According to the American thoracic society, the prevalence of IFA is 20.2 cases on 100 thousand among men and 13.2 – among women. The incidence ofIFA reaches 11.3 cases a year on 100 thousand at men and 7.1 – at women, increasing with age. At about 2/3 patients with IFA – are more senior than 60 years old. Mortality from IFA is, on average, more in the senior age group – 3.0 on 100 thousand of population, the median of survival fluctuates from 2.3 up to 5 years.

OCCUPATIONAL HYGIENE OF RADIOLOGISTS

Melisov B. – the 3rd year student
Scientific leaders – Cand.med.Sc. L. Z. Gosteva, O.I. Katina

X-rays, like other types of ionizing radiation, have a pronounced biological property. The first effect of the interaction of gamma quanta with the tissues of the human body is the occurrence of excitation, i.e. ionization of atoms and molecules, followed by rapidly developing biochemical reactions in the somatic and genetic direction. With high single and total doses, irreversible changes may occur in individual organs and in the body as a whole.

In accordance with the norms, three categories of persons working with ionizing radiation are defined. Different maximum permissible radiation doses are established for them:
1. Category A – a staff of the X-ray unit, constantly working with X-ray equipment (radiologist, radiologist assstant, nurse);
2. Category B – a staff of a medical institution working in the rooms adjacent to the X-ray unit;
3. Category B - population of the region, republic, country.
When working with closed-type ionizing radiation sources, the main principles of prevention are protection by quantity, time, distance, and shielding. When working with open sources of ionizing radiation, medical workers use personal protective equipment: dressing gowns, overalls, armbands. rubber gloves, work shoes, safety glasses. If there is a possibility of contamination of the air environment with radioactive aerosol, "Petal" type respirators with a filter cloth are used.
When working with sources of ionizing radiation, a complex of medical and sanitary measures is also carried out. They include:
- sanitary and dosimetric control;
- degree of contamination by radioactive substances.
Contraindications to working with ionizing radiation are blood diseases, secondary anemia, organic lesions of the nervous system, disorders of the ovarian-menstrual cycle, etc.

SURGICAL TREATMENT OF EPIDURAL HEMATOMAS

Melisov B. – the 3rd year student
Scientific leaders – Doc.Med.Sc., Prof. G.N. Marushchenko, O.I. Katina

Epidural hematoma – is an accumulation of blood between the bones of the skull and the dura mater. It has a traumatic genesis. Two mechanisms of injury are most typical. In the first case, an object of a small area strikes a sedentary head; in the second one the head hits a stationary object. At the same time, the zone of direct application of the traumatic factor is most often the temporal or inferior parietal region of the skull.
The source of bleeding may be the middle meningeal artery and its branches, meningeal veins, venous sinuses and diploic veins — venous channels located in the thickness of the skull bones. Symptoms depending on the period: light- dizziness, weakness, moderate headache. There is amnesia, unexpressed anisoreflexia, some asymmetry of nasolabial folds, mild meningeal signs, spontaneous nystagmus. After a light interval - headache, nausea and vomiting appear, psychomotor agitation is replaced by a rapidly progressive disorder of consciousness: from deafness to sopor and coma. Sometimes there is a rapid extinction of consciousness with the transition immediately into a coma.
In most cases, surgical treatment is performed. A milling hole in the skull is made above the place of the alleged localization of the hematoma. With a rapid increase in cerebral compression, a part of the hematoma is aspirated through the hole, and then a full-fledged skull trepanation is performed with complete removal of the epidural hematoma, search and ligation of the damaged vessel.

POLIO: PATHOGENESIS OF INFECTION

Melisov B. – the 3rd year student
Scientific leaders – Cand.Med.Sc. A.V. Prokopenko, O.I. Katina

The RNA virus is 15-30 nm in size. The source of infection is only a person. Due to the high natural susceptibility to the virus, the carrier is a threat to others. The mechanism of transmission of infection is fecal-oral. It is implemented through water, food and household transmission routes. Sometimes the virus is transmitted by airborne droplets. With the blood flow, they spread in the body and are fixed on nerve cells. Once inside the nerve cells, the virus is embedded in their DNA and

synthesizes viral particles based on the cell material. Having exhausted the material, the virus destroys nerve cells. Due to their death, the muscles cease to function - peripheral paralysis develops.
Stages of disease development:
1. incubation period — lasts from 3 to 35 days, more often 7-12 days;
2. stage of clinical manifestations — lasts 2-6 weeks;
3. the recovery period — depending on the degree of damage to the nervous system can last from one month to several years.

By localization, polio can be: spinal (spinal cord is affected); bulbar (cranial nerve nuclei are affected); pontine (spinal cord trunk is affected).
There are five forms of polio:
- inapparant form — detected only by laboratory methods, proceeds without complaints and clinical manifestations;
- abortive (erased) form — proceeds without damage to the nervous tissue;
- meningeal form — general cerebral symptoms prevail without damage to the nervous system, paresis and paralysis do not form;
- paralytic form — central nervous system damage and paralysis prevail in the clinic;
- bulbar form — accompanied by disruption of vital organs.

STUDENT'S ATTITUDES TO THE FORMATION OF A HEALTHY LIFESTYLE

Gerasimenko V. – the 6th year student
Scientific leaders – O.V. Zhuravleva, O.I. Katina

A healthy lifestyle has become an urgent topic for discussion in recent years. Previously this issue was raised only during a doctor's examination, and today we can hear and see calls for a healthy lifestyle almost everywhere: both on television, on radio and in newspapers.
In this study, I will find out the attitude of students to a healthy lifestyle and try to identify factors that influence the lifestyle of academy students. The main method of research in this work is the questionnaire form of the survey. Students of the Amur State Medical Academy were interviewed, including students of the 2nd year - 38 people, 3rd year - 22 people, 4th year - 24 people, 5th year - 30 people, 6th year - 34 people. The total number of respondents was 148 people, of which 28 were boys and 120 were girls.
Analyzing the respondents' answers to the 1st question of the questionnaire, we found that 8% of all respondents live in a big city, 46.6% in a small city, 45.4% in rural areas. Analyzing the 2nd question, I noticed that most students of 2-6 courses prefer to spend their free time at home, students of 4-5 courses play sports more, 6th year students do not have free time, and 2nd year students prefer to spend their free time with friends. To the question “do you have bad habits?” the majority of students of all courses answered that they have no bad habits - 75%, smoke - 17.6%, abuse alcohol - 7.4%. From the next question, it became known that almost no one does morning exercises. From the results of the nutrition question, it can be concluded that students of all courses do not pay due attention to proper nutrition, but the majority of respondents have all kinds of foods in their diet - 70%. Among all respondents, 73% were engaged in various sports, 55% - go to the gym regularly, 42% - do not have enough time and finances, 25% - do not have the desire. To the question “how many hours do you sleep?” the majority answered: less than 8 hours - 60.8%, 8 hours sleep - 25%, more than 8 hours - 14.2%.
From the results obtained, it can be concluded that the majority of students surveyed believe that a healthy lifestyle contributes to success in other areas of human activity. Many students often think about the correctness of their lifestyle, try to correct it and promote it.

HYDROLOGICAL EMERGENCIES – FLOODING: BASIC CONCEPTS, CONSEQUENCES AND HUMAN ACTIONS IN FLOOD CONDITIONS

Frantsuzova A., Ushakova A.- the 2nd year students
Scientific leaders – Cand.Biol.Sc. I.A. Khreshchenok, O.I. Katina

Global climate change has become one of the most important global problems of recent decades. The imbalance of natural systems has led to temperature anomalies, changes in precipitation patterns, as well as an increase in phenomena such as hurricanes, floods, earthquakes and droughts.

Flooding is one of the most dangerous and frequent destructive disasters in terms of area spread and average annual material damage. About 2/3 of the total number of natural disasters is accounted by floods, as well as accompanying storms, typhoons and tsunamis.

According to some reports, since the middle of the XX century, losses from natural disasters have increased by 15 times. The increasing costs of recovery after such disasters significantly limit the economic growth of countries, lead to a decrease in their sustainable development.

During the floods in the world that occurred during the XX century, about 10 million people died, and in recent decades there has been an increase in the number of victims. During the same period, the amount of damage caused also increases. The area of flooded territories around the world totals about 3 million square kilometers, in Russia about 500 thousand square kilometers of land are subject to floods.

Every year there are from 40 to 70 crisis floods in Russia. About 70-80% of all types of floods are high water and freshets. The average annual damage from such floods is about 40 billion rubles.

A special place is occupied by the consequences of floods affecting the epidemiological and sanitary conditions in the disaster zone. During periods of floods, pollution of water sources is observed. It leads to a shortage of drinking water and, consequently, to various diseases of the population. An increase in air humidity exacerbates bronchopulmonary pathologies. An increase in such diseases as tonsilitis, flu, nephritis, etc. is recorded. The development of house fungi on damp walls of buildings leads to fungal allergies affecting the mucous surfaces of the mouth, eyes and skin.

With the growth of socio-economic and environmental damage from natural disasters, the problems of ensuring the safety of human life in areas suffering from floods have come to the fore.

In the process of settling the globe, man not only mastered the coastal zones of rivers, but also built up their floodplains, cut down floodplain forests, which eventually led to the destruction of the natural ecosystem. Human influence on the natural process has led to changes in the conditions for the formation of runoff and the movement of runoff along the riverbed and floodplain. As a result, this led to a significant increase in the water level and an increase in the flooded area.

The integrated application of all currently available engineering solutions, the strengthening of research and practical work will help solve world-wide problems in the protection of territories and buildings from hydrological emergencies.

GENE THERAPY OF LEBER'S HEREDITARY OPTICAL NEUROPATHY

Frantsuzova A., Ushakova A.- the 2nd year students
Scientific leaders – Cand.Biol.Sc, Assoc.Prof. T.L. Ogorodnikova, O.I. Katina

The genomes of living organisms change constantly determining the course of their evolution. Man began to interfere in this process thousands of years ago, selecting successfully cultivated plants

and grew breeds of domestic animals. Genetic engineering having emerged a little more than half a century ago made it possible to create transgenic organisms: transfer genes between genomes or manipulate them within a single genome. The idea of using externally imported DNA for the treatment of hereditary human diseases arose in the early 1970s. In the 1980s thanks to the improvement of methods of working with genes and the creation of eukaryotic vectors, there was a real possibility of correcting human genetic material for therapeutic purposes, but the message about the first successful result was published only in 1990.

To date, there are more or less effective approaches to gene therapy for over 50 genetically determined human diseases: primary combined immunodeficiency, hemophilia, hemoglobinopathies, cystic fibrosis, achromatopsia, epilepsy, osteoarthritis, Parkinson's disease, oncological diseases. Leber's amaurosis.

In the last few years, with the advent of qualitatively new technologies for targeted genome modification, the number of applications for the start of clinical trials of gene therapy drugs has been growing avalanche-like. Thanks to the simplicity and accuracy of new methods of making changes to the genomic DNA of eukaryotic cells, a new term has even emerged — genome editing.

The main areas of application of genomic therapy are the following: treatment of hereditary diseases, treatment of diseases caused by somatic mutations, and attempts to treat HIV infection by destroying copies of the virus embedded in the genome or receptor genes that allow the virus to enter the cell. Currently, clinical trials of gene therapy against Leber's hereditary optical neuropathy are being conducted especially actively. Gene therapy of one eye is able to restore vision to the second one. An international team of researchers came to such an unusual conclusion. They injected a special drug to people with a congenital disease that causes blindness. In one eye - healthy copies of the gene, in the other - a placebo. According to the results of the experiment, vision improved in about 50% in both eyes. Scientists conducted the same experiment on macaques and got a similar result.

Genomic therapy is one of the options for personalized medicine, when the approach used is individually tailored to the patient's disease (and sometimes even to the genome).

Such therapy can save many previously incurable patients.

COMPARISON OF NECROTIZED AND HEALTHY HUMAN SKIN

Krasnenkova K., Tymoshchuk L. – the 2nd year students

Scientific leaders – S.V. Barannikov, O.I. Katina

The most common cause of skin injury associated with its necrosis is burn injury. According to the Federal Statistics Service, 316 thousand thermal and chemical burns or 221 burns per 100 thousand people of the country's population were registered annually in Russia in 2005-2015.

The dermis consists of two layers (papillary and mesh) that do not have a clear border between them. The papillary layer is located directly under the epidermis and consists of loose fibrous unformed connective tissue. The connective tissue of the papillary layer consists of thin collagen, elastic and reticular fibers, the most common are fibroblasts, macrophages, mast cells. The mesh layer consists of dense unformed connective tissue with the presence of powerful fascicles of collagen fibers passing either parallel to the skin surface or obliquely, and a network of elastic fibers. Together they form a network where its structure is determined by the functional load on the skin. Knowing the structure and histology of a healthy dermis, we can study its necrosis.

Necrosis (death, necrosis) is the death of a part of a living organism, the irreversible cessation of the vital activity of its elements. The necrotic process is known to go through a number of stages in its development: paranecrosis - similar to necrotic, but reversible changes; necrobiosis - irreversible dystrophic changes characterized by the predominance of catabolic processes over anabolic; cell death

and the final stage of autolysis is the destruction of dead tissues by hydrolytic enzymes of dead cells and macrophages. The general microscopic signs of necrosis include characteristic changes in the cell and intercellular substance. Changes in the cell affect both the nucleus and the cytoplasm. The nucleus shrinks, its chromatin can condense. Changes in the cytoplasm can cover the part of the cell, that is rejected, or the entire cell leading to coagulation of the cytoplasm. Cytoplasmic coagulation is often replaced by the disintegration of the cytoplasm into lumps. At the final stage of necrosis development, the cell membrane structures are destroyed leading to its hydration, after which the cytoplasm melts (plasmolysis).

The skin is an important organ of the human body that performs vital functions. It is important for medical students to know the normal histology and structure of necrotic skin. Since even a small injury to the skin, for example, a burn or bedsore, can lead to problems at the organizational level, such as shock, sepsis, intoxication, plasma loss, etc., which in turn can lead to death.

FIRST AID FOR VARIOUS BURNS IN CHILDREN

Krasnenkova K.– the 2nd year student
Scientific leaders – Cand.Biol.Sc. I.A. Khreshchenok, O.I. Katina

The provision of specialized medical care to children with thermal trauma is currently becoming particularly relevant. The number of burn injuries in children increases accounting for 10 to 50% of the index of child domestic injuries. Currently, the mortality rate in burned children ranks 3rd in the world, and in hospitals is about 1.2%. These statistics give us the basis for generalizing knowledge about first aid burns in children.

There are 4 degrees of burns: The first degree: redness and swelling of the skin at the site of thermal burn, the appearance of small bulbae with transparent contents is possible. Second degree: redness and swelling of the skin at the site of a thermal burn, as well as strained or opened blisters and a thin scab. At the third degree of thermal damage, there is a deep burn to the muscles and bones with the formation of a scab, the bulbae at the third degree have already burst. With the fourth degree of burn, charring of the burned part of the body often occurs.

At the first degree, the burned place should be put into cool running water. After that, an anesthetic spray and a sterile bandage are applied. The next frequent stage of burns is obtained as a result of scalding children with boiling water, and the help in this case remains the same as at the first stage. But, it must be borne in mind that in this case there are blisters that are forbidden to open, especially in unsanitary conditions. Therefore, the FMA is corrected by the fact that cold water should not be directed directly to the burn site, but higher. So that it flows down to the burned place. After about 15 minutes, when the severe pain subsides, you can apply a wet bandage made of gauze. Third and fourth degree burns are the most serious, and they are formed by electric shock, exposure to chemicals. In a situation with drinking chemicals, it is necessary to seek professional medical help immediately, since gastric lavage is necessary. If the burn took place on the skin, then before pouring water on the wound, an aseptic wet bandage should be applied to it. Children should drink as much as possible — in this case, the kidneys quickly remove toxic decay products from the body. The fourth stage is very dangerous, and in case of untimely FMA, as well as treatment in the hospital, it may end in disability, or death for the child. In this situation, you can help the child only by applying a sterile bandage and as fast as possible delivery to a specialized institution.

In order for the child to get better as soon as possible, without complications, it is necessary to adhere to the rules described above. In case of violation of these rules, it is possible to make a disabled person out of a healthy child. A child, even a seemingly adult one, needs to be closely monitored and given

lessons on first aid. After all, having knowledge, he will be able to help not only himself. The best treatment for any disease is primarily its prevention, and burns of any degree are no exception.

PHILOSOPHY AND PERSONALIZED MEDICINE

Krasnenkova K. – the 2nd year student
Scientific leaders – G.K. Ezri, O.I. Katina

People are anatomically similar, but have a number of biological differences. For example, genetics, predisposition to diseases, body constitution, allergic history, peculiarities of thinking, etc. differ. It is because of these differences that the use of templates in the treatment of a particular disease is unacceptable. This problem is being solved thanks to personalized medicine, which is becoming increasingly important. This circumstance determines the relevance of the topic. The purpose of this article is to study the relationship between philosophy and personalized medicine.

The development of individual approaches in medicine was carried out by all the outstanding healers of the ancient period and Modern times. Traditions of an individual approach to treatment are also characteristic of Russia. The basis of personalized medicine is an individual approach. Within its framework, a person is considered simultaneously as a living organism consisting of a billion cells and as a being with thinking, intelligence, changing himself and the world around him. That is, as a person and a biosociospiritual being. Based on this, the treatment of a person in the first place should be based not only on biological, but also on socio-spiritual factors. Personalized medicine interacts primarily with the individual, rather than being a conveyor belt for the treatment of abstract patients.

There is a concrete example. There are two patients with relatively identical trauma in the form of multiple limb fractures, concussion of the brain, as well as CCI. Both patients have an increase in body temperature to pyretic, 39-41 degrees Celsius. Both patients have an unknown allergic history, because due to the severity of their injuries, patients cannot provide these data. Basic care provided to both patients includes the use of 1000 mg of analgin and 10 mg of diphenhydramine. One patient has a gradual decrease in body temperature to subfebrile 37-38 degrees Celsius. At the same time, the effect of the treatment performed on the second patient is quite insignificant. If you cover him with a sheet soaked in cold water, and put ice bubbles on the areas of natural folds, then after examining the patient in an hour it will turn out that there has been a persistent decrease in temperature. Why was one patient not influenced by a lytic mixture that is purposefully designed to reduce the temperature when the other achieved the expected effect? These are the questions that personalized medicine studies.

Conclusion. Philosophy and personalized medicine are united by the study of man as a biosociospiritual being, personality and individuality. The process of treating a person is equally influenced by both biological and socio-spiritual characteristics of a person, which must be taken into account in medical practice. Within the framework of an individual, personalized approach, timely detection of predisposition to diseases, suspension of their development and the beginning of treatment at early stages is simplified.

USE OF THE GLASGOW COMA SCALE TO ASSESS NEUROLOGICAL STATUS

Krasnenkova K. – the 2nd year student
Scientific leaders – Cand.Biol.Sc. S.N. Gasanova, O.I. Katina

The relevance of this work is caused by an increase in the number of patients with impaired consciousness. Diagnostics remains an extremely important issue in the field of consciousness research, namely the method called the Glasgow Coma Scale.

This is a reproducible and usable method of measuring the state of consciousness - especially after CSI. The Glasgow Coma Scale can also be used to predict the outcome in patients with brain injuries. But at the same time, the possibilities of GCS are limited when it comes to the accurate diagnosis of a minor degree of depression of consciousness. Other factors besides head trauma, such as shock, alcohol and metabolic disorders, can disrupt consciousness, and they may be present in different combinations. But the result is important—the oppression of consciousness. The absolute score on the scale may not be as important as its changes. Any decrease in the number of points indicates a deterioration in the condition of the brain (or trunk) and requires the immediate start of diagnostic and / or therapeutic measures.

Neurological examination is a laborious work to assess many factors affecting the development of the disease, which must be carried out systematically and repeated several times. Therefore, doctors conduct a daily assessment of the level of consciousness, using the Glasgow scale. Currently, the scale is widely used worldwide in many specialties (intensive care, neurology, and neurosurgery).

GCS has received wide distribution and recognition of doctors due to its ease of use and high information content. The patient's condition, according to the Glasgow coma scale, is assessed by three signs, such as eye opening, motor and verbal reactions. Doctors calculate the level of consciousness according to the following indicators: eye opening, where 1 point means there is no reaction, and 4 points - spontaneously with blinking. Motor response (the best response in unaffected limbs), where 1 point means missing and 6 maximum points are for the execution of commands. Verbal response, 1 point is also given in a lack of reaction, 5 points indicates the norm. The Glasgow scale has a score range from 3 (the minimum number of points, meaning the most severe degree of coma) to 15 (the maximum number of points, meaning a normal level of consciousness).

It is thanks to such a diagnostic method as the Glasgow coma scale that doctors can correctly diagnose diseases and observe the progress or regression of the patient from the treatment he receives. The scale is easy to use, does not require a lot of time and funding. In my opinion, it was the Glasgow coma scale that opened the gates to the simple and not laboring world of neurophysiology.

VARIANT ANATOMY OF THE KNEE JOINT

Sukhov Z., Ivanova D. – the 2nd year students
Scientific leaders - N.P. Ambrosieva, O.I. Katina

The anatomy of the knee joint is examined by ultrasound. Normally, the contours of the joint are clear, anomalies and organic changes have not been detected; hyaline cartilage is in normal condition, has a homogeneous structure; bone osteophytes are absent; hypoechoicity of joint bags and inversions, absence of effusion; absence of synovial membrane on ultrasound images.

The relevance of studying the variable anatomy of the knee joint lies in the complexity of the structure of the joint, the extensive volume of movements, and in the amount of load exerted on the joint.

Morphometric indicators of the bone structures of the knee joint show an intensive growth of the condyles of the femur, which is observed in the youthful period of ontogenesis; in mature age, this process stabilizes, in men and women of elderly age, an increase in the linear dimensions of the condyles is again noted. An increase in the linear dimensions of the patella occurs before the second

period of adulthood, in elderly and senile people, their progressive decrease is noted. The greatest variability of the patella, condyles, menisci and ligaments of the femur is observed in the adolescent, as well as in the elderly and senile periods of ontogenesis. A greater variety of forms is characteristic of the lateral meniscus of the knee joint. The size of the posterior horns of the menisci exceeds the size of the anterior ones in 69.3% of cases in the medial and 91.3% in the lateral meniscus. In the elderly and senile age, an increase in the length and a decrease in the thickness of the horns is more characteristic of the medial meniscus. The thickness of the anterior and posterior cruciate ligaments increases in adolescence and in the second period of adulthood, and then progressively decreases in the senile period of ontogenesis. In elderly and senile individuals, two variants of changes in the structure of cruciate ligaments are revealed: a decrease in their thickness and an increase in echogenicity with homogeneous structure (62.5%) or a decrease in echogenicity, heterogeneity of structure with an increase in ligament thickness (37.5%). The size of the patellar ligament increases until the second period of adulthood, and then progressively decreases. The level of physical development of men directly affects the degree of variability of the morphometric parameters of the menisci of the knee joints. It is shown that as the muscular tissue the male body increases, the width of the anterior horns of both menisci decreases, and the posterior horn of the inner meniscus increases. With an increase in the fat component of the body, the values of the width of the anterior horn of both menisci and the inner body increase. The wider the shoulders are and narrower the pelvis is, the wider the anterior horn of the inner meniscus and, the wider the pelvis is - the wider the posterior horn of the inner meniscus is.

It was revealed that the internal and external menisci of both knee joints have a pronounced polymorphism. Significant differences in morphometric parameters of the menisci of both knee joints depending on age were not found. At the same time, the features of the morphometry of the knee joints of men are significant. Age-related changes in articular cartilage in 26.9% of cases are characterized by slight thinning of cartilage tissue, in 73.1% of cases - significant thinning of cartilage tissue.

THE MOST RELEVANT FORMS AND VARIANTS OF SALMONELLOSIS IN THE TERRITORY OF THE RUSSIAN FEDERATION

Sayapina M. – the 5th year student
Scientific leaders – T.A. Dolgikh, O.I. Katina

According to the experts of the World Health Organization, acute intestinal infections (AIF) occupy the 4th place in the "significance rating" of the global burden of disease and are among the top ten causes of mortality in the world. In 2019, in the Russian Federation, the incidence rate of AIF was 505.6 per 100 thousand populations, and the economic damage was equal to 25 billion rubles. Salmonella occupies one of the leading places in the etiological structure of the bacterial etiology of AIF in Russia. Salmonellosis is an acute zooanthroponotic infectious disease with a fecal-oral mechanism of transmission of the pathogen, characterized by predominant damage to the gastrointestinal tract, the development of intoxication and dehydration.

Currently, the highest incidence of salmonellosis in Russia was observed in the Khanty–Mansi Autonomous Okrug, Murmansk Region, PrimorskyKrai, Nenets Autonomous Okrug. Salmonella enteritidis dominates the etiological structure of salmonellosis, accounting for 80.6% of all identified salmonella. S. typhimurium occupies the second most frequent place, and S. infantis occupies the third.

According to Rospotrebnadzor, the most relevant variant of salmonellosis among these regions is gastroenteritis, which accounts for about 65% of all detected cases. The second most common is the gastroenterocolitic variant (22%). The rarest variant of the gastrointestinal form of salmonellosis is

gastritic (10%). In 3-4% of cases, salmonellosis leads to the development of bacteriocarriage. Isolated cases of typhoid and septic variants (generalized form) have been registered on the territory of the Russian Federation, they account for only 2-3% of all detected cases of the disease.
Thus, due to the wide spread of the gastrointestinal form of salmonellosis in the Russian Federation, it is necessary to strengthen measures of nonspecific prevention. Namely, to monitor water supply, disinfection of drinking water, disinfection of wastewater, preparation, storage and sale of food, personal hygiene, sanitary and educational work with the population and improvement of residential areas.

EPIDEMIOLOGY OF ACUTE BACTERIAL AND VIRAL INTESTINAL INFECTIONS

Kiseleva K., Mogilnik P., Vinokhodova S.- the 3rd year students
Scientific leaders – Doc.Med.Sc., Prof. G.I. Chubenko, O.I. Katina

Acute intestinal infections (AII) are characterized by indigestion, causing abdominal pain, diarrhea, vomiting and intoxication of the body. The main source of infection is a sick person. The main mechanism of infection is alimentary.
In 2021, 3.281 cases of AII were registered in the Amur Region. The incidence rate of intestinal infections amounted to 419.6 per 100 thousand of the population, which is 6.5% higher than the incidence rate in 2020.
Viruses are the main etiological cause of intestinal infections. One of the representatives of such viruses are roto-, noro- and astroviruses.
Over the past 10 years in the Amur region there have been periodic rises and decreases in the incidence of enterovirus infection (EVI), with an upward trend. The 2021 EVI season is marked by a sharp increase in the incidence, with 224 laboratory-confirmed cases registered.
The incidence rate of rotavirus infection was 74.18 per thousand population, which is 42.6% more than last year (52.02 per 100 thousand population in 2020). Norovirus infection was detected in 311 cases, the incidence rate (39.78 per 100 thousand population), which is 37.2% higher than last year (28.99 per 100 thousand population).
Astrovirus predominantly infects children, the elderly, and immunocompromised people. It takes the 2nd place in children after rotavirus infection. Up to 71% of children aged 3 to 4 years have antibodies to astroviruses, although there is no history of signs of the disease.
Bacterial infections remain an equally important problem. In the development of the epidemic process of bacterial AII, it should be noted that the incidence of salmonellosis in the Amur Region is characterized by a pronounced cyclicity with registration rates from 15.0 to 60.50 per 100 thousand of the population with a downward trend. In 2021, 3 cases of bacillary dysentery were registered; the incidence rate was 0.38 per 100 thousand of the population, which is 34.2% lower than last year, but 90% higher than the indicator for the Far Eastern Federal District (0.20).
Prevention of acute intestinal infections includes general hygienic and medical measures that are carried out constantly, regardless of the time of year and the level of morbidity. In order to prevent acute intestinal infections, state sanitary and epidemiological supervision of compliance with sanitary rules is carried out.

MUMIO PREPARATIONS

Orlova S., Trubnikova A. – the 3rd year students
Scientific leaders –Doc.Med.Sc., assoc.prof. R.A. Anokhina, O.I. Katina

Mumio is a natural mixture of organic and inorganic water-soluble substance, which is formed in the cracks of rocks, voids, niches in the form of films, crusts, black, dark brown and brown tar-like masses with an admixture of sand and gravel. This is a viscous, sticky mass with a shiny surface, which softens with the heat of the hands. It has a resinous specific smell and a sharp bitter taste. By color, mumio comes in yellow, dark red and black. The most effective is the black mumio. This is a powerful and safe food supplement, restoring the energy balance of the person and potentially preventing some diseases. In the East, the healing properties of mumio were known in ancient times. In the Middle Ages, the mysterious substance was attributed magical powers and considered a true panacea for every illness. Today it has been experimentally confirmed that mumio has a pronounced antibiotic property: in a solution of mountain balsam staphylococcus and many other pathogenic bacteria die. Intestinal bacilli, without which our life is impossible, not only survive, but become activated. Natural mumio is divided into varieties by location, by appearance: cadaveric mumio, lichen mumio, juniper mumio, bituminous mumio, etc. In the composition of mumio there are biologically active substances (about 80 constituents): plant antibiotics, anticoagulants, silicon, vanadium, sulfur, iron, magnesium, tin, copper, manganese, amino acids, fatty acids, essential oils, some vitamins from B group, etc. Due to the healing properties of the components, the resin has anti-inflammatory, rejuvenating, regenerating, restorative effect, effectively relieves pain, eliminates the negative effects of radio- and chemotherapy, heals bone fractures and wounds, improves appetite, sleep, and suppresses the growth of tumors. The drug for treatment undergoes several stages of purification, checked for authenticity by special methods developed by the Ministry of Health. Mumio is proved to activate many enzyme systems, contributing to the course of biochemical reactions in the body. Reparative mumio action is the most studied, which explains the rapid healing of wounds, burns, trophic ulcers and bedsores, accelerating healing of fractures. Outwardly mumio is used from stretch marks, and is also helpful for hair when they split or fall out. Numerous clinical studies have shown that mumio is characterized by very low toxicity, it has no pronounced impact on the cardiovascular system, respiration, smooth muscles, has no cholenolytic properties. Mumio does not cause tumors and is not carcinogenic substances. Contraindications for taking the drug have not been identified. When there is drug overdose, dyspeptic phenomena is occasionally possible. In such cases, the dose should be reduced or temporarily stop taking mumio. Due to its composition mumio stimulates the activity of many enzyme systems of the body and supports various immunological processes.

THE CHEMISTRY OF MULTICOLORED BLOOD

Sadygova L. – the 2nd year students
Scientific leaders – Doc.med.Sc. Prof. E.A. Borodin, O.I. Katina

Most people know that human blood, like most other vertebrates, is red because of hemoglobin, which contains iron atoms in its structure. Heme, which contains a divalent iron atom can attach or give a molecule of oxygen. The valence of the iron, to which oxygen is attached, does not change. It is this divalent iron oxide (Fe2+) that gives hemoglobin its red color. All vertebrates, some species of insects and mollusks have iron oxide in their blood proteins and therefore their blood is red.

When the blood is oxygenated, it has a bright scarlet hue. Blood saturated with carbon dioxide is dark maroon in color. There was a known case where dark green blood flowed from the leg of a 42-year-old Canadian during an operation. After recovering from the astonishment, doctors discovered that the patient's hemoglobin contained not only iron, but also sulfur, probably from taking sulfur-

containing drugs for a long time. As a result, a chemical reaction changed the structure of hemoglobin, which also changed the color of the blood.
But red is not the only blood color possible in nature. This is due to the fact that some living things have other iron-containing proteins in their red blood cells than hemoglobin.
Blood of yellow as well as green and white colors is mainly found in insects. This fluid is called "hemolymph" and, as the name implies, it has both nutritional and immune functions. In many insects, it does not participate in gas exchange; it has no red blood cells, so there is nothing to bind to oxygen. Depending on the species of the insect and its condition, hemolymph may be transparent, white, greenish or yellow. The Spanish fly, for example, possesses yellow blood.
Purple blood is observed in some species of invertebrates, in particular in mollusks (clams, sipunculids, priapculids). Their blood contains a protein hemerythrin, which is a respiratory blood pigment and contains five times more iron than hemoglobin. Oxygenated hemerythrin gives blood a purple hue, while oxygenated blood turns pink.
Another iron-containing protein, chloroquorin, gives blood and tissue fluid a green color. This protein is dissolved in blood plasma and is similar in composition to hemoglobin, but the iron in it is not oxidized, as in mammalian blood, but oxidized, so the color turns green. For example, in polychaetes (polychaetes).
Contrary to the literary metaphor, blue blood does not flow in the veins of aristocrats, but in the bodies of octopuses and other mollusks, scorpions, ospreys, spiders, crabs and some worms. Actually, in their body it is colorless, but in contact with air it turns blue and may even glow faintly in the dark. A hemoglobin analogue, hemocyanin, makes the blood blue. It does not contain iron but copper. When it binds with oxygen, it oxidizes and becomes blue-green in color.
Hemovanadium - contains vanadium ions, blood - colorless. These are, for example, sea ascidia, which resemble underwater mushrooms. In Japan, burning ascidians produces vanadium.
Ladybug, has extremely poisonous orange blood.
White is in a fish that lives in Antarctic waters, the crocodile squirrel. Their hemoglobin contains 25 times less iron than normal fish.

INFECTIONS IN THE HISTORY OF AMUR HEALTHCARE - XIX–XXI CENTURIES

Lavreev A., Mozgovoi M. – the 2nd year students
Scientific leaders – Doc.Med.Sc., Prof. E.N. Gordienko, O.I. Katina

"The XXI century is the century of education" is the motto of the celebration of the 250th anniversary of Moscow State University. It should be hoped that it reflects the significant contribution of the Russian state to the entire system of higher education, including medical education. 70 years of this path has been passed by the Far Eastern university - the Amur State Medical Academy - together with the main universities of the country. Amur SMA, being remote from the Center of Russia, nevertheless managed to implement many common plans, ideas, goals and objectives inherent in the entire system of Russian higher medical education. Our task is to turn to the origins of this difficult path and evaluate the role of our Alma mater in the development of medicine.
The history of the birth and formation of BSMI in the Amur region is closely connected with the history of the population on its territory, with the problems of morbidity and mortality of the indigenous population and the army of immigrants, with the organization of medical services from the beginning of the twentieth century to its middle. For this aim, we used statistical data from the scientific works of the BSMI in 1955, the collection "Health Care of the Amur Region" for 1958, indicating the epidemiological situation since 1901, as well as comparative information from ROSSTAT for 2020 about the presence in the modern world of infections that dominated the Amur

region more than 100 years ago. The whole history of the development of the Far East with the participation of immigrants is a struggle not only with harsh climatic and geographical conditions, but also with destructive infections and invasions, a struggle for the survival of offspring ready to face hardships, with various natural and social disasters. The history of the Amur Region is the history of a smaller number of indigenous people (Manchus), and numerous immigrants from the western regions of tsarist Russia. The population approached to the services of representatives of Chinese medicine in the cities of China - Aigun and Mohe, preferring them to homegrown healers. The huge area did not have a single sanitary and anti-epidemic institution. The outbreak of the plague in the Amur region was prevented only thanks to quarantine measures.

In 1949, the head of the Amur Regional Health Department, N.F. Shevchenko, formed a firm decision on the organization of the Blagoveshchensk State Medical Institute. The foundation of a medical institute in the vast expanse of the Amur Region in 3 years (1952) and the training of medical personnel qualitatively improved the medical situation in the Amur region. The first graduation of doctors, which took place in 1958 contributed to a significant change in the epidemiological situation. Its modern analysis for 2020 of the XXI century indicates the absence of particularly dangerous infections on the territory of the Amur Region. Humanity's fight against infections has led to the elimination or significant reduction in the prevalence of many diseases, such as smallpox, anthrax - outbreaks of anthrax are registered in Russia to this day. However, in the modern world, dangerous infectious diseases have not lost their relevance, despite the significant achievements of world science – cholera, plague, smallpox, malaria, tuberculosis. Medicine of all countries and Russia is working in new conditions not only in connection with viral and bacterial infections and invasions, but also multifactorial diseases, oncopathology, and this is the most important tasks of the Amur State Medical Academy for the training of new generations of doctors!

CLONORCHISIS: THE HISTORY OF STUDYING THE CURRENT ENDEMIC - TO THE 70TH ANNIVERSARY OF ASMA

Pushkareva L., Tsaplya V. – the 2nd year students
Scientific leaders – Prof. E.N. Gordienko, O.I. Katina

Modern world infectology at the beginning of the 21st century is becoming perhaps the most popular branch of medicine, epidemiology, genetics, biology, veterinary medicine, and ecology. This applies not only to pathogenic viral, including SARS-CoV-2, and bacterial flora, but also to parasitic invasions, including natural focal helminthiases. The subject of the study was the phenomenon of "parasitism", widespread in nature and in society in the form of helminthic invasion. Despite the past two decades of the 21st century and the high level of medicine, about 4 billion people in the world are infected with helminths, including about 15-20 million with clonorchs, and more than 200 million are at risk of becoming infected with clonorchiasis.

Studying the endemics of the Far East, we single out clonorchiasis as the most active natural focal trematodosis, in connection with which we analyzed the history of the study of invasion on the basis of the young BSMI (ASMA), using articles of scientists published in the Proceedings of the Blagoveshchensk Medical Institute. In 1963, in an article, written by V.A. Kirilov and V.A. Dymin, data about the first studies of helminths in the Far East, conducted under the guidance of Academician K.I. Scriabin in connection with the expedition organized by him in 1928 were presented. Based on the results of the expeditions, employees of the Department of Biology of the Blagoveshchensk Medical Institute gave a detailed analysis of the study of the natural focus of clonorchiasis from 1958 to 1961 in the upper current of the Amur from the village of Grodekovo to the village of Bibikovo, and along the Zeya River - from the city of Blagoveshchensk to the village Moskvitino with the study

of not only rivers, but also floodplain lakes and oxbow lakes. The studies were carried out with the participation of not only biologists, histologists (V.A. Kirilov, Dymin, A.S. Shatrov, A.D. Chertov, P.P. Prokhorov, I.M. Cheremkin, R.N. Podolko), but also clinicians of BSMI - ASMA: professors V.A. Figurnova, V.A. Gavrilova, I.S. Katina, R.S. Mateishen, P.K. Soldatkina, L.V. Kruglyakova. The data published by clinicians and employees of the Department of Hospital Therapy are interesting: the head of the department professor Yu.S. Landyshev, N.I. Georgievsky, M.V. Pogrebnaya: "A case of clonorchiasis occurring under the hematological mask of chronic myelogenous leukemia" (1999).

Studies of clonorchiasis in the Amur region were continued in the 21st century. The role of the 1st and 2nd intermediate hosts of C. sinensis, which is performed by the mollusks Parafossarulusmanchouricus and fish - numerous species of cyprinids mainly of the Amur-Ussuriyskichthyocomplex, to which the larval stages of the parasite show increased specificity, is being studied. The Amur region is the northern zone of their ranges on the Asian continent, and therefore they are concentrated in the largest quantities in the southern regions of the Far East - in the waters of the Ussuri, and in the Amur region - the Zeya-Bureya watershed up to 52 ° north latitude along the Amur valley. The study of these features of the distribution of intermediate hosts of the pathogen, which determine the boundaries of the nosoarea of clonorchiasis and affect the nature of its structure, does not lose its relevance today and attracts the attention of not only parasitologists, ichthyologists, but also ecogeneticists.

The disease, as a rule, begins acutely 2-4 weeks after eating fish infested with larvae of clonorchs. The body temperature rises, in some cases up to 40°C, many patients develop urticaria, subicteric sclera and an enlarged liver, less often the spleen. Sometimes a pulmonary syndrome develops (from catarrhal phenomena to asthmatoid bronchitis), acute gastritis, duodenitis. Characteristic changes in the peripheral blood are eosinophilia up to 10-40%, and sometimes even up to 80%.

Then, a few weeks later, the acute phenomena subside and the disease passes into the subacute, and then the chronic stage. In the late stage, patients complain of pain in the right hypochondrium, often nausea, vomiting, dizziness, headache, increased nervous excitability, and rapid mental and physical fatigue. The liver is slightly enlarged, consolidated. Palpation of the pancreas is painful. The course of the disease is chronic with periodic exacerbations. For the patient, the severity of the course is aggravated by increasing weakness, weight loss, and apathy.

Summary: the priority in the study of helminthiases in the Amur Region since 1952 belongs to the employees of the BSMI (ASMA). In the 21st century from 2002 to 2011 the incidence rate of clonorchiasis ranged from 15.3 to 20.3 cases per 100.000 population. The Amur Region took the leading place in the Russian Federation in terms of the number of victims of this disease, the share of which was more than 80% in the overall structure of the incidence of helminthiasis. The historical overview of the study of clonorchiasis in the Amur Region testifies to the former relevance of the trematodosis prevailing in the region, in Southeast Asia, emphasizes the role of biological and medical knowledge in modern methods of diagnosis and therapy, and puts the problems of prevention in the first place.

DOPAMINE AND ITS ROLE IN VARIOUS PATHOLOGIES

Pushkareva L., Degtyareva O. – the 2nd year students
Scientific leaders – Doc.Med.Sc., Prof. E.A. Borodin, O.I. Katina

Dopamine belongs to biogenic amines. Along with norepinephrine and epinephrine, it belongs to the group of catecholamines and, as norepinephrine, adrenaline, and serotonin, plays an important role in brain activity as a mediator of dopaminergic CNS neurons. Dopamine also functions as a

hormone - it is produced (as adrenaline and norepinephrine) by chromaffin cells of the adrenal medulla. Dopamine is a hormone responsible for the psycho-emotional state of a person. The mode of functioning of the heart and nerve cells, body weight and performance depend on its concentration.

Dopamine released by neurons can interact with different receptor subtypes, each of which is associated with G-proteins: the D1-like receptor family (includes D1 and D5 subtypes) and the D2-like receptor family (includes D2, D3 and D4 subtypes). These subtypes differ in their signaling pathways. Thus, cAMP synthesis is stimulated by D1-like receptors and inhibited by D2-like ones. The released dopamine is reused by neuronal reuptake (specific dopamine transporter, DAT) and reaccumulation in vesicles (nonspecific vesicular monoamine transporter, VMAT) or is catabolized by MAO and COMT like other endogenous catecholamines. Violation of the activity of neurons in the ventral tegmental area (VTA), nucleus accumbens and prefrontal cortex leads to the formation of various pathologies.

Parkinson's disease and parkinsonism as a result of dopamine deficiency.

Parkinson's disease is one of the most common. This disease is manifested by muscle hypertonicity, or rigidity, akinesia, tremor, postural instability that appears as the disease progresses, as well as other symptoms indicating a violation of skeletal muscle control processes. Their pathogenesis is associated with the progressive degeneration of nigrostriatal neurons, a decrease in the activity of tyrosine hydroxylase and DOPA decarboxylase in them, as a result of which the effectiveness of inhibitory dopaminergic effects decreases (due to dopamine deficiency) and at the same time the activity of cholinergic and glutamatergic effects increases. In Parkinson's disease, degeneration of dopamine neurons in the substantia nigra and striatum occurs. In order to compensate for the lack of dopamine, L-DOPA is used as a precursor of dopamine, as well as D2 receptor agonists.

Dopamine and Attention Deficit Hyperactivity Disorder. ADHD.

It is assumed that the development of ADHD is based on the hypoproduction of norepinephrine, dopamine and serotonin in neurons, with the leading role of hypoproduction of dopamine due to impaired dopamine reuptake in dopaminergic neurons. The low density of D-receptors is also important for the development of ADHD. All this is associated with mutations in the gene that controls the synthesis of the dopamine transporter, i.e. DATI, and a gene that controls the synthesis of D4 receptors.

In connection with the idea of a deficiency of dopaminergic effects as one of the leading causes of the development of ADHD, there are currently talks about the prospects for the use of psychotic substances for the treatment of ADHD, which increase the release of dopamine from synaptic endings, and substances that block the reuptake of the neurotransmitter.

Dopamine and schizophrenia.

Schizophrenia is a progressive mental illness characterized by dissociative mental functions, i.e. loss of unity of mental processes with rapidly or slowly developing personality changes of a special type, various productive psychopathological disorders.

In general, recent studies indicate that schizophrenia is associated with a decrease in the content of dopamine in the Mesocortical dopaminergic pathway, i.e. in the neurons of the prefrontal cortex (this generates negative symptoms and cognitive impairment in schizophrenia), as well as with an increase in the content of dopamine in the mesolimbic pathway, i.e. in the neurons of the anterior cingulate gyrus, and this leads to the formation of positive symptoms - to delirium and hallucinations. In addition, disturbances in the metabolism of glutamate and GABA play a certain role in the pathogenesis of schizophrenia. It is possible that the multidirectional changes in dopamine production prevent the creation of an antipsychotic drug that would simultaneously correct the hyperfunction of dopaminergic systems in some areas of the brain and their hypofunction in others.

METHODS OF X-RAY EXAMINATION OF THE PANCREAS

Sheiko V. – the 2nd year student
Scientific leaders – A.E. Pavlova, O.I. Katina

The study of the state of the pancreas is to determine the norm and identify pathologies associated with its vital activity, growth, development.

There are many methods for examining the gland:

1. Ultrasound helps to obtain information about the size, shape, location of the pancreas. During the diagnosis, changes in tissues, inflammation, neoplasms, and foreign inclusions can be detected. This is the safest, cheapest and most common method of examination. But this method is difficult to use in obesity and flatulence.
2. Computed tomography (CT) is a complex modern research method performed using sophisticated equipment, computed tomography. Computed tomographs of a new generation have significantly increased the accuracy of diagnosing tumors, cysts, and pancreas.
3. Magnetic resonance imaging (MRI). Reconstructive three-dimensional dynamic contrast magnetic resonance imaging (3D MRI) allows you to identify diseases of the pancreas in the early stages, due to the complex modeling of the object of study.

APORIAS OF ZENON OF ELEA "THE FLYING ARROW AND THE PROBLEM OF MOTION IN PHILOSOPHY AND PHYSICS"

Baranova T. – the 2nd year student
Scientific leaders - G.K. Ezri, O.I. Katina

The relevance of the topic is determined by the fact that the problem of movement has been debatable since the birth of scientific knowledge. One of the first philosophers to discuss the problem of motion was Zeno of Elea. So, the purpose of this article is to study the problem of motion in Zeno's aporia "Flying Arrow" in the context of the history of philosophy and physics.

Zeno of Elea – is a philosopher 5th century BC and student of the metaphysician Parmenides. Parmenides asserted the absence of movement. As proof of his views, Zeno formulated aporias, in which he sought to show the inconsistency of movement and space. His main aporia about movement is formulated as follows: “A flying arrow is motionless at every moment of time, and if so, then it is motionless at any time. Therefore, it is always immovable. In this case, it is stated that everything is either moving or at rest at any moment of the "now". However, since everything occupies an equal space (before the “now” moment and after it is in the same place.), then it does not move, therefore, it is at rest. So there is no movement.

Aporias in the history of philosophy have served as an object of criticism. Aristotle believed that Zeno mistakenly divided time into finite elementary segments (instant "now"), in each of which the body rests. Time is always moving, there is no moment when it is still. In ancient philosophy, there was a discussion about the division of time into moments: a dispute took place between supporters and opponents of making time into an infinite number of moments. In the 17th century, the French thinker Pierre Bayle came to the conclusion that Zeno was right: the concepts of time, extension and movement are associated with difficulties insurmountable for the human mind. In modern philosophy, the aporias of Zeno are also the object of criticism. Modern logician A.M. Anisov explained the inconsistency of the “Flying Arrow” aporia by comparing instants of time “now” with frames on film. The same position was held by the British logician B. Russell, who argued that modern physics interprets motion in the same way as the ancient thinker did in his aporias.

In the philosophy and physics of the 19th-20th centuries, the urgency of the problem of motion increased. G. Hegel, K. Marx, F. Engels, V. Lenin, defending the dialectical view of the world, argued that movement is a universal property of thinking and matter. Among the opponents of this view were R. Avenarius and E. Mach, who defended the relativity of motion. There was a dispute in physics about the possibility of isolating an absolute frame of reference. The ether was supposed to be such an absolute reference system. Relative to it, any movement would be absolute. The supporter of the hypothesis of the existence of the ether was N. Tesla, and the opponent was A. Einstein.

Conclusion. So, aporias, in particular Zeno's "Flying Arrow", as well as the problem of movement, continue to be of interest to philosophers and physicists. In the science of the 19th-20th centuries, the problem of movement, like aporias, began to be considered in the following contexts. First, as a dispute between metaphysics (an external impetus is needed for movement) and dialectics (an impetus is not needed - self-motion) in philosophy. And, secondly, as a dispute between the supporters of absoluteness (supporters of the hypothesis of the existence of the ether, opponents of A. Einstein) and the relativity of motion in physics (supporters of A. Einstein, opponents of the hypothesis of the existence of the ether) in physics.

INFLUENCE OF STARTING ON THE MENTAL ABILITIES OF A HUMAN

Baranova T. - the 2nd year student

Scientific leaders – Cand.Med.Sc. T.L. Ogorodnikova, O.I. Katina

This topic is interesting in view of the fact that it traces the connection between brain activity and starvation and, as a result, the activation of neurogenesis and memory improvement.

For many years, scientists thought that the adult human brain remained unchanged. However, now science knows for sure: throughout our life, more and more new synapses are formed in our brain - contacts between neurons or cells of a different type that receive their signal. Together, neurons and synapses form a neural network, the individual elements of which are constantly in contact with each other and exchange information. It is neural connections that help different areas of the brain transmit data to each other, thereby providing vital processes for us: memory formation, production and understanding of speech, control of the movements of our own body.

Neurogenesis is a multistage process of formation of new nerve cells in the mature central nervous system, which is its adaptive function. After birth, neurogenesis is still possible in the olfactory bulb and hippocampus. Up to seven hundred new neurons are formed each day, corresponding to an annual turnover of 1.75% of neurons in the renewing fraction, with a moderate decline during aging. Neurons live with us for a very long time, so it is on neurons that the deposition of “excess garbage” that comes with excess food is manifested. Recent studies have found a link between intermittent fasting and neurogenesis. It turned out that calorie restriction and fasting can not only increase synoptic plasticity and promote neuronal growth, but also reduce the risk of developing neurodegenerative diseases and improve cognitive function.

After receiving the Nobel Prize for autophagy, many scientists began to intensively study the effect of various fasting regimens on various processes, while obtaining extremely positive results.

CLINICAL AND FUNCTIONAL FEATURES OF CORONARY ARTERY STENTING PATIENTS WITH CORONARY ARTERY DISEASE

Alieva L. –the 5th year student

Scientific leaders – Cand.Med.Sc. O.A. Tanchenko, O.I. Katina

To assess the risk factors and the data of additional examination methods in patients with coronary artery disease who underwent coronary artery stenting, their medical histories were studied.

35 medical histories were taken: 26 medical histories of men and 9 medical histories of women. All patients were divided into 3 age groups: the first included 11 patients under 50 years old; the second 15 patients - from 51 to 64 years old; the third 9 patients – over 70 years old. In 24 (68.6%) patients, 2 and 3 vascular lesions of the coronary arteries were diagnosed and, only in 11 (31.4%) cases, a single-vascular lesion. Lesion of the left coronary artery was in 17 (48.5%), in 18 (51.4%) patients there was a lesion of the right coronary artery. Of all 35 analyzed case histories, 23 patients smoke - 65.7%. The remaining 7 (20%) have a history of smoking in the past, 5 (14.3%) patients have never smoked and these 14.3% are women. Obesity was observed in 5 patients (14.3%). Most patients were diagnosed with various comorbidities. Almost all 28 (80%) patients have arterial hypertension, 4 (11.4%) patients have diabetes mellitus. Hypercholesterolemia is observed in 22 (62.8%) patients. On admission to the clinic, all patients were examined: general examination, instrumental research methods (electrocardiography, echocardiography at rest), and laboratory diagnostics. When analyzing electrocardiography/daily ECG monitoring data, sinus rhythm was detected in 23 (65.7%) patients, while 3 (8.5%) of them were diagnosed with paroxysmal atrial fibrillation. 4 (11.4%) patients were diagnosed with a permanent form of atrial fibrillation. According to echocardiography, 9 (25.7%) patients had a decrease in the left ventricular ejection fraction (LVEF) of less than 55%, the average value of LV was 48.7 ± 4.4%, the minimum was 39%. We can also talk about the clinical picture of patients with coronary artery disease that have undergone coronary artery stenting. In 7 cases, the classical clinical picture of angina pectoris was not determined; this is 20% of all analyzed patients. In the remaining 20 cases, 57.1% of patients showed a clinical picture of unstable angina pectoris, in 8 patients 22.9% – stable angina pectoris III-IY FC. The average age of patients was 64.4 ± 3.15 years. Thus, according to the data of the cardiology department of the RSC with the intensive care unit, it can be judged that men are more likely to suffer from coronary heart disease than women, and it is they who most often perform coronary artery stenting. When assessing risk factors, smoking plays a leading role, followed by obesity. Arterial hypertension and hypercholesterolemia were detected in most patients. Speaking of additional methods of examination, a decrease in the ejection fraction and rhythm disturbances on the ECG is rare.

EFFECTIVENESS OF DETECTING METHODS OF TICK-BORNE ENCEPHALITIS

Sheshera T. – the 3rd year student
Scientific leaders – Doc.Med.Sc., Prof. G. I. Chubenko, O.I. Katina

In the epidemic season of 2021, more than 430 thousand cases of complaints about tick suction were registered in the Russian Federation as a whole (in 2020 – more than 460 thousand cases), of which 107 thousand (24.8%) were among children under 17 years of age. Over the past ten years, the number of tick bite complaints has remained relatively constant, averaging 340 thousand cases per year. In 2021, 14 deaths from TBE were registered. Most of the victims were not vaccinated against TBE, in addition, in 6 cases there was a late request for medical help.

Laboratory diagnosis of tick-borne encephalitis is based on:

- On the detection of antibodies in the blood of patients. Use RSK, RTGA, PH and others. The diagnostic standard is ELISA, which allows you to separately determine the total pool of antibodies to the virus, class G and M immunoglobulins. Determination of class M immunoglobulins is important for the diagnosis of not only acute cases of the disease, but also exacerbations of the chronic course. Class G immunoglobulins are a consequence of a previous illness or effective vaccination. Serological studies are performed in paired sera taken at the beginning and end of the disease. In the absence of antibodies, it is possible to study the 3rd blood sample taken 1.5-2 months after the onset of the disease.

• On identifying the pathogen genome. In recent years, the PCR method has been introduced into clinical practice, which makes it possible to detect specific fragments of the virus genome in the blood and CSF in the early stages of the disease. The method allows you to make a diagnosis within 6-8 hours.

• On the detection of tick-borne encephalitis virus in ticks using an enzyme-linked immunosorbent assay (ELISA). According to Rospotrebnadzor, the detection of TBE in ELISA is significantly higher than when using polymerase chain reaction (PCR).

Based on several published articles with experiments conducted on the effectiveness of methods (ELISA and PCR) for detecting TBE in the study of large samples, it is more rational to use ELISA. To get a more complete picture of the proportion of carriers that pose an epidemic risk in natural foci of TE, it is proposed to summarize the results of two rapid methods

BASAL CELL CARCINOMA

Sheshera T. – the 3rd year student
Scientific leaders – Cand.Med.Sc. N.R. Levchenko, O.I. Katina

Basalioma — is one of the types of benign skin neoplasms that develop from atypical cells of the basal layer of the epidermis. Other layers of the skin are renewed by basal cells — which form new cells as the old ones die off. Basalioma is localized on the skin in the face and neck (more often at the inner and outer corners of the eye, on the border of the forehead and nose, in the area of the wings of the nose) in the elderly. It is equally common in both men and women. In a significant majority of cases, it occurs against the background of senile keratomas — excessive growths of the epidermis with keratinization. Initially, it is a small, dense nodule that grows very slowly. As it grows, the neoplasm may change: become flat, itchy, and bleed. Often, patients do not perceive such wounds as a skin tumor, but consider them random frivolous "sores". It does not metastasize, i.e. basalioma does not spread through the lymphatic and blood vessels, does not give new growth foci in the internal organs. However, it is prone to extensive local growth, which can lead to its germination deep into the skin and destruction of the surrounding tissue. Mortality from basal cell carcinoma is currently almost zero. A group has also been identified adverse factors (long-term exposure to sunlight, in particular abuse of tanning beds; reduced immunity; age; exposure to carcinogenic substances), which, individually or collectively, have an impact on the development of skin carcinoma (cancer).

Pathogenesis. Normally, the immune system destroys defective cells before they go into uncontrolled division. If for some reason the defense mechanisms do not work, the tumor increases in size and becomes invulnerable to killer cells (cells of innate immunity that can kill tumor and virus-infected cells). In order to protect the body from the influence of harmful factors (sun exposure, chemical carcinogens, etc.), natural recovery mechanisms work in the skin. When "breakdowns" occur in a cell's DNA, the body's defenses try to repair them. If this is not done, the mechanism of programmed cell death — apoptosis-is triggered. Basal cell carcinoma can result from mutations in the genes of the Sonic Hedgehog (SHH) molecular signaling pathway. The normal functioning of these genes is necessary for the proper development and reproduction of cells.

Depending on the specifics microscopic structures there are the following types: basal cell carcinoma: superficial multicentric, solid, cystic and adenoid. Gorlin – Goltz syndrome is a genetically determined multi-organ syndrome inherited by an autosomal dominant type with high penetration and different expressiveness of other organs and tissues, as well as with tumors of various localization. The main manifestation of a syndrome is multiple basal cell carcinomas that are associated with various malformations of the skeleton, eyes, nervous and endocrine systems.

ANTIVIRAL AGENTS: INTERFERONS

Sheshera T. – the 3rd year student
Scientific leaders – Cand.Med.Sc. R.A. Anokhina, O.I. Katina

Interferons are cytokines that have antiviral, immunomodulatory, and antiproliferative effects. The human body produces three groups of interferons: alpha (more than 18 representatives), beta and gamma.

Mechanisms of antiviral action. Binding of interferons to specific cellular receptors induces a cascade of intracellular changes and molecular interactions. The result of this is the promotion of individual genes with the initiation of protein synthesis, the action of which is aimed at suppressing the virus. Interferons act on all the main stages of virus reproduction: penetration in the cell and undressing, transcription of nucleic acids, assembly and exit of the virus from the cell, but most effectively they suppress the synthesis of viral proteins.

Pharmacokinetics. When administered intramuscularly or subcutaneously, the bioavailability of interferon alpha exceeds 80 %, the volume of distribution is approximately 0.4-0.6 l/kg. When used systemically, it is detected in the secretions of the respiratory tract, cerebrospinal fluid, watery moisture and the brain. The elimination of interferons from plasma depends on the rate of their destruction, which occurs mainly in the liver and kidneys. T1/2 interferons alpha is about 40 minutes, recombinant interferons beta and gamma - 4 hours and 30 minutes, respectively. The elimination dynamics is complex and is described by several exponential functions. The addition of an inert polymer of polyethylene glycol to interferons significantly slows down their elimination from plasma. The resulting long-acting interferons (conjugated or pegylated interferons) can be administered only once a week. In addition, pegylation reduces the immunogenicity of interferons.

IFN-α preparations are used to treat hepatitis B and C, papillomavirus infection, and HIV infection, Kaposi's sarcoma, leukemia, and melanoma. INF-β preparations are used as an immunomodulator in multiple sclerosis. IFN-γ (ingaron) is used to treat chronic granulomatosis. In addition, IFN preparations are effective in the treatment of herpetic eye diseases (topically in the form of drops, subconjunctivally); herpes simplex with localization on the skin, mucous membranes and genitals; shingles (topically in the form of hydrogel-based ointment), in the treatment and prevention of influenza and ARVI (administered intranasally in the form of drops). IFN drugs cause similar side effects: flu-like syndrome; changes in the central nervous system (dizziness, visual impairment, confusion, depression, insomnia, paresthesia, tremor); loss of appetite, nausea. Proteinuria, transient leukopenia, symptoms of heart failure, rash, pruritus, alopecia, temporary impotence, and nosebleeds are also possible.

BLOOD EXOSOMES AS NEW BIOMARKERS OF INFECTIOUS DISEASES

Kikot A. – the 5th year student
Scientific leaders - A.V. Gavrilov, O.I. Katina

Extracellular vesicles are biological membrane objects with dimensions less than 1000 nm, the main function of which is the transport of various biologically active molecules. They can also provide intercellular interactions and perform other biological functions. The review provides general information about extracellular vesicles, their varieties, morphological and microscopic features. Various classifications of extracellular vesicles are given, pathogenetic features of the interaction of exosomes with viruses, specific features of the introduction, interaction and identification of exosomes affected by viruses are considered. The possibility of extracellular vesicles to penetrate the blood-brain barrier, coordinating the activity of the immune system in response to the effects of the virus, was noted. The ability of exosomes to mediate intercellular communication through innate and

adaptive immune responses is discussed. The prospects of using exosomes as the main diagnostic tool in the preventive diagnosis and determination of the stage of development of infectious diseases are considered. The review provides information about the therapeutic possibilities of using exosomes. Conclusions are drawn about the importance of continuing the study of exosomes for use in the diagnosis and treatment of infectious diseases.

HUMAN IMMUNODEPHICITY VIRUS 2022

Zelenin I. – the 5th year student
Scientific leaders – Cand.Med.Sc., Assoc. Prof, N.A. Marunich, O.I. Katina

HIV infection is a slowly progressing infectious disease caused by human immunodeficiency virus infection that affects the immune and nervous system, leading to secondary diseases in the form of opportunistic infections and tumors and subacute encephalitis, which ultimately determine the life prognosis of the patient. As of 2022, 4.000 people – 1.100 of whom are young people (15 to 24 years of age) - are infected with HIV each day. If current trends continue, 1.2 million people will be infected with HIV in 2025, three times the 2025 target of 370.000 new infections. In 2021, the number of people receiving HIV treatment increased by only 1.47 million, compared to an absolute increase of more than 2 million in previous years.

The causative agent is RNA-containing HIV, a member of the retrovirus family, subfamily Lentivirus. A distinctive feature of all retroviruses is the presence of an enzyme called reverse transcriptase, which ensures viral replication and commits a large number of errors during the "work" of the virus. The presence of the enzyme determines the high genetic variability of the virus, which allows it to escape from the influence of the immune system. There are two types of the HIV virus: HIV-1 and HIV-2. The disease caused by HIV-2 has a longer, slow progression.

The routes of virus transmission: parenteral (through intravenous drug use, medical procedures using non-sterile equipment, blood transfusions), sexual (in this case the highest risk is associated with the female partner, the recipient during heterosexual contact and the passive partner during homosexual contact). The third route, which is of greatest importance in the spread of HIV among the child population, is vertical. The child may become infected during pregnancy, childbirth and breastfeeding. The risk of mother-to-child transmission during spontaneous pregnancy and childbirth is 10-40%.

HIV infection is a long-term, infectious disease, characterized by stages. The incubation period is from 2 weeks to 6 months. Most patients with acute HIV infection are asymptomatic. Acute HIV infection is characterized by fever, lymphadenopathy, a patchy-papular rash or polymorphic rash, pharyngitis, hepatosplenomegaly, and diarrhea. After symptoms disappear, there is a long period with no signs of HIV infection (latent, or subclinical). During this period, active HIV replication persists and the number of CD4 cells decreases progressively. If the number of CD4 cells declines to a critical level, the patient will develop secondary diseases, the severity of which will increase with the degree of immunodeficiency. Secondary diseases in HIV infection are understood to be a heterogeneous group of diseases associated with an immunodeficiency state. A feature of the clinical picture of HIV infection at the stage of secondary diseases is a frequent combination of secondary diseases with each other and a sterile clinical picture; the severity of the secondary disease is determined by the depth of immunodeficiency.

The consequences of stalled progress on HIV for humans are critical. In 2021, 650.000 people will die of AIDS-related causes-one death per minute. With advanced antiretroviral drugs and effective means to properly prevent, detect and treat opportunistic infections such as cryptococcal meningitis and tuberculosis, these deaths are preventable. Without urgent action to prevent late-stage HIV infection, AIDS deaths will remain the leading cause of death in many countries.

ONCOGENICITY OF THE CERVIX

Amatova Ch., Kharitonova A. – the 3rd year students
Scientific leaders - E.E. Abramkin, O.I. Katina

Cervical cancer is sporadic, usually represented by squamous carcinoma caused by papillomavirus infection (HPV); less often, it is adenocarcinoma. Cervical cancer is the result of cervical intraepithelial neoplasia (CIN) caused by human papillomavirus (HPV) types 16, 18, 31, 33, 35 or 39.

Risk factors for cervical cancer are:

- Early onset of sexual activity
- A large number of sexual partners
- Smoking
- Immunodeficiency

Intraepithelial neoplasia of the cervix (CIN) is divided into: moderate cervical dysplasia, moderate dysplasia, severe dysplasia and carcinoma insitu.CIN 3 rarely regresses spontaneously. If this pathology is not treated, then within months or years dysplasia penetrates through the basement membrane developing into an invasive carcinoma.

Approximately 80-85% of all cases of cervical cancer are squamous carcinoma, the rest are mainly adenocarcinoma. Sarcomas and small cell neuroendocrine tumors are rare. Invasive cervical cancer usually develops by direct spread to surrounding tissues or by the lymphatic route to the pelvic and paraaortic lymph nodes. Hematogenous spread of the tumor is possible, but it is rare.

If cervical cancer spreads to the pelvic or paraaortic lymph nodes, then the prognosis is worse and affects the localization and size of the irradiation area. Cervical cancer metastases can be both lymphogenic (pelvic lymph nodes, retroperitoneal, inguinal) and hematogenic (in the lungs, liver, kidneys). Implantation metastases with the development of peritoneal carcinomatosis are also possible. Complications are vaginal-rectal and vaginal-vesicular fistulas, which quickly lead to septic complications (up to urosepsis)

Every year, 528 thousand new patients with cervical cancer (cervical cancer) and 266 thousand deaths from this disease are registered in the world. According to data for 2022, in most cases, cervical cancer is diagnosed at stage 1-2. However, in 40% of women, the disease is detected at stage 3-4, while the five-year survival rate of patients with stage 1 oncology is 87%, with stage 3 – 43%, and with 4 – 7%. Cervical cancer ranks second in incidence among women aged 30 to 59 in Russia. According to the statistics of the Ministry of Health of the Russian Federation, 17.766 cases of breast cancer were detected in 2018, which is 22.3% more than in 2008 (13.807 cases).

REGENERATION OF THE MYOCARDIUM AFTER DAMAGE

Bobryshev S., Vesnap O. – the 2nd year students
Scientific leaders – Cand.Biol.Sc., Assoc.Prof. T.L. Ogorodnikova, O.I. Katina

The heart is the main organ of the circulatory system. The ancient Egyptians, Indians, Greeks and Arabs believed that the heart is the receptacle of the soul. Cardiovascular diseases continue to lead the list in terms of the number of deaths in all industrialized countries. Most often, heart failure occurs as a result of acute myocardial infarction. In myocardial infarction, the processes of inflammation, necrotic and apoptotic death of cardiomyocytes, and myocardial hyperplasia consistently occur. In modern medicine, rehabilitation therapy after myocardial infarction plays a functional role.

A number of clinicians were engaged in the study of therapy. The goal of therapy after myocardial infarction, as a rule, is to stimulate the regeneration of the heart muscle, partial or complete restoration of the ability to contract. Myocardial regeneration is believed to be impossible. That is why the heart does not restore normal function after an ischemic condition.

The main objectives of the techniques were: improving the contractile function of the heart, reducing the size of post-infarction scar and previous necrosis, improving myocardial trophism by stimulating neoangiogenesis, preventing repeated heart attacks.

It is suggested that stem cells may be present in the myocardium ensuring its regeneration after a heart attack and their activation occurs mainly in ischemic conditions, as a response to tissue hypoxia. The main result of this work is that the researchers have shown the presence of an immature population of cells in the adult heart tissue capable of dividing and differentiating into cardiomyocytes.

An urgent question is the origin of this population of heart stem cells. At the moment, the sources of clinical literature name two possible ways for such cells to enter the myocardium. The first is embryonic stem cells of the heart – these are cells that have been preserved since embryogenesis and have not passed all stages of differentiation. Another hypothesis of the origin of heart stem cells in the human myocardium is their migration with the participation of specific mediators from the bone marrow during inflammation.

It has now been shown that bone marrow stem cells after transplantation into the myocardium can be profiled into cardiomyocytes, endotheliocytes, smooth muscle cells of blood vessels. The red bone marrow of a person contains stem cells. It was found that the number of bone marrow progenitor cells in the blood of patients with acute myocardial infarction significantly increases. A number of researchers believe that these stem cells play an important role in the post-ischemic regeneration of coronary vessels. Currently, the medical literature discusses whether bone marrow stem cells circulating in the blood can migrate to the myocardium and differentiate into cardiomyocytes. The data of various studies on the heart of patients allowed the authors to assume that the mobilization of stem cells from the bone marrow stimulates myocardial regeneration and neoangiogenesis.

Summary: clinicians, thanks to the results of scientists' research on the regeneration of cardiac muscle tissue after coronary heart disease, are able to choose the best quality treatment.

THE PLACE AND ROLE OF NONSTEROIDAL ANTI-INFLAMMATORY DRUGS IN MODERN RHEUMATOLOGY

Kim M., Ushakova V.– the 6th year students

Scientific leaders – Doc.Med.Sc., Assoc.Prof. O.B. Prichodko, Cand.Med.Sc., Assoc.Prof. I.V. Kostrova, O.I Katina

NSAIDs have been proven to have anti-inflammatory, antipyretic and analgesic effects. These effects from the drugs were associated with their ability to inhibit cyclooxygenase-2 (COX-2). COX is an enzyme which regulates the biotransformation of arachidonic acid into prostaglandins (PG), prostacyclin (PGI2) and thromboxane (TxA2). Two main isoforms have been identified: COX–1 and COX–2. According to the UK Drug Safety Committee, the risk of adverse reactions from the gastrointestinal tract is as follows: ibuprofen – diclofenac – flurbiprofen – naproxen – ketoprofen – piroxicam – indomethacin. In conclusion indomethacin has a negative effect on cartilage, i.e. by causing an anti-inflammatory and analgesic effect, NSAIDs do not delay degenerative-dystrophic changes in cartilage and bone tissue. Local therapy is the preferred method of treatment, especially at the age of ≥ 75 years, as well as in patients with concomitant diseases or an increased risk of adverse drug reactions. Therapeutic plasters created on the basis of nanotechnology are of interest, in particular forte Nanoplast (NF). It contains a magnetic layer of rare earth metals and a nanopowder inductor of

long—wave infrared radiation and has analgesic, muscle relaxant effects. Movalis hasn't hepatotoxic and nephrotoxic effects with prolonged use. In patients with concomitant coronary heart disease, it doesn't increase the incidence of anginal pain and cardiac arrhythmias. Nimesulide is effective in suppressing pain in inflammatory joint diseases, surgical operations, various forms of headache and menstrual pain. Nimesulide is tolerated and relatively rarely causes dyspepsia. While taking nimesulide the risk of developing serious complications and cardiovascular events is lower than when using many other NSAIDs.

XENOPHOBIA

Nadtochii D., Semchenko R. – the 2nd year students
Scientific leaders – Cand.Biol.Sc. I.A. Kreshchenok, O.I. Katina

Xenophobia (from Greek: stranger - fear) is the fear or hatred of someone or something alien; the perception of strangers as dangerous and hostile. This attitude may lead to enmity on the grounds of national, religious or social division.

There is a certain level of xenophobia in Russian society. The reasons for the spread of such ideology are varied, first and foremost an identity crisis. In Soviet times, identity was built on ideological and state affiliation - there were only Soviet citizens, equal before the law and sharing a common Soviet culture. The collapse of the great power led to the creation of a number of national federative entities. The state ceased to have a single ideology, and citizens began to identify with their nationality rather than with the country. In addition, in the 1990s there were hostilities in the republics of the North Caucasus. And where blood is shed there is personal hatred that spreads to the entire nation.

An important factor in the spread of xenophobic attitudes in Russia is also its national policy, which can be called a policy of positive discrimination, i.e. infringement of the rights of the ethnic majority of Russians: national minorities and autonomies receive additional benefits from the state, while their provision falls on the shoulders of the majority. Not surprisingly, the slogan "Russia for Russians" has become increasingly popular in recent years.

In the Western European world, they say that crime has no nationality, but criminals have nationality. Statistics, both in the West and in Russia, show that the crime rate among migrants is very high. Being unable to find their place in society, migrants tend to gather in ghettos and form ethnically based criminal networks involved in drugs distribution, robbery and burglary. The problems raised in this research can only be solved by taking globalization processes into account.

The intermingling and blending of languages and cultures, forcibly brought together by a national entity, has been temporary, unsustainable and limited and has never been on a global scale.

These phenomena do not contribute to the formation of tolerance in Russia because, due to the peculiarities of our psyche, we generalise and spread the attributes of certain individuals or groups to an entire nation or region. During the period of strengthening of the international police forces of the Russian Federation, there has been an increase in the interest of scholars and the public in the historical heritage of the people. Attention to the achievements of the past is due to the urgent need to rethink many events, phenomena, and assessments of society. At the same time, priority is given to the study and analysis of education reforms and the impact of the educational process on personal development, as it is the criterion that determines the level of development of science, technology and other spheres. In order to reduce the risk of clashes based on antireligious animosity, the government must actively apply preventive measures. Forceful and ideological methods of influencing Russians in order to inculcate tolerance are showing their inadequacy.

THE MECHANISM OF PROTEIN PUTREFACTION IN THE INTESTINE

Semchenko R., Nadtochii D. – the 2nd year students
Scientific leaders – Cand.Med. Sc., Assoc. Prof. E.V. Egorshina, O.I. Katina

The intestine can develop putrefactive and fermentative processes when animal proteins are consumed in excess and under a range of pathologies. The intestine creates optimal conditions for the formation of poisonous products of degradation of amino acids: phenol, indole, cresol, scatole, hydrogen sulfide, methylmercaptan, as well as non-toxic compounds for the body. Transformations of amino acids caused by the activity of intestinal microorganisms have been collectively termed "intestinal protein putrefaction".

Thus, the decomposition of sulfur-containing amino acids in the intestine produces hydrogen sulfide H2S and methyl mercaptan CH3SH. Diamino acids - ornithine and lysine - undergo a decarboxylation process to form amines - putrescine and cadaverine. From aromatic amino acids: phenylalanine, tyrosine and tryptophan, corresponding amines are formed during a similar bacterial decarboxylation process. In addition, microbial intestinal enzymes cause a gradual degradation of the side chains of cyclic amino acids, with the formation of poisonous products of metabolism - cresol and phenol, scatole and indole, respectively.

After absorption, these products enter the liver via the portal vein, where they are neutralised by chemical bonding with sulphuric or glucuronic acid to form non-toxic acids. The latter are excreted with the urine. The liver contains specific enzymes, arylsulfotransferase and UDF-glucoronyltransferase, which catalyse the transfer of a sulphuric acid residue from its bound form, 3'-phosphoadenosine-5'-phosphosulphate (FAPS), and a glucuronic acid residue also from its bound form, uridyl-diphosphoglucuronic acid (UDFGC), to either product respectively. Indole is pre-oxidised to indoxyl, which interacts directly in the enzymatic reaction with FAPS or with UDFGC. Thus, indole is bound in the form of etheric acid. The potassium salt of this acid is excreted in the urine. By the amount of indole in human urine one can judge not only about the rate of protein putrefaction in the intestine, but also about the functional state of the liver. The function of the liver and its role in the neutralization of toxic products is often also judged by the rate of formation and excretion of hippuric acid in the urine after ingestion of benzoic acid.

Toxic substances produced in the body, such as NH3, peptide and steroid hormones, catecholamines, heme catabolism products and amino acid decomposition products in the intestine, are subjected to neutralisation. Detoxification of toxic substances occurs by chemical modification in two phases:

- in the first phase reactions, the hydrophobic substance is modified, with hydroxylation occurring most frequently;
- in the second phase, a conjugation reaction takes place.

AURICULOTHERAPY

Chuldum D. – the 2nd year student
Scientific leaders – A.E. Pavlova, O.I. Katina

Auriculotherapy, also called ear acupuncture, applies the principles of acupuncture to specific points on the ear. Auriculotherapists believe that healing processes can be promoted by working with these points on the ear,because the ear contains many blood vessels and nerve endings that,when stimulated,influence the organs and bodily functions.

Acupuncture is one of the world's oldest therapeutic techniques, having its roots in ancient China. Some of the oldest texts of Chinese medicine mention acupuncture points and massage techniques specifically for the ear. For eye problems, silver or gold ear rings were sometimes prescribed in ancient

times to provide constant healing stimulation at points on the ear, a practice that is still performed in some areas of the world, including parts of Europe.
The ancient Egyptians and Greeks believed that working with the ears could influence health.
Hippocrates, the Greek father of medicine, mentioned a point on the ear that could be operated on as a birth control measure in men. In Europe in the Middle Ages, doctors prescribed surgery on a particular point on the ear for a condition called sciatica, which causes nerve pain in the hips and thighs.
In modern times, auriculotherapy has been advanced by Paul Nogier of France. Beginning his work and experiments in the 1950s, Nogier laid out an intricate map of points on the ear that correspond to the organs and processes in the body.
Auriculotherapy is a quick, inexpensive, and non-invasive method of pain control. Ear acupuncture is also used as anesthesia during medical procedures. It is used frequently to help people overcome drug, tobacco, and alcohol addictions, and is used to treat chronic health conditions and diseases.
After an initial exam and interview, auriculotherapists begin treatment by checking the patient's ears closely. Practitioners may palpate (feel) the ears with their hands, and check for any irregularities or painful points. They may check for spots that are insensitive or numb by using cold or hot needles on the ear. They may also rely on electrical devices that measure skin resistance at points on the ear.
Auriculotherapy is generally performed once per week on patients for a sequence of several months, although the frequency of treatment depends on the patient and condition. Treatment may last for several months. The initial visit to an acupuncturist is typically the most expensive, costing from $80 to $200. Follow-up visits are less expensive, from $50 to $100 on average. Auriculotherapists may also prescribe herbal and nutritional remedies. Insurance coverage of acupunture fees varies, depending on individual policies.
The American Academy of Medical Acupuncture (AAMA) was chartered in 1987 to support the education and correct practice of physician-trained acupuncturists. Its members must be either MDs or DOs who have completed proper study of acupuncture techniques. The National Commission for Certification of Acupuncturists (NCCA) conducts certification exams, promotes national standards, and registers members. Most states that license acupuncturists use the NCCA standards as certification. The American Association of Acupuncture and Oriental Medicine (AAAOM) is the largest organization for practitioners, with more than 1.600 members.

CORRELATION OF THE SENSE OF SMELL WITH EMOTIONS AND MEMORY

Alikulova S. – the 2nd year student
Scientific leaders – Cand.Biol.Sc. S.N. Gasanova, O.I. Katina

The relevance of the study is in the fact that at the moment there is very little reliable and verified information about the correlation of the olfactory system with emotions and memory. Currently, a large number of experiments are being conducted in the field of odors. However, scientists are increasingly studying with great interest the links between the effects of aromas and activity in the limbic parts of the brain, including memory processes. They have already come to the conclusion that smells can be stored in a person's memory all his life. These studies will help solve many problems facing human memory.
It is known that smells are a deep part of human memory connecting us with especially important memories in our lives. They are associated with people close to us and our relatives. Smells evoke strong memories — neural connections between the hippocampus and the olfactory organ are responsible for this.

Olfaction is the process of smell perception; a type of sensitivity aimed at perceiving a variety of odorous substances with the help of an olfactory analyzer. The olfactory analyzer plays an important role in the orientation of a person in the environment. With the help of the olfactory system, people recognize substances dissolved in the air and characterized by volatility. In humans, the sense of smell is relatively poorly developed compared to other mammals. But in animals, the olfactory analyzer plays a significant role in the perception of the outside world, unlike humans.

The olfactory analyzer is represented by olfactory receptors located in the nasal mucosa. Along the olfactory nerve, the signal from the receptors enters the olfactory zone of the cerebral cortex .The olfactory impulse reaches the brain much faster than the painful one.

Memory is the memorization, preservation and subsequent reproduction of what we previously perceived, experienced or did. In other words, memory is a reflection of a person's experience by memorizing, preserving and reproducing it. Memory is expressed in the ability to store information about the events of the outside world and the reactions of the body for a long time and repeatedly introduce it into the sphere of consciousness and behavior.

Smell is the strongest feeling tied to memory.

Scientists at Northwestern University USA stated in their study that smells connect us with important memories that take us back and we feel the presence of loved ones again.

And scientists from Lancaster University in Britain found out that the smell of food can bring back memories. They conducted a study, the participants of which were elderly people talking about events that happened in their youth. Then they were asked to repeat the story inhaling the smells of the food that appeared in these memories. As a result, the stories turned out to be much more detailed, emotionally colored and overgrown with a lot of details.

Other important discoveries were studies in 2020, where in experiments on mice, researchers at Boston University proved that smell can serve as a trigger for memory and revive memories in detail. According to scientists, this discovery could lead to a breakthrough in the treatment of mental disorders related to memory: if it is not a medicine, then it is a good addition to existing therapy.

Russian scientists have recently patented a new development — a mixture of bornyl acetate and camphene contained in coniferous plants (Siberian fir, pine) and other plants (lemon, bergamot, lavender, etc.) in a certain ratio has a cholinergic effect, i.e. leads to an increase in the content of acetylcholine and allows treating diseases of the autonomic and central nervous system with alternative in ways.

Thus, the role of the sense of smell in the memory system should not be underestimated. With the help of odors, we can develop new methods in the treatment of diseases associated with memory activity.

THE PROSPECT OF ROBOTICS WITH HUMAN REPRODUCTIVE FUNCTION

Bezzubtsev D. – the 3rd year student

Scientific leaders - Doc. Med. Sc., Prof. V.V. Grebenyuk, E.A. Volosenkova

Relevance. Exclusion of the newborns' pathology, interrupted pregnancy, including unwanted.

Aim: improvement of demographic indicators of the Russian Federation population.

Original research. To study better the human reproductive system, scientists of the I. I. Mechnikov Northwestern State Medical University have created a simple model of the female reproductive system in the laboratory. The authors of the report, in online forums mode, analyzed this medical experiment, the purpose of which was to launch a reproductive cycle with the addition of a hormone stimulating the formation of follicles to the system. This stimulated the mouse ovaries to produce estrogen. After 14 days, the specialists added luteinizing hormone, which prompted the ovaries to release an egg and produce the progesterone hormone. The egg remained in the ovarian cavity, but the second cavity,

covered with tissue from the female fallopian tubes, began to act as if the egg was passing through it. In this model, as in women, the tissues in the fallopian tubes contain cilia. It is they what move the eggs to the uterus. Hormone receptors were produced in the third and fourth cavities "lined" with human tissues of the uterus and cervix. This medical experiment clearly demonstrated the possibility of in vitro fertilization using robotics.

Conclusion. Thus, humanity is striving for the moment when robotic women with an artificial reproductive system will be created. Currently, robots are being developed with a built-in ectogenesis system, which is an artificial reproductive system for carrying a human child. A mechanical uterus will be built into the robot's system, in which fetal development is possible with the help of special devices.

THE DEVELOPMENT OF THE EAR

Sukhanova A. – the 2nd year student
Scientific leaders - A.E. Pavlova, E.A. Volosenkova

According to scientists, the aggregation as one of the first occurs 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 mechanism is gradually formed 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 the rudiments of the middle and outer ear occur.

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

The middle ear. Anlage of the tympanic cavity arises from the distal part of the first bronchial furrow during the 2nd month. The Bustachlan tube arises from the proximal part of the first bronchial furrow. The ossicles develop from derivatives of nucelosidal and sublingual branched arches.

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

DISORDER IN THE TISSUES OF THE ORAL CAVITY IN CHRONIC INSUFFICIENCY OF THE CARDIOVASCULAR SYSTEM

Zhmurova M. Tyukalova A. – the 3rd year students
Scientific leaders – E.E. Abramkin, E.A. Volosenkova

Cardiovascular insufficiency, which is developed as a result of rheumatism, atherosclerosis, myocardial infarction, hypertension and other pathological processes leads primarily to a change of the color of the mucous membrane in the oral cavity, hemodynamic disorders, and as a result, the metabolism of various organs of the human body decreases.

In the oral cavity, the mucous membrane is pale, and one of the signs of cardiovascular insufficiency is a "polished tongue" …

Congenital heart defects are expressed by the following changes in the oral cavity:

1) cyanosis and swelling of the oral mucosa are determined in 50% of cases;
2) interdental papillae are edematous; they move away from the necks of the teeth;
3) the red border of the lips is dry, pale, covered with scales. Crusts, maceration of the skin are noted in the area of the mouth corners;
4) cyanosis of the soft palate, palatine arches, tonsils, foci of limited inflammation of the oral mucosa are revealed in a number of patients.

COMORBIDITY IN ARTERIAL HYPERTENSION AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Segodina V. - the 3rd year student
Scientific leaders - Cand. Med. Sc. E.V. Magalyas, E.A. Volosenkova

In clinical practice, comorbid course of different diseases is often observed in the same patient, which is up to 93% among middle-aged individuals. According to the literature, arterial hypertension (AH) and chronic obstructive pulmonary disease (COPD) occur in 34.3% of cases. Patients with AH and COPD have especially high cardiovascular risk.

In order to identify the risk factors and features of AH course in COPD patients, a retrospective analysis of 42 case histories of AH patients combined with COPD was performed. AH of degree I was observed in 5 (11,9%) patients, and of degree II - in 11 (26,2%) patients, and of degree III - in 26 (61,9%) patients. The mean age of the patients was 56.9±0.47 years. There were 28 (66.7%) men and 14 (33.3%) women. Among the examined patients, 39 (92.8%) smoked, including 30 (76.9%) men and 9 (23.1%) women. Anamnesis of smoking was 63,5 pack/years. Excessive body weight was observed in 16 (38,1) % of the patients, the mean BMI was 28,4±3,9 kg/m². Six (14,3%) persons were obese.

Thus, patients with AH and COPD have common risk factors: smoking, excessive body weight, age, sedentary lifestyle. The revealed peculiarities of AH course in COPD patients are the basis for prevention and selection of the optimal treatment tactics for these patients.

SJOGREN'S DISEASE. CLINICAL AND MORPHOLOGICAL CHARACTERISTICS

Segodina V- the 3rd year student
Scientific leaders – E.E. Abramkin, E.A. Volosenkova

Sjogren's disease is a chronic inflammatory autoimmune disease characterized by gradual destruction of the salivary and lacrimal glands by lymphocytes and plasma cells. In addition, Sjogren's syndrome is characterized by involvement of the lacrimal glands with the development of dry keratoconjunctivitis and salivary glands like parenchymatous parotitis.

The combination of dry keratoconjunctivitis, xerostomia, and chronic polyarthritis was described in detail by the Swedish ophthalmologist Sjogren in 1933.

Sjogren's disease affects between 4 and 250 persons per 100,000 of the population. Women are affected about 8 to 25 times more often than men. Most patients are between 35 and 50 years old. Children very rarely get the disease.

The etiology of this disease is unknown, the role of hereditary nature is assumed, some researchers consider it a consequence of immunopathological reactions to viral infection.

The prognosis for Sjogren's disease will be favorable if the treatment is started in time. In the long-term course of the disease (more than 5-8 years), salivary gland lymphomas develop in 13.8% of patients, non-Hodgkin's lymphomas cause death in Sjogren's disease in 34.5% of cases.

DEVELOPMENT OF ADDICTION TO BENZODIAZEPINE-TYPE TRANQUILIZERS

Segodina V. – the 3rd year student
Scientific leaders – Doc. Med. Sc., Assoc. prof. V.I. Tikhanov, E.A. Volosenkova

Benzodiazepines - a class of psychoactive substances with hypnotic, sedative, muscle relaxant and anticonvulsant effects.

The mechanism of action of tranquilizers is associated with inhibition of brain structures (limbic system, hypothalamus, reticular formation of brainstem, thalamic nuclei) responsible for regulation of emotional reactions. Excitation of benzodiazepine receptors activates GABA receptors, which promotes the opening of chlorine channels and the release of chlorine ions into the cell, leading to inhibition of the central nervous system neurons. Benzodiazepines enhance GABAergic inhibition at all levels of the CNS.

Benzodiazepine-type tranquilizers are widely distributed in the world. At this moment they are the second most commonly used drugs after cardiovascular drugs.

Addiction usually occurs as a result of permanent overdose after prolonged regular use of the drug.

The withdrawal syndrome is manifested by a complex of somatoneurological and mental disorders. Tachycardia, decreased blood pressure, increased sweating, hand tremors are observed.

The prognosis for benzodiazepine dependence is quite favorable. As with other addictions, an important component of successful treatment is the patient's desire to stop abusing the psychoactive substance.

THE HISTORY OF THE DEPARTMENT OF PEDIATRICS OF THE AMUR STATE MEDICAL ACADEMY

Maluga M. – the 3rd year student
Scientific leaders – O.V. Zhuravleva, E.A. Volosenkova

The history of the Department of Pediatrics is inextricably linked with the history of the Department of Children's Diseases of the Medical Faculty of the Amur State Medical Academy of the Ministry of Health of Russia. During the existence of the Pediatric Faculty (1988-1992), the Department of Children's Diseases has prepared a powerful personnel potential of pediatricians for the Amur Region (4 graduations, more than 500 pediatricians).

Being engaged in medical work, the teaching staff of the department assists the Ministry of Health of the Amur Region, working on a gratuitous basis in the regional commission for the analysis of cases of infant mortality; participates in the work of the Pediatric Society of Physicians of the Amur Region.

Recently, at the Department of Pediatrics, perhaps another tradition was born - ecological. The teachers of the department organized students of almost all courses to take part in the All-Russian campaign #BUMBATL 2022 to collect waste paper. For several years, students of the pediatric faculty have been participating not only in subject Olympiads at the department, but also in interregional, all-Russian and even with international participation Olympiads.

The scientific interests of the department are related to the study of topical issues of the health status of children and adolescents. Currently, a new scientific topic is being developed jointly with the Department of Childhood Diseases of the FPDO: “The influence of perinatal pathology, eating disorders and infectious factors in early childhood on the further health of children”

The Department of Pediatrics is a young department in every sense of the word. There are many new achievements and plans ahead.

THE INCIDENCE OF SALMONELLOSIS IN THE AMUR REGION

Mureeva V. – the 3rd year student
Scientific leaders – Cand. Med. Sc. A.V. Prokopenko, E.A. Volosenkova

Salmonellosis is an acute zooanthroponotic infectious disease caused by the bacterium Salmonella with a fecal-oral mechanism of pathogen transmission, characterized by a predominant lesion of the digestive tract, dehydration and intoxication.

The incidence of salmonellosis in the population
(the number of reported cases)

	2015	2017	2018	2019	2020
Total number of people					
Infectious and parasitic diseases	24624	23683	23513	24080	16464
Salmonella infections	490	206	291	266	124

One of the most important indicators of the state of health is the level of morbidity of the population. In order to predicts the incidence of salmonellosis in the population of the Amur Region, an analysis was carried out over the past five years from 2015 to 2020. The share of salmonella infection, according to the official statistics of the Amur Statistical Yearbook, accounts for 1.2% of all cases of infectious diseases. The problem of salmonellosis morbidity in the Amur region remains relevant for a number of years. Every year in the Amur Region, consistently high rates of salmonellosis incidence were recorded, exceeding those in the Russian Federation, however, after 2018, a significant decrease in the prevalence and incidence of salmonellosis in the Amur Region was noted. Thus, this analysis reflects and predicts a decrease in the incidence of salmonellosis in the Amur region.

M.Y. MUDROV — THE FOUNDER OF CLINICAL MEDICINE IN RUSSIA

Mureeva V. – the 3rd year student
Scientific leaders - Cand. Med. Sc. E.V. Magalyas, E.A. Volosenkova

Medical science was immensely enriched by the activities of Professor, Dean of the Faculty of Medicine of the Moscow University - M.Y. Mudrov (1772-1831). For the first time in Russia, he introduced percussion and auscultation into medical practice, detailed medical history, developed the ethical standards of a doctor.

M.Y. Mudrov was a brilliant clinician. He perfectly understood the value of a confidential conversation between a doctor and a patient, and therefore he developed and introduced a systemic questioning of the patient into the clinic, substantiating the anamnestic method of examining the patient. Mudrov pointed out that “when questioning a patient, the doctor should be interested in everything that is related to the onset of the disease. Later this method was developed and improved by his followers.

Another innovation of M.Y. Mudrov is a plan for writing a case history. M.Y. Mudrov personally wrote two case histories for the sample and put them in a special red morocco book with gold trim and decorations. Matvey Yakovlevich took case histories very seriously, wrote them for each patient, kept them, collected more than 20 thousand histories for his practice and considered this fund an invaluable part of his library.

In addition to the medical business, M.Y. Mudrov developed a preventive direction in medicine. The idea of preventing diseases by reducing the harmful effects of the external environment was most fully developed in the works on military hygiene.

M.Y. Mudrov represents a whole epoch of the improvement of medical sciences in Russia. We can safely say that M.Y. Mudrov’s students make up a special generation of doctors in Russia.

PHARMACOTHERAPY OF NON-SPECIFIC ULCERATIVE COLITIS

Mureeva V. – the 3rd year student
Scientific leaders – Doc. Med. Sc., Assoc. prof. V.I. Tikhanov, E.A. Volosenkova

Nonspecific ulcerative colitis is a chronic inflammatory disease manifested by hemorrhagic purulent inflammation with the development of general and local symptoms in the lower intestine. The main directions of therapeutic measures are the relief of the inflammatory process, toxic manifestations, the induction of remission, the maintenance of the achieved improvement and the prevention of new exacerbations. The main drug basis includes drugs that affect the main links of pathogenesis: 1) the elimination of immune inflammation in the colon mucosa; 2) correction of dysbacteriosis; 3) disturbance of the psychological status. The main directions of pharmacotherapy are azo compounds of salicylic acid and sulphopyridine, in severe cases, glucocorticoids are necessary.

The use of Sulfasalazine allows 80-95% of patients to go into remission. Sulfasalazine is a short acting sulfonamide. It is believed that in this group of drugs, 5-aminosalicylic acid, which is part of it, has an anti-inflammatory effect by inhibiting inflammatory mediators, and the sulfanilamide component acts on conditionally pathogenic flora, contributing to the normalization of intestinal biocenosis. Analogues of sulfasalazine are also used: Asacol, Olsalazine, Pentasa, Belsalazid.

Glucocorticoids are the next step in the treatment of ulcerative colitis if salazopyridazine or mesalazine are not effective enough. The main parameters of their favorable action: inhibition of the maturation of immunocompetent lymphocytes, blockade in the foci of inflammation and the release of arachidonic acid, prevention of the formation of inflammatory mediators, a decrease in vascular permeability, and an effect on tissue fibrinolysis.

LEPROMATOUS TYPE OF LEPROSY. PATHOMORPHOLOGY OF LEPROMATOUS GRANULOMA

Mureeva V. – the 3rd year student
Scientific leaders – E.E. Abramkin, E.A. Volosenkova

Leprosy is a chronic systemic infectious disease caused by a special type of mycobacteria, characterized by weak contagiousness and a progressive course with a predominant lesion of the skin, mucous membranes and peripheral nervous system. The causative agent is Mycobacterium lepreae.

The lepromatous type of leprosy is the most severe form of the disease, which, if left untreated, leads to irreversible disability and often to the death of patients. The disease is manifested by skin lesions in the form of spots, infiltrates and nodes with their subsequent ulceration, early involvement of mucous membranes, internal organs, and bones in the process, late onset of neurological disorders.

Inflammation in leprosy, its most typical lepromatous form, is represented by leprosy granulomas (lepromas) or lepromatous infiltrates. Granulomas of the lepromatous type consist of leprous ("foamy"), mononuclear and plasma cells, histiocytes, fibroblasts, as well as multinuclear cells of the Langhans type, with a limited number of lymphocytes. Lepromas are located in the reticular layer of the skin. Enlarged endothelial cells with accumulation of M. leprae are found in the capillaries. Schwann cells of skin nerves, papillary muscles, hair follicles, sebaceous and sweat glands are affected. Naturally, there is damage to the peripheral nerves, eyes, nasal mucosa with its destruction due to the accumulation of a large number of mycobacteria. Over time, lepromas form in the liver, lungs, spleen, lymph nodes, bone marrow, testicles, adrenal glands, bones, muscles, and other tissues. Osteoporosis and resorption of bone tissue develops mainly in the area of small bones of the hand and foot. The development of nephritis and amyloidosis of the kidneys is typical.

GILBERT'S SYNDROME: MODERN PERSPECTIVES

Konev A., Gulyaev A. – the 6th year students
Scientific leaders – Cand. Med. Sc. I.P. Soluyanova, E.A. Volosenkova

Gilbert's syndrome (GS) has been known to clinicians for a long time: ever since it was described in 1901 by Augustine Gilbert. But in recent years there has been a resurgence of interest in it. This is due to the opened possibility of objective genetic confirmation of the diagnosis and long-term (for several decades) study of its consequences and impact on the health of the population. Today, GS is understood as a hereditary disorder of bilirubin metabolism, consisting in the insufficiency of its glucuronidation and the development of unconjugated hyperbilirubinemia. The characteristic clinical manifestations and data from routine laboratory studies, which served as criteria for diagnosing GS in the pregenetic period, are well known and remain supporting factors for a presumptive diagnosis. For the first time, GS is detected mainly in adolescents of prepubertal and pubertal ages. At the same time, family history data often indicate a hereditary predisposition. The intensity of jaundice is usually small (subicteric skin, icteric sclera). Hepatomegaly is usually absent.

AIR-LEAK SYNDROME IN COVID-19 PATIENTS

Konev A. – the 6th year student
Scientific leaders – Cand.Med.Sc., Assoc. Prof. I.V. Kostrova, Doc.Med.Sc., Prof. O.B. Prikhodko, E.A. Volosenkova

Air-leak syndrome or spontaneous pneumomediastinum is a rare pathological condition characterized by air infiltration of the cellular spaces of the mediastinum and soft tissues of the anterior chest wall. A distinctive feature is the absence of convincing signs of damage to the hollow organs of the mediastinum and pneumothorax, which predetermines the complexity of differential diagnosis and the choice of treatment tactics. According to some authors, it is more typical for young men. The set of nosological forms discussed in this report - spontaneous pneumomediastinum, emphysema of the mediastinum and soft tissues of the chest, neck, and adjacent areas, as well as spontaneous pneumothorax - received a number of names in the literature: air (gas) syndrome, alveolar air leakage syndrome.

The term "spontaneous" indicates the absence of causes such as previous surgery or other medical procedure, gas-producing infection, or trauma of the airways. First described by L.V. Hamman (1939), this pathology is known as Hamman's syndrome [6]. The term is used for the name of air accumulation in the tissues of the mediastinum, neck, chest and adjacent areas. The frequency of Hamman syndrome is extremely low. However, in patients suffering from SOTO-19, air syndrome occurs much more often than in the general population. The incidence of Hamman's syndrome is about 1 per 30,000 emergency room visits, mainly in men in their second decade of life, some of whom have asthma. A number of authors believe that air syndrome is associated with a high risk of mortality. Air syndrome in some cases can be explained by barotrauma during mechanical ventilation. But it also occurs in non-intubated patients on spontaneous breathing.

CHRONIC OBSTRUCTIVE PULMONARY DISEASE AS A FACTOR OF THE DEVELOPMENT OF ACUTE CORONARY SYNDROME

Klimchuk T., Shtyrlina D. – the 3rd year students
Scientific leaders - Cand. Med. Sc. E.V. Magalyas, E.A. Volosenkova

Chronic obstructive pulmonary disease (COPD) increases the risk of developing cardiovascular diseases by 2-3 times.

A retrospective analysis of 26 clinical histories of patients suffering from ACS in combination with COPD who were treated in the department for patients with acute myocardial infarction of the «Blagoveshchensk City Clinical Hospital» was carried out. The average age of the patients was 75.4 years. The duration of COPD was 19.7 years, stable angina – 7.2 years.

A combination of pain syndrome in the heart and shortness of breath was observed in 20 (76.9%) patients, due to the presence of a pulmonary and cardiac component. Sinus rhythm on ECG was registered in 15 (57.7%) patients, atrial fibrillation – in 4 (15.3%), extrasystole – in 7 (27%) patients. The average heart rate was 95.6 per 1 minute. Echocardiography revealed an impairment of the systolic function of the left ventricle in 9 (33.9%) patients. Myocardial infarction was diagnosed in 14 (53.8%) patients.

METHODS OF LABORATORY DIAGNOSIS OF SYPHILIS

Shirkunov V. - the 3rd year student
Scientific leaders – A.V. Prokopenko, E.A. Volosenkova

Syphilis is a chronic infectious venereal disease characterized by a wave-like course, alternating periods of activity of the clinical manifestation of the disease with long latent periods.
Morphology: spiral shape, size - 6-14x0.2-0.3 microns, the number of primary whorls - from 8 to 12, located at an equal distance from each other; three periplasmic flagella extend from the ends of the cell. Under unfavorable conditions, they can turn into cysts, granular and cyst-like spherical bodies.
Diagnostic methods:
1) MICROSCOPY IN THE DARK FIELD OF VIEW.
2) THE METHOD OF DIRECT IMMUNOFLUORESCENCE.
3) METHODS OF AMPLIFICATION OF NUCLEIC ACIDS.
4) POLYMERASE CHAIN REACTION.

PROLACTIN-SECRETING PITUITARY ADENOMAS WITH DOPAMINE AGONIST-CABERGOLINE

Ardatova A., Balchyi A. – the 5th year students
Scientific leaders – Doc. Med. Sc., Assoc. prof. V.N. Karnauh, Cand. Med. Sc., Assoc. prof. A.I. Karnauh, E.A. Volosenkova

Prolactin-secreting pituitary adenomas are the most common among the hormone-active pituitary adenomas. Despite the fact that the main method is surgical, the arsenal of drugs used for drug therapy has now significantly expanded. Next, we will consider the drug therapy with cabergoline in the treatment - prolactin. Cabergoline is a derivative of ergot alkaloids with selective (stimulation of type II dopamine receptors in the anterior pituitary gland), prolonged action, which is due to the persistence of the drug in the pituitary gland. Cabergoline is the drug of choice in most situations because it has better tolerability and greater efficacy compared to other dopamine agonist drugs. Withdrawal or reduction of the dose of dopamine agonists are usually performed after 2-5 years of continuous treatment in an individually selected dosage. As a result of cabergoline treatment, the following was noted: 1- suppression of prolactin secretion (achievement of stable normoprolactinemia); 2 - reduction of tumor volume; 3- restoration of reproductive function in women with oligo/amenorrhea or anovulation; 4 - sexual function in men was normalized in the form of restoring the number of morning erections and increasing libido. Currently, the role of drug therapy

with dopamine agonists in the treatment of prolactin-secreting pituitary adenomas is becoming more and more significant - as it is introduced into practice, and new research results lead to a fundamental change in the tactics of treatment with prolactin, and only if drug treatment is ineffective, the issue of surgery is resolved.

COMPLICATIONS OF THE CARDIOVASCULAR SYSTEM AFTER A NEW CORONAVIRUS INFECTION, COVID-19

Isaeva M. – the 6th year student
Scientific leaders – J.Y. Shchegortsova, E.A. Volosenkova

Coronavirus infection is an acute infectious disease caused by a strain of coronavirus SARS Cov-2 with an aerosol-droplet and contact-household transmission mechanism.

Despite the decrease in the incidence of COVID-19, the consequences of this infection for a long time leave a significant imprint on the health of patients. The clinical picture of the disease is dominated by signs of an acute respiratory viral disease (fever, cough, fatigue, general weakness), but, despite this, the analysis carried out now shows that the respiratory and cardiovascular systems are most often affected.

Patients with cardiovascular diseases have a worse prognosis for the course of the infectious process with an increase in mortality by 5–10 times. But in the absence of cardiovascular diseases, cardiovascular complications can develop: heart failure, myocarditis, pericarditis, vasculitis, arrhythmias.

CHARACTERISTICS OF METHODS OF RESUSCITATION CARE

Grechishnikova E., Salomatova N. – the 2nd year students
Scientific leaders – Cand. Biol. Sc. I.A. Khreshchenok, E.A. Volosenkova

Resuscitation care is a complex of medical measures that are carried out by doctors in an emergency to restore the basic vital functions of the body, upon the onset of clinical death.

There are several methods of resuscitation care. Artificial respiration is a set of measures aimed at maintaining air circulation through the lungs of a person who has stopped breathing, with the help of an artificial lung ventilation device, or by a person. Heart massage is a set of measures aimed at maintaining blood circulation in a person when the heartbeat stops. For adults, heart massage is performed with the frequency of 100-120 taps per minute. Electrical defibrillation is the application of a strong short–term electric discharge to the heart area, which leads to synchronization of the process of myocardial excitation. Intraarterial blood pumping is the treatment of terminal conditions with deep depression of vital functions, in case of traumatic separation of limbs, when the artery is exposed and easily accessible, and in severe traumatic shock. Intramyocardial administration of adrenaline – is carried out by the introduction of adrenaline into the myocardium.

Thus, the methods of resuscitation are aimed at restoring vital functions of the body, at the onset of clinical death, and continue until the manifestation of obvious signs of life.

PHOSPHORUS-CALCIUM METABOLISM

Grechishnikova E., Salomatova N. – the 2nd year students
Scientific leaders – Cand. Med. Sc., Assoc. prof. E.V. Egorshina, E.A. Volosenkova

The adult human body contains on average about 1-2 kg of calcium (Ca), which is mainly in the bones (99%) in the form of hydroxyapatite. With a normal diet, 800-1200 mg of Ca is received, of which about 200 mg are absorbed in the intestine. In the normal state, the total intestinal absorption of Ca corresponds to renal excretion. The main part of phosphate (P), like Ca, is in the skeleton (80%),

and only about 10% is in skeletal muscles and internal organs. On average, 800-1400 mg of P comes with food per day, 80% of which is absorbed in the small intestine.
The main hormones regulating Ca-P metabolism are parathyroid hormone (PTH), calcitriol (vitamin D, CT) and calcitonin. PTH stimulates the resorption of calcium from bone tissue, the reabsorption of calcium in the renal tubules, and the excretion of phosphate by the kidneys. CT increases the absorption of Ca and P in the small intestine. FGF 23 (fibroblast growth factor) is a hormone of bone origin that regulates phosphorus homeostasis in the body, stimulates the secretion of PTH, inhibits the 1α-hydroxylase activity of the kidneys, leading to a decrease in CT synthesis.
Disturbances of Ca-P balance are manifested by hypercalcemia, hypocalcemia, hyperphosphatemia, hypophosphatemia of blood serum.

REPARATIVE REGENERATION OF THE LIVER

Grechishnikova E., Salomatova N. – the 2nd year students
Scientific leaders – D.A. Semenov, E.A. Volosenkova

Regeneration of hepatic lobules in case of damage to hepatocytes occurs due to karyokinetic and direct cell division. When a part of the liver is damaged, a mechanism is triggered that leads to hyperplasia of the remaining cells, restoration of the stroma and hypertrophy of the remaining part of the liver. The regeneration process consists in the interaction between liver cells, growth factors, hormones and other biologically active substances. An important role is played by lymphocytes with special protein blocks – "locators", which, with a structural shift, transmit alarming information provided to hepatic and Kupfer stellate cells 2-4 hours after excision of the liver. Currently, more than 10 factors affecting the proliferation of liver cells have been identified.
The destruction of the liver is accompanied by leukocyte infiltration and proliferation of connective tissue. The successive change of regeneration is manifested by the appearance of regenerative nodules, as well as fibrosis. Chronic inflammation of hepatic tissue may develop, characterized by the predominance of cellular infiltration of the stroma of portal and periportal fields; destruction (dystrophy and necrobiosis) of hepatocytes, sclerosis and regeneration of hepatic tissue.

HYPOTHYROIDISM

Kirillin R., Kotenkov A. – the 2nd year students
Scientific leaders – Cand. Med. Sc., Assoc. prof. E.V. Egorshina, E.A. Volosenkova

Hypothyroidism is a disease expressing a deficiency of thyroid hormones and reduced thyroid function. The cause of hypothyroidism is a lack of iodine intake into the body, impairment of the secretion of thyroid-stimulating hormones in the adenohypophysis and tyroliberins in the hypothalamus.
There are two types of the disease: congenital and acquired. With congenital hypothyroidism, cretinism develops. There is a growth arrest, specific changes on the part of the skin, hair, muscles, a sharp decrease in the rate of metabolic processes, deep mental disorders. With acquired hypothyroidism, endemic goiter, Hashimoto's goiter and myxedema develop. Endemic goiter is a pathological enlargement of the thyroid gland in size. Hashimoto's goiter is a chronic autoimmune thyroiditis. Myxedema is a severe form of hypothyroidism.

RESPIRATORY TRACT MICROFLORA IN PATIENTS WITH COVID-19

Bondar A., Marchenkov C. – the 3rd year students
Scientific leaders – Doc. Med. Sc., Prof. G.I. Chubenko, E.A. Volosenkova

According to the literature, when analyzing bacteriological sputum cultures from COVID-19 patients and identifying isolated microorganisms using MALDI-ToF mass spectrometry, a dominance of gram-positive microorganisms was found, amounting to 50.5% (222 strains) of the total number of isolated pathogens. Representatives of the normal microflora of human mucous membranes from the genera Streptococcus, Rothia, Lactobacillus were dominant in this group, which can be explained by a violation of the rules for collecting sputum.

Microorganisms of the Enterobacteriaceae family were represented by 42 strains, among which K. pneumoniae (27 strains) were the leaders. The group of non-fermenting gram-negative bacteria was dominated by A. baumanii (29 strains), in 2 cases P. aeruginosa was identified.

"Classical" gram-positive pathogens of pneumonia were revealed significantly less frequently: S. aureus - in 5 cases, S. pneumoniae - in 6 patients.

According to the literature data, the microbiological examination of autopsy material (lungs) of COVID-19 patients revealed significant differences in the species and quantitative composition of microflora, compared with sputum. In the group of gram-positive bacteria, 15 strains of representatives of the normal microflora of the mucous membranes were identified, clinically significant species dominated among gram-negative bacteria: K. pneumoniae (102 strains), A. baumanii (75 strains), P. aeruginosa (11 strains).

Microbiological monitoring is necessary to correct antibacterial therapy and prevent complications in the form of secondary bacterial infection.

FIGHT AGAINST RISK FACTORS OF ARTERIAL HYPERTENSION

Ilyin K. - the 3rd year student

Scientific leaders – Prof. I.G. Menshikova, E.A. Volosenkova

Arterial hypertension risk factors are usually divided into two subgroups: non-modifiable, which cannot be influenced, and modifiable, amenable to correction. Modifiable risk factors include: dyslipidemia, smoking, abdominal obesity, physical inactivity, impaired glucose tolerance, psychosocial status, excessive salt intake, alcohol consumption, and blood pressure.

Prevention of hypertension consists in the correction of modifiable risk factors and the implementation of the following measures: normalization of body weight, smoking cessation, restriction of salt intake, restriction of alcohol consumption, an increase in physical activity due to aerobic exercise.

DEINOCOCCUS RADIODURANS - THE MOST RESISTANT EXTREMOPHILIC BACTERIA

Ilyin K. – the 3rd year student

Scientific leaders – Cand. Med. Sc. O.V. Bubinets, E.A. Volosenkova

D. RADIODURANS - Gram-positive, extremophilic coccus of the genus Deinococcus. It is one of the most resistant bacteria to the action of ionizing radiation. On micropreparations, two or more often four cells are located, forming tetrads.

A unique feature of the D. radiodurans genome is that each circular DNA molecule of the genome is represented in several copies, and they form intertwined rings together, each ring contains several copies of one DNA molecule.

It turned out that D. radiodurans can survive an acute dose of five thousand grays of radiation with almost no loss of viability. They managed to withstand various aggressive chemical environments that are lethal to all other biological organisms, extreme temperatures of both cold and heat, and they can also be in a vacuum for a long time.

PATHOMORPHOLOGY OF LIVER CHANGES IN VIRAL HEPATITIS

Ilyin K. – the 3rd year student
Scientific leaders – E.E. Abramkin, E.A. Volosenkova

Hepatitis is a liver disease with a predominance of signs of inflammation in the form of alteration of the hepatic parenchyma, inflammatory infiltration, predominantly of the stroma.

VIRAL HEPATITIS: Etiological forms - A, B, C, D, E, F, G. Clinical and morphological forms - acute: - anicteric; - cyclic (icteric); - necrotic; - cholestatic. Alternative changes: the predominance of protein parenchymal dystrophy and coagulation necrosis (with hepatitis C - a combination with fatty degeneration, with hepatitis B and C - coagulation necrosis). Granular dystrophy of hepatocytes, hydropic dystrophy (Hepatitis C), hyaline droplet dystrophy (balloon) (Hepatitis B). Pathomorphology of alterative changes in viral hepatitis. Types of necrosis: small focal, large focal – intralobular; inflammatory infiltration from lymphocytes and macrophages (productive inflammation) - immune cytolysis of hepatocytes.

PHARMACOTHERAPY OF CHRONIC DISEASES OF THE VEINS

Ilyin. K. - the 3rd year student
Scientific leaders – Doc. Med. Sc., Assoc. prof. V.I. Tikhanov, E.A. Volosenkova

Pharmacotherapy is an integral component of the modern treatment of chronic diseases of the veins of the lower extremities. FLP increase the tone of peripheral veins and lymphatic vessels.

Pharmacological preparations used in the treatment: γ-Benzopyrones (flavonoids); Saponins. In the early stages of the disease, all FLP have a good therapeutic effect in relation to subjective symptoms, but not external manifestations. To date, the highest level of evidence base regarding the effectiveness of the relief of syndromes and symptoms and safety in long-term administration is available only for Detralex. It is advisable to prescribe FLP as monotherapy, and adhere to standard regimens and duration of treatment.

If there is no effect from the ongoing therapy within 3 months, it is necessary to replace the FLP, with a subsequent lack of results, additional differential diagnostics is performed.

SEVERE FORMS OF PSORIASIS

Zulfugarova D., Ushakova V. – the 6th year students
Scientific leaders – Cand. Med. Sc., Assoc. prof. N.E. Melnichenko, E.A. Volosenkova

Psoriasis is a chronic disease of a multifactorial nature characterized by an accelerated proliferation of keratinocytes and impairment of their differentiation, with frequent pathological changes in the musculoskeletal system.

Exudative psoriasis is manifested by grayish-yellow scales-crusts, tightly adjacent to the surface of the plaques.

Pustular psoriasis can occur in two forms: the Zumbusch type and the Barber type.

Generalized Zumbusch psoriasis is characterized by small sterile pustules on the background of bright erythema. Fused pustules exfoliate the epidermis, forming "purulent lakes".

Pustular psoriasis of the palms and soles of Barber is manifested by rashes in the thenar and hypothenar areas, as well as the arch of the feet. A sharp outline of erythematous-squamous plaques is characteristic, against the background of which there are multiple pustular rashes.

With psoriatic erythroderma, the skin becomes bright red, swollen, hot to the touch, covered with white dry scales. The process extends to all skin integuments.

Psoriatic arthritis is accompanied by reddening of the skin over the affected joints, swelling, soreness, limitation of their mobility, and morning stiffness. Treatment: Cytostatic drugs, anti-inflammatory,

desensitization therapy, preparations that improve microcirculation, hepatotropic drugs; external therapy: ointments with glucocorticosteroids.

NIKOLAI DMITRIEVICH STRAZHESKO CONTRIBUTION TO MEDICINE

Glyzina Y. – the 3rd year student
Scientific leaders – Cand. Med. Sc. E.V. Magalyas, E.A. Volosenkova

The outstanding Soviet therapist Nikolai Dmitrievich Strazhesko was born on December 30, 1876 in Odessa. In 1899, he graduated from the Medical Faculty of Kiev University and was left at the Department of Private Pathology and Therapy, which was headed by Prof. V. P. Obraztsov.

Together with Obraztsov, S. gave the first complete description of the clinical picture of thrombosis of the coronary arteries of the heart (1909), thus laying the foundation for the modern doctrine of myocardial infarction. He described a number of symptoms of diseases of the circulatory system ("Strazhesco cannon tone" in heart block, etc.) and digestion (the so–called Strazhesco phenomenon is a sign of perigastritis with abdominal percussion). He substantiated the hypothesis of the streptococcal nature of rheumatism (1934). Together with his student V.H. Vasilenko he developed the doctrine of metabolic disorders of active substances in chronic circulatory insufficiency, proposed its classification. He created a school of therapists, and was awarded the Orders of Lenin (1944, 1947). Professor N. D. Strazhesko educated numerous Soviet therapists, and was a prominent public figure. He died in 1952.

THE HISTORY OF THE DEPARTMENT OF PHYSICAL EDUCATION AND HEALTH WITH A COURSE OF EXERCISE THERAPY

Meleshina G., Zubenko K. – the 4th year students
Scientific leaders – Cand. Ped. Sc., Assoc. prof. F.S. Mironov, M.V. Gromova, Y.L. Uzlov, E.A. Volosenkova

In 1952, Alexander Pavlovich Vasiliev established and headed the department.

From 1952 to 1956, the period of formation, the main activity of the department was aimed at organizing the educational process and physical culture. Alexander Pavlovich established a section of ski racers. Teacher Silinsh Nina Mikhailovna headed the sports section of fencers. Vladimir Gerasimovich Leoshenko conducted coaching work with gymnasts.

From 1956 to 1966, the department was headed by associate professor Safronova Irina Leontieva. The scientific work of the department has intensified. The staff was replenished with graduates of the Faculty of Physical Education of the Pedagogical Institute. Galanin Boris Pavlovich headed the weightlifting. A sports facility is being built.

From 1966 to 1967, the department was headed by Galanin Boris Pavlovich. Under the leadership of Komarov Leonid Nikolaevich, athletics is cultivated.

From 1967 to 1974, the department was headed by Vitaly Dmitrievich Skorikov, who became the founder of volleyball at the Institute. In 1972, the collection of methodological materials was published.

From 1974 to 1975, Candidate of Medical Sciences Valentina Vasilyevna Shuvchinskaya was the head of the department. Attention was paid to the educational and research work of students. The scientific circle was engaged in research of students' health. Articles have been published in various scientific collections.

From 1975 to 1988, Viktor Ivanovich Melnikov was the head of the Department. He published a number of articles in central and local editions, prepared methodological recommendations, defended a dissertation for the degree of Candidate of Pedagogical Sciences. Under his leadership, sports

grounds were built at student hostels, a hall for athletic gymnastics, kettlebell lifting, and powerlifting was reconstructed from a stoker.
Since 1988 Candidate of Pedagogical Sciences, associate professor Fyodor Sergeevich Mironov is the head of the Department. Scientific and methodological work has intensified. Under the editorship of Fyodor Sergeevich Mironov and Oksana Aleksandrovna Mironova, associate professor, head of the course of physical therapy and VC, collections of scientific papers were published in 1990, 1991, 1994, 1996, 1998, in which data on scientific problems studied at the department were published. 5 regional, 2 zonal, 3 youth scientific and methodological conferences were held with the involvement of leading scientists of the Far Eastern region, students and schoolchildren of the Amur region. The staff of the department works on scientific problems: "Assessment of the level of physical and functional condition of students and their dynamics in the learning process."

METHODS OF IMMUNOLOGICAL RESEARCH

Remeschevskaya O. – the 2nd year student
Scientific leaders – L.Y. Etmanova, E.A. Volosenkova

Immunological studies are diagnostic methods based on the specific interaction of antigens and antibodies. Important information obtained through the use of immunological methods can significantly reduce the time of analysis, with high specificity to carry out screening, prognosis and diagnosis of diseases. Most immunological methods are based on antigen-antibody interaction.
Modern approaches also include the use of additional labels (enzyme, radioactive element or fluorochrome) to increase the sensitivity of studies or conduct immunohistochemical staining of tissues. Functional methods, such as cytotoxic tests, allow us to evaluate various properties of cells and immune processes, molecular biological technologies, including polymerase chain reaction (PCR), they are the most accurate for identifying the protein-coding gene.
In order to determine the subpopulations of lymphocytes and determine their functional activity, it is necessary to conduct an important analysis in the life of each person - a complex immunogram. On the surface of lymphocytes there are special receptors and markers (they are designated CD), which not only determine the functions of cells, but also indicate the stage of development of the process.

THYROID GLAND AND ITS PATHOLOGIES

Sukhanova A., Pachina D. – the 2nd year students
Scientific leaders – Cand. Med. Sc. D.A. Semenov, E.A. Volosenkova

The thyroid gland is very urgent in the Far East, including the Amur region, as a large percentage of the population of the Far East suffers from thyroid diseases.
Thyroid gland is the largest organ of internal secretion, located on the front surface of the neck, under the larynx and in front of the trachea. It is shaped like a butterfly - two lobes with an isthmus between them. It is surrounded by capsule.
The tissue of the gland consists of follicles filled with colloid, which contains the iodine-containing hormones: thyroxine (tetraiodothyronine) and triiodothyronine in a bound state with the protein thyroglobulin.
The synthesis and secretion of thyroid hormones is regulated according to the hypothalamic-pituitary-thyroid system: hypothalamic thyreoliberin and thyrotropic adenohypophysis hormone. Thyroxine (T4) and triiodothyronine (T3) are thyroid hormones.

The thyroid gland regulates nervous system function, higher nervous activity (emotions, attention, thinking), metabolism and immune response, heart rate, blood clotting, and more. Thyroid function is more often impaired with age or due to pathologies of other organs.
Hyperfunction of the thyroid gland in childhood and adulthood leads to the development of Graves' disease. There is an increase in the level of metabolism, and the temperature rises. Exophthalmos, goiter - a stable enlargement of the thyroid gland is observed. Hypothyroidism in childhood leads to the development of cretinism - dementia. In adulthood, it can lead to the development of myxedema (mucous edema), accompanied by edema of the skin and subcutaneous fat.
Metabolism decreases, and actions and thoughts become slower.

FOOD NEURONS OF THE BRAIN

Sukhanova A. – the 2nd year student
Scientific leaders – Cand. Med. Sc. G.E. Cherbikova, E.A. Volosenkova

American scientists found out that neurons of food are located in the temporal gyrus. They recognized neuronal signals that were drowned out by other nearby populations in the standard analysis.
In the brain, among the groups of neurons that "turn on" when a person recognizes a familiar face, body, word or place, brain cells that "recognize" food have now been found. Clusters of food neurons were found on both sides of the spindle-shaped gyrus region, also known as the lateral occipital gyrus, which is responsible for recognizing faces. They were found to respond more strongly to cooked foods, such as pizza, but raw vegetables or fruit also triggered their response.
The subjects' brains were studied using functional MRI, focusing on the functioning of the so-called ventral visual pathway, which connects neurons in the visual area with the temporal lobe of the brain, which is responsible for recognizing objects. This method identified not only the four known groups of neurons, but also the fifth, which was activated when a person was shown pictures of food.
In the course of the study, it became clear that in some participants of the experiment, the "edible" group of neurons is highly selective with respect to pictures that depict exactly cooked meals, rather than the raw foods from which they are prepared.

LOMBROSO'S THEORY

Isushchenko E., Mongush A. – the 2nd year students
Scientific leaders – N.P. Ambrosieva, E.A. Volosenkova

Is it possible to completely eradicate crime? Reflecting on this question, Italian professor Cesare Lombroso came up with the idea of an innate propensity to commit crimes. Developing his theory, he conducted large-scale anthropological studies, thanks to which he was able to identify types of criminals. Classification is based on the special anatomical, physiological and psychological properties of representatives of each type. Studying the works of Marr and Rousseau, the professor makes a comparative description of various anomalies in criminals and honest people thereby confirming their conclusions with practical application.
Cesare Lombroso failed to make a revolution, but he made a significant contribution to changing the view of crime. His conclusions are multivariate and permeated with a constant desire to identify the real mutual influence of biological and social factors on each other in antisocial behavior.

FEATURES OF THE HISTOPHYSIOLOGY OF THE THYMUS IN CHILDREN

Isushchenko E., Mongush A. – the 2nd year students
Scientific leaders – Assoc. prof. T.L. Ogorodnikova, E.A. Volosenkova

Pediatricians' interest in this area of knowledge is associated with a certain understanding of human ontogenesis from birth to old age. The processes of formation of the thymus gland are completed within a few months after birth. In the thymus lobes, the volume of brain matter, the size and number of epithelial bodies of the Ghassal increase. The period of maximum functioning of the gland continues until puberty. By the period of puberty, the mass of the thymus gland reaches its maximum – 30-40 g, after which, under the influence of pituitary sex hormones, a gradual involution of the gland will begin. This is accompanied by a decrease in the number of lymphocytes, the appearance of lipid inclusions in connective tissue cells and the development of adipose tissue.

CONGENITAL DISORDERS OF TYROSINE METABOLISM

Isushchenko E., Mongush A. – the 2nd year students
Scientific leaders – L.Y. Etmanova, E.A. Volosenkova

Albinism is an autosomal recessive hereditary disease caused by the complete absence or decrease of melanin biosynthesis in melanocytes. The metabolic defect is associated with the loss of melanocytes' ability to synthesize tyrosinase, an enzyme that catalyzes the oxidation of tyrosine into dioxyphenylalanine and dioxyphenylalanylquinone, which are precursors of melanin. The function of melanin is to protect the skin and eyes from the harmful effects of ultraviolet light. Eye damage is often severe with photophobia, decreased visual acuity due to foveal hypoplasia, nystagmus and strabismus, secondary to the defective routing of visual axons in the chiasm. Hypopigmentation of the skin is responsible for a decrease in photoprotection, which exposes patients to an increased risk of developing skin cancer.

COUNTERFEIT MEDICINES AND THE FIGHT AGAINST THEM IN THE RUSSIAN FEDERATION

Drobyaskina K. – the 3rd year student
Scientific leaders – Doc. Biol. Sc., Prof. N.V. Simonova, E.A. Volosenkova

Falsification of medicines is one of the urgent problems in the modern world, which, in terms of the degree of harm caused to the health and life of people, has become a global problem for all mankind. No state has universal protection for its citizens and pharmaceutical business from the encroachment of counterfeit medicines. According to the WHO, counterfeit medicines (CM) in different countries make up from 1 to 30% of the pharmaceutical market.

SIGNS OF A FULL-TERM FETUS

Martusevich A., Gabdulkhakova P. – the 2nd year students
Scientific leaders – N.P. Ambrosieva, E.A. Volosenkova

“Full-term” means - a child born at the gestation period from 37 to 42 weeks of pregnancy. The concepts of "full-term" and "maturity" are not identical. A mature fetus is one that is fully adapted to an extrauterine existence. The degree of its maturity depends both on the individual duration of pregnancy in each woman, and the conditions in which his intrauterine
development took place. There are cases when a fetus born a few weeks earlier is mature and, conversely, in multiple pregnancy, complicated pregnancy and diseases in the mother, having been born in a timely manner, he turns out to be functionally immature.

PECULIARITIES OF THROMBOLYTIC THERAPY IN PATIENTS WITH ACUTE CORONARY SYNDROME

Ardatova A. – the 5th year student

Scientific leaders – Cand. Med. Sc., O.A. Tanchenko, E.A. Volosenkova

One of the most fatal manifestations of coronary heart disease (CHD) is acute coronary syndrome (ACS). ACS is the cause of significant socio-economic damage associated with great treatment costs and premature mortality in the able-bodied population. Thrombolysis is an important reperfusion strategy if primary percutaneous coronary intervention (PCI) cannot be performed within the allotted time frame. Thrombolysis allows to avoid 30 deaths per 1000 patients who receive thrombolysis within 6 h of the onset of symptoms, because the efficacy and benefits of thrombolysis decrease as the time from the onset of symptom manifestation increases.

The analysis of medical records of cardiology department with intensive care unit for ACS patients allowed us to reveal the peculiarities of thrombolytic therapy. Firstly, thrombolytic therapy in patients with acute coronary syndrome with ST-segment elevation was an obligatory part of timely and effective therapy in the treatment of acute coronary syndrome. Secondly, in 70% of cases thrombolytic therapy was performed at the pre-hospital stage, which significantly improved the prognosis of the disease and the clinical course of acute coronary syndrome. Thrombolytic therapy was performed with fibrin-specific alteplase in 80% of cases and with non-fibrin-specific staphylokinase in 20% of cases.

The efficacy of thrombolytic therapy was assessed by clinical effect (pain relief), electrocardiogram data (ST-segment reduction) and angiographic effect according to percutaneous coronary intervention. The greatest effect on the treatment of acute coronary syndrome with ST-segment elevation was achieved with thrombolytic therapy at the pre-hospital stage and percutaneous coronary intervention after thrombolytic therapy in 65% of cases. Thus, we can confidently say that thrombolytic therapy occupies a strong place among the means of controlling ischemic events, along with the achievements of surgical methods.

FEATURES OF THE COURSE OF ACUTE CORONARY SYNDROME IN PATIENTS WITH DIABETES MELLITUS

Kiseleva K. A., Zhmurova M. D. – the 3rd year students

Scientific leaders – Cand. Med. Sc. E.V. Magalyas, E.A. Volosenkova

Acute coronary syndrome (ACS) is an exacerbation of a stable course of coronary heart disease and is clinically manifested by the formation of myocardial infarction, the development of unstable angina pectoris, or sudden death. The presence of DM in patients with ACS worsens the course and prognosis.

The aim of the research was to study the features of the course of acute coronary syndrome in patients with diabetes mellitus.

The study included 42 patients with ACS suffering from type 2 diabetes mellitus. Among the examined patients, women predominated - 29 persons (69%), men - 13 persons (31%). The mean age of the patients was 75.2±1.3 years. Of the unstable risk factors for cardiovascular diseases, the majority included: arterial hypertension - 77.5%, dyslipidemia - 71.4%, overweight (BMI over 25 kg/m²) - 45.5%, obesity (BMI over 30 kg/m²) - 18%, smoking - 29.5%.

Pain is one of the most important symptoms of ACS. A typical anginal attack was observed in 6 (14.3%) patients, a low-symptomatic form was noted in 15 (35.7%) patients, an asymptomatic form in 21 (50%) of the respondents. Shortness of breath and attacks of cardiac asthma occurred in 5 (11.9%) patients.

Thus, in patients with ACS and type 2 diabetes mellitus, a combination of two or more risk factors for coronary heart disease was found, among which arterial hypertension, BMI, and dilipidemia were most often revealed. The clinical picture was dominated by a painless course of ACS, which led to late hospitalization.

CERVICAL CANCER

Kiseleva K. – the 3rd year student
Scientific leaders – E.E. Abramkin, E.A. Volosenkova

Cervical cancer is an oncological neoplasm resulting from malignant transformation of the epithelium of the cervix. Histologically, cervical cancer can be of two types: squamous (originating from squamous epithelium) and adenocarcinoma (growing from glandular epithelium).

This disease is the result of cervical intraepithelial neoplasia (CIN) caused by human papillomavirus (HPV) types (16, 18, 31, 33, 35, or 39).

Risk factors for developing cervical cancer are: early onset of sexual activity, a large number of sexual partners, smoking and immunodeficiency.

Symptoms and signs of cervical cancer:

The main symptoms are: irregular vaginal bleeding, which may be post-coital, spontaneous bleeding, and foul-smelling discharge or pelvic pain. Diagnosis of cervical cancer: Pap smear (Pap test), biopsy, staging.

Prognosis for cervical cancer:

About 80% of relapses occur within 2 years.

Poor prognostic factors include: lymph node involvement, large tumor size and volume, deep cervical stroma invasion, parametric invasion, lymphovascular invasion (LVI), non-keratinizing cell histology.

SYMPTOMS OF ACUTE AND CHRONIC SLEEPING DRUG POISONING AND MEASURES OF ASSISTANCE IN THIS CONDITION

Kiseleva K. - the 3rd year student
Scientific leaders – Doc. Med. Sc. V.I. Tikhanov, E.A. Volosenkova

The main groups of sleeping pills that cause poisoning: barbiturates, benzodiazepines

Mechanism of action of sleeping pills:

All hypnotics shorten the time to fall asleep (latent period of sleep) and lengthen the duration of sleep, but in different ways affect the ratio of REM and slow-wave sleep.

Symptoms of acute poisoning occur when using 10-fold doses in adults (from 2.0-5.0 to 20.0-22.0). In children from 1 to 3 years of age, fatal intoxication can occur from a 1-fold dose of adults. Fatal outcomes are infrequent and occur when combined with ethanol, blood pressure, NL - is about 1-3%. Coma occurs in 20% of cases.

The first phase of the withdrawal syndrome develops 16-20 hours after the last barbiturate intake and is manifested by anxiety, weakness, hand tremors, and insomnia. After 24-30 hours, the symptoms become more diffuse and the pathology of the gastrointestinal tract (vomiting, nausea, pain) joins. On the second, third day there are convulsions characteristic of epilepsy, hallucinations of red and blue color with fantastic images.

Etiotropic treatment: gastric lavage, activated charcoal, saline laxatives, forced diuresis, hemosorption, plasmapheresis. Pathogenetic therapy: for barbiturate poisoning - respiratory analeptics, for benzodiazepam poisoning - flumazenil. Symptomatic therapy: mechanical ventilation and oxygen therapy, adrenomimetics (mezaton), cardiac glycosides.

ANTIOXIDANT PROPERTIES OF LACTIC ACID BACTERIA

Klykov R., Kudryavtseva P. – the 3rd year students
Scientific leaders – Cand. Med. Sc., O.V. Bubinets, E.A. Volosenkova

Lactic acid bacteria (LAB) are widely used in many fermentation processes in the preparation of a variety of food products, including not only dairy and meat, but also vegetable products. LAB do not have a complete electron transport chain (ETC), so it was previously believed that they are not capable of existence under aerobic conditions. In the cells of a number of LAB strains, the main antioxidant defense enzymes with high specific activity were found: two types of catalases and NADH peroxidase. Heme catalases are present in many species of lactobacilli in the presence of heme or hematin in the nutrient medium, and both monofunctional and bifunctional catalases-peroxidases were found in the cells. Catalases of the second type (Mn-containing), which do not require the presence of heme, were also found in the cells of some lactobacilli, and it is in LAB that a high level of Mn(II) content is observed inside the cells. Based on a thorough analysis of currently known scientific data, the review describes the antioxidant defense systems in LAB cells – the effect of oxidative stress on the metabolism of lactobacilli, their main antioxidant enzymes (NADH oxidases, NADH peroxidases, catalase, superoxide dismutase, thioredoxin reductase, etc.), as well as key regulatory proteins and genes responsible for oxygen uptake as one of the mechanisms for reducing ROS concentration.

PRIMARY AND SECONDARY PREVENTION OF MELANOMA

Kotlyarova V., Ondar S. – the 6th year students
Scientific leaders – Cand. Med. Sc. N.E. Melnichenko, E.A. Volosenkova

In Russia, as in other countries, there is an increase in the incidence of one of the most aggressive malignant skin tumors - melanoma.

In Russia, after the official approval of the European organization Euro Melanoma, Melanoma Diagnosis Day has been held annually since 2007. The purpose of this day is to increase the level of knowledge of the population about the disease, about its consequences and for the effective diagnosis of malignant skin formation in the early stages. After all, early diagnosis of a tumor is the key to successful treatment.

ATTENTION DEFICIT HYPERACTIVITY DISORDER IN ADULTS

Mironova A., Naidanova N. – the 6th year students
Scientific leaders – Prof. N.G. Brash, E.A. Volosenkova

Attention deficit hyperactivity disorder (ADHD) has traditionally been examined by child psychiatrists and neurologists. At the same time, its investigation is also relevant for adult patients. So far, only a limited number of studies have presented information on the prevalence of ADHD among the adult population of Russia. Despite the well-studied features of ADHD, many questions arose that need to be addressed in further research. They cover the development of diagnostic criteria for ADHD in adulthood, the analysis of the influence of gender on the manifestation of the symptoms, the analysis of risk and protective factors concerning ADHD prevention or mitigation, and related functional impairments.

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by symptoms of inattention and/or impulsivity and hyperactivity that can significantly affect many aspects of a person's life.

CLINICAL ANATOMY OF THE MIDDLE EAR

Popova M., Tochilova P. – the 2nd year students
Scientific leaders – N.P. Ambrosieva, E.A. Volosenkova

The middle ear is formed by a number of communicating cavities: the tympanic cavity, the antrum, the cells of the mastoid process and the Eustachian tube. The tympanic cavity has six walls: anterior, posterior, inner, upper, lower and lateral.
The middle ear connects to the nasopharynx by means of the Eustachian tube, which maintains a balance between the pressure in this cavity and the external atmospheric pressure, which is necessary for the correct conduction of vibrations to the labyrinth of the eardrum.
The function of the chain of auditory ossicles connected to the eardrum creates a difference in sound pressure on the labyrinth windows.

BREASTFEEDING - THE COMPOSITION OF BREAST MILK - PROTEINS

Popova M., Tochilova P. – the 2nd year students
Scientific leaders – Cand. Med. Sc., E.V. Egorshina, E.A. Volosenkova

Female breast milk differs from the milk of other mammals in its usefulness and irreplaceability of protein. It is also the only source of protein for the newborn in the first months of lactation. The main milk proteins are caseinogen, alpha-lactalbumin and lactoglobulin. In milk, the protein content ranges from 11.5–20.5 g/l. Over time, the amount of protein decreases. The ratio of albumin and casein in women's milk is 3:2, in cow's milk – 1:4. The content of the amino acid - cysteine and taurine in women's milk is higher than in cow's milk.

VARIANT ANATOMY OF THE CELIAC TRUNK

Makarova O., Trostyanskaya A. - the 2nd year students
Scientific leaders – N.P. Ambrosieva, E.A. Volosenkova

The celiac trunk (lat. truncus coeliacus) - is the most important artery that feeds the organs of the upper part of the abdominal cavity. Knowledge of different variants of the branching of the celiac trunk is not only of anatomical interest, but also of clinical significance.
According to the results of direct angiography of the celiac trunk and hepatic artery, 4 types of the most common variants are:
The first type is the classic variant of location and division of the celiac trunk into three branches: common hepatic, left gastric, splenic arteries.
The second type is the right hepatic artery goes from the superior mesenteric artery.
The third type - the left hepatic artery goes from the left gastric artery.
The fourth type is the accessory left hepatic artery.

THE SPEECH GENE OF THE SEVENTH CHROMOSOME

Sidenov B., Topil'skaya A. – the 2nd year students
Scientific leaders – N.P. Ambrosjeva, E.A. Volosenkova

Forkhead Box Protein P2 is a human protein, encoded by the FOXP2 gene on the 7th chromosome. FOXP2 belongs to a large family of FOX-transcription factors. Studies allow to suggest the role of FOXP2 in the regulation of development of the brain, lungs, and intestines. FOXP2 gene is also associated with the development of language skills.
FOXP2 gene was discovered by the group of Svante Pääbo in Max.
It shows that the human FOXP2 affects the basal ganglia.
Analyzing the gene itself and 116 other genes, scientists from the University of California found that FOXP2 is responsible for most of the changes in the linguistic system. The human version of FOXP2 and the same version of the gene in chimpanzees were examined in detail, and scientists have found that genes not only differ in composition, but operate differently.

Several functions of FOXP2 are also responsible for facial expression, says Daniel Geschwind, and it is also important that the researchers found that another part of the FOXP2-dependent genes is associated with a number of important functions in brain development and connections between neurons.
FOXP2 gene functions are not clearly limited by the formation of articulate speech, but they are rather focused on the coordination of the whole cascade of genes and proteins which are necessary for the development and normal work of the brain.

EMBRYOGENESIS OF THE OVARIES

Topilskaya A. – the 2nd year student
Scientific leaders – Assoc. prof. T.L. Ogorodnikova, E.A. Volosenkova

Normal ovarian embryogenesis is a very important topic to study, with its help we will be able to understand the course of many pathologies that have arisen as a result of disturbances of the course of embryogenesis. For example, ovarian teratomas are a tumor containing tissues atypical for this organ, all this occurs as a result of the impairment of the histological development of the organ. It should be noted that the ovary occupies one of the first places among other human organs in terms of the variety of tumors that occur in it. In the ovary, already under normal conditions, it's possible to speak about at least six components that can give rise to a germ, if we take into account only its normally existing, mature components. However, in addition to functioning ones, there are always a number of rudimentary formations left over from the time of embryogenesis in the ovary or in the immediate vicinity of it.

INCIDENCE OF SENILE ASTHENIA SYNDROME IN CARDIOLOGICAL HOSPITALS

Chichilimov A. – the 6th year student
Scientific leaders – Assoc. Prof. O.N. Siviakova, E.A. Volosenkova

The syndrome of "senile asthenia" in recent years has become widely used in foreign and Russian gerontology and geriatrics. Its prevalence among the elderly and old people around the world reaches 13%, and the prevalence of the "senile preasthenia" syndrome is 50%. This syndrome reflects the age-related decline in the functional state and deficiency of physiological systems, including the cardiovascular system.
Purpose: to identify the occurrence of senile asthenia syndrome in a cardiology hospital, to improve the provision of medical care to arterial hypertension (AH) patients of elderly and senile age, taking into account the presence of senile asthenia syndrome (SA).
Using the data of a survey of 10 patients in the cardiology department, it was possible to identify: a moderate likelihood of senile asthenia in 5 patients (50%); a high probability of senile asthenia syndrome in 5 patients also, which corresponds to 50% of the total number of patients in the study group. The high probability of SA syndrome is an indication for consultation with a geriatrician.
Conclusions: In all examined patients over 65 years old with arterial hypertension, the likelihood of senile asthenia syndrome was revealed. Pre-asthenia was diagnosed in 50% of the examined patients over 65 years old with AH, the remaining 50% of the examined patients had a high probability of senile asthenia syndrome; 50% of the patients over 65 years old with arterial hypertension needed a geriatric consultation. It is necessary to screen the syndrome of senile asthenia using the questionnaire "Age is not a barrier" in patients over 65 years of age with arterial hypertension in a cardiology hospital.

FEATURES OF THE COURSE OF INFECTIOUS MONONUCLEOSIS CAUSED BY THE EPSTEIN - BARR VIRUS IN CHILDREN

Pnivchuk A. – the 6th year student
Scientific leaders – Cand .Med. Sc., Assoc. prof., V.V. Shamraeva, E.A. Volosenkova

In recent years, there has been a widespread increase in the incidence of infectious mononucleosis in children. On the basis of the 51st Children's polyclinic in Kolpino, the clinical and laboratory data of children diagnosed with Infectious mononucleosis has been analyzed. In 2021, the number of sick children in only one of the sites made up 44 persons. In the first place among the sick are children of secondary school age (53%), in the second place - primary school children (27%), in the third place - preschool children (20%).

Outpatient records of 15 patients were analyzed in detail. Analyzing patient complaints and examination data, it can be concluded that cervical lymphadenopathy (93.3%), hyperthermia (86.6%), splenomegaly (60%) prevail most often in the clinical picture, in a third of cases children were diagnosed with tonsillitis (33.3%), hepatomegaly (26.6%), and complaints of cough (6.6%), malaise (6.6%), difficulty in nasal breathing (6.6%).

Based on the data of laboratory research methods, atypical mononuclears were found in children in 60% of cases, acceleration of ESR increased in 30% of children, thrombocytopenia was revealed in 10% of patients.

The pediatrician needs to remain vigilant about this disease, especially among children attending organized children's groups; understand that a typical picture of the disease with all the well-known signs does not necessarily occur in every child, it is necessary to organize conditions for early diagnosis and timely treatment of infectious mononucleosis.

PATELLAR STRUCTURE VARIANTS

Grechishnikova E., Kotenkov A. – the 2nd year students
Scientific leaders – N.P. Ambrosieva, E.A. Volosenkova

The patella is one of the bones that make up the knee joint, the center of rotation and ensuring the effective operation of the quadriceps. The function of the organ is determined by its shape, which means that various variants of the patellar structure affect the work of the knee joint. According to the classification of G. Wiberg, there are six main types of patella shape: Patella magna, hunter's cap, Patella parva, crescent, pebble, Baumgartl type. Types I and II are stable; other variants may lead to external subluxation as a result of unbalanced forces.

Patellae differ in the ratio of length, width and thickness of both the entire bone and its individual parts. The length of the patella is directly related to determining the level of its location. The width of the patella is a necessary parameter for determining the index of the height of the articular surface. The relationship between a person's physique and the ratio of the length and width of his patella is assumed.

The patella may consist of several parts separated from each other by a zone of enlightenment – such a patella is called a lobed patella (patella partita). In this case, the patella has several ossification centers that exist independently of each other as separate bones.

SERGEY PETROVICH BOTKIN - AN OUTSTANDING PUBLIC FIGURE AND DOCTOR

Saidova K., Morokova O. – the 3rd year students
Scientific leaders – Cand. Med. Sc. E.V. Magalyas, E.A. Volosenkova

Botkin instantly fell in love with medicine. While studying at the medical faculty, Sergey Petrovich wondered why in the same cases treatment helps one patient, but not the other. Subsequently, this

determined Botkin's individual approach to all his patients instead of coldly following the prescriptions of medical reference books. In 1855, the therapist Botkin went to the Crimea for the war, where he served under the command of the great surgeon Nikolai Pirogov. Then there was an internship in Europe, the first wedding, a doctoral dissertation, and at the age of 29, Botkin was already a professor, head of a therapeutic clinic. He worked so hard that his health began to limp. But Sergey Petrovich did not want to be treated and did not know how to do it, but he really wanted to treat.

BASAL CELL CARCINOMA CLINIC

Myachina V., Kudainozarova S. – the 6th year students
Scientific leaders – Assoc. prof. N.E. Melnichenko, E.A. Volosenkova

One of the most common malignant neoplasms in our time is basal cell carcinoma, or basal cell skin cancer.

A common clinical feature of all basal cell carcinomas is locally destructive slow growth and extremely rare metastasis. There are several forms of basal cell carcinoma: superficial, nodular, pigmented, sclerodermoid, metatypical, Pincus fibroepithelioma. The forms are characterized by erythematous or pigmented spots, hemispherical nodes, scarring areas. Dermatoscopy is used for diagnosis. In some cases, a lifetime histological examination of tumor material, ultrasound of regional lymph nodes, CT with contrast enhancement of the affected area are used. Specific, for basal cell carcinoma, dermatoscopic signs include: tree-like vessels, superficial thin telangiectasia, gray-blue ovoid structures, multiple gray-blue dots and globules, structures of the "maple leaf" type, structures of the "spokes of the wheel" type, concentric structures, ulceration, multiple areas of erosion of a small size. When identifying these forms of basal cell carcinomas, it is very important to be able to differentiate a certain tumor from other types of malignant skin tumors, inflammatory or infectious diseases. It provides timely treatment and assistance to the patient.

FIRST AID IN ANAPHYLACTIC SHOCK

Sukhanova A. – the 2nd year student
Scientific leaders – Cand. Biol. Sc. I.A. Kreshchenok, E.A. Volosenkova

Anaphylactic shock is an acute insufficiency of blood circulation as a result of anaphylaxis, manifested by the decrease of arterial pressure below 90 mm Hg, resulting in hypoxia of vital organs. It is one of the most dangerous complications of allergy, ending lethally in about 10-20% of cases. Anaphylactic shock may develop from 5 minutes to 2 hours in different cases.

Medical treatment of the patient must be carried out clearly, quickly and in the correct sequence. Once the allergen has entered the body it is necessary to stop further intake of the allergen into the body (stop injecting the drug or carefully remove the sting with the pouch if the bee stung). Apply a tourniquet above the place of injection (sting). Spike the injection site with 0.1% solution of adrenaline (0.2-0.3) and put ice on it to prevent absorption of the allergen. Another 0.3-0.5 ml of adrenaline solution should be injected into the other area. Put the patient in a position that will prevent tongue retraction and aspiration with vomiting masses. Inject 1 ml of 0.1% adrenaline solution, 2 ml of cordiamine, 2 ml of 10% caffeine solution, 60 mg of prednisolone or 125 mg of hydrocortisone. Repeat injections every 10-15 minutes until blood pressure rises. In an attack of food allergy, flush the stomach or give an enema, provide the victim with at least 2 liters of clean water, induce mechanical vomiting, use adsorbent drugs (activated charcoal or almagel). In signs of cardiovascular insufficiency and pulmonary edema it is necessary to administer intravenously 0.5 ml of 0.05% strophantine solution with 10 ml of 40% glucose solution and 10 ml of 2.4% eufillin solution; give humidified oxygen through a nasal catheter, provide inhalation of ethyl alcohol vapor.

In case of anaphylactic shock an urgent help is required, because minutes or even seconds of delay and confusion of the doctor can lead to the death of the patient.

THE PREVALENCE OF RISK FACTORS FOR CARDIOVASCULAR DISEASES AMONG STUDENTS OF THE AMUR STATE MEDICAL ACADEMY

Raspopova M. – the 2nd year student
Scientific leaders – Doc. Med. Sc., Prof. V.I. Pavlenko, E.A. Volosenkova

Cardiovascular diseases (CVD) are a group of organic and functional pathologies of the circulatory system (heart, arteries, veins). Disorders of the heart can be suspected by pain and a feeling of heaviness behind the sternum, shortness of breath, uneven heart rhythm, rapid heartbeat. When the vessels of the head and neck are affected, headaches, tinnitus, fainting may occur. Peripheral vascular diseases are accompanied by pain in the legs, swelling, lameness. According to available data, about 80% of the population suffers from CVD, of which about 30% - adolescents and about 50% - adults. The main risk factors for heart disease are poor nutrition, physical inactivity, tobacco use and alcohol abuse.

RELEVANCE OF THE STUDY OF CONGENITAL MALFORMATIONS (CM) BASED ON THE EXAMPLE OF ESOPHAGEAL ATRESIA

Bogovin M., Gasymova N. – the 4th year students
Scientific leaders – Doc. Med. Sc. N.P. Volodchenko, E.A. Volosenkova

The innate developmental defects are the specific anomalies of the development, deviation from the normal structure of the human organism, which appear during the intrauterine period. Urgency and aspects of the study of atresia of the gullet are substantiated here. EA - the innate developmental defect with the partial absence of the gullet, presented by the separated between themselves proximal and distal segments. In the early embryonic period (first 2 - 3 weeks) the pharyngeal gut, which gives the beginning to the organs of respiration and digestion is formed. Toward the end of the fourth week pharyngeal gut is divided by longitudinal wall into 2 tubes: front — respiratory and rear - esophageal. If to the 4-5 weeks of i/u development their separation does not occur, trachea-esophageal blowhole is formed and upper end of the gullet is not connected with the lower - atresia of the gullet.

Atresia of the gullet in the pediatrics relates to the severe defects, incompatible with life without an early surgical intervention. In 6-10% of cases atresia of the gullet is encountered with the chromosomal diseases.

One of the clinical cases in Blagoveshchensk was studied (24.10.2017). The doctors of ARCCH conducted the low-traumatic operation for the two-day newborn. After operation the child went to recovery.

To prevent genetic diseases, it is necessary to pass through medico-genetic consultation and prenatal diagnostics. It makes it possible to decrease the risk of child birth with the diseases, caused by genomic factors.

THEORETICAL ASPECTS OF DEPRESSION. DEPRESSION IN GENERAL MEDICAL PRACTICE: CLINIC AND TREATMENT

Ksendzik K. – the 2nd year student
Scientific leaders – V.V. Zaritskaya, E.A. Volosenkova

Depression is an affective disorder characterized by persistent depressed mood, negative thinking, and slow movement. It is the most common mental disorder. According to recent studies, the likelihood of developing depression during a lifetime ranges from 22 to 33%. The main

manifestation of depression is the so-called depressive triad, which includes a steady deterioration in mind, a slowdown in thinking and a decrease in motor activity. The DSM-4 distinguishes the following types of depressive disorders: clinical (major), minor, atypical, postpartum, recurrent depression; dysthymia, cyclothymia. The diagnosis is established on the basis of anamnesis, patient's complaints and special tests to determine the level of depression. Depression is treated with antidepressants and psychotherapy. It includes individual, family and group therapy.

STUDYING THE MECHANISMS OF THE IMMUNE RESPONSE DURING ORGAN TRANSPLANTATION

Ksendzik K. – the 2nd year student
Scientific leaders – L.Y. Etmanova, E.A. Volosenkova

The current level of understanding the cellular and molecular mechanisms of transplant rejection and the emergence of effective methods of immunosuppressive therapy have made the transplantation of various cells, tissues and organs quite a common method of treatment. For example, more than 10,000 kidneys are successfully transplanted annually in the world. Heart, lung, cornea, liver, and bone marrow transplantation considered a landmark achievement and widely publicized no more than 25 years ago, has now become commonplace.

Despite the fact that the number of cases of rejection has decreased significantly due to the use of immunosuppressive therapies, they have not completely disappeared. Thus, transplantation immunology continues to be an important area of research. Antigens that elicit an immune response associated with transplant rejection are sometimes called transplant antigens or histocompatibility antigens. Direct and indirect recognition of alloantigens in transplanted organs and tissues plays an important role.

CT DIAGNOSTICS OF CORONAVIRUS INFECTION

Getmanov A., Diyanshina S. - the 6th year students
Scientific leaders – Assoc. Prof. O.B. Prikhodko, I.V. Kostrova, E.A. Volosenkova

Despite advances in research, treatment and immunoprophylaxis of coronavirus infection, statistics show that it is too early to speak about a complete victory of healthcare. It is still important and necessary not to miss the pathological changes in the lung tissue that develop with pneumonia. The main diagnostic method in this case is computed tomography. The purpose of our study was to summarize statistical data and form a portrait of the average patient with pneumonia of coronavirus origin. The objects of the study were 100 conclusions of the X-ray room, which were retrospectively reviewed in conjunction with confirmatory PCR tests.

DIAGNOSIS AND TREATMENT OF REFRACTORY ARTERIAL HYPERTENSION

Yakimov A. - the 3rd year student
Scientific leaders – Doc. Med. Sc., Prof. I.G. Menshikova, N.A. Subacheva

Arterial hypertension (AH) is considered refractory (resistant) to treatment if adequate lifestyle changes in combination with diuretic therapy and two other antihypertensive drugs (AHP) of different classes in adequate doses do not reduce SBP and DBP to <140 and <90 mm.rt.st. respectively. There is pseudo-refractory and true refractory arterial hypertension (RAH). According to current data, true RAH occurs in no more than 5% of cases among the entire population of patients with hypertension, however, in certain groups of patients, for example, with chronic renal failure, its prevalence can reach 30-50%.

In most cases, pseudo-refractoriness to antihypertensive drug therapy (AHT) is due to low adherence of patients to treatment: non-compliance with recommendations for changing lifestyle, drug regimen, taking AHP in incomplete doses, self-cancelling AHP, taking drugs that increase blood pressure. Pseudo-refractoriness to AHT may be due to incorrect actions of the doctor: undiagnosed "masked" hypertension, "white coat" hypertension, use of irrational combinations of AHP, prescribing them in incomplete doses.

When diagnosing pseudo and true RAH, it is necessary to make sure that the patient complies with all recommendations: non-drug and drug. An appropriately sized cuff must be used (the inflated portion of the cuff must cover at least 80% of the circumference of the upper arm). Patients with RAH are advised to conduct a thorough examination to identify risk factors, assess the state of target organs and clarify the presence of secondary forms of AH.

Treatment of refractory (resistant) AH is the use of effective combination therapy: more than 3 AHP are required.

It must be emphasized that any treatment regimen aimed at lowering blood pressure must necessarily include lifestyle interventions, such as limiting salt intake, normalizing body weight, increasing physical activity, and quitting smoking and alcohol. To date, it has been proven that in high-risk patients with hypertension, these interventions contribute to the control of blood pressure and reduce the risk of major cardiovascular events.

PRINCIPLES OF FIRST AID IN EMERGENCY SITUATIONS

Bukalova E. - the 2nd year student

Scientific leaders - Cand. Biol. Sc., Assoc. Prof. V.V. Zaritskaya, A.A. Ivanov

Because of the development of scientific and technological progress in the modern world, natural disasters, man-made accidents and catastrophes caused by human activity are occurring more and more often.

The purpose of first aid is to provide timely assistance to the victim to reduce the likelihood of death before the arrival of an ambulance.

After analyzing the literary sources, we found out that there are several principles of first aid in emergency situations that should be followed; The first step is to inspect the scene of the incident, when inspecting the site, pay attention to anything that could threaten your safety and the safety of others. Also look for other victims at the scene. Next, conduct an initial examination of the victims and provide first aid in a life-threatening condition, for this it is necessary to check the presence of breathing, pulse, heartbeat. Then you need to call an ambulance and conduct a secondary examination, if necessary, provide assistance in identifying other problems.

Thus, the ability to provide first aid in emergency situations is a very important skill, it will alleviate the suffering of the victim before the ambulance arrives, and can also save someone's life.

PRINCIPLES OF FIRST AID IN EMERGENCY SITUATIONS

Bukalova E. - the 2nd year student

Scientific leaders - S.V. Barannikov, A.A. Ivanov

The relevance of studying endometrial regeneration is due to the increased frequency of inflammatory diseases of internal organs, including endometrial hyperplasia and chronic endometritis. The endometrium consists of a single-layer columnar epithelium and a lamina propria (endometrial stroma). In the endometrium, 2 layers are distinguished: basal and functional.

The functional layer of the endometrium undergoes cyclic changes (menstrual cycle) throughout the reproductive period in response to rhythmic changes in the secretion of ovarian hormones (ovarian

cycle). Physiological regeneration of the functional layer of the endometrium repeats every 28 days, involving the basal layer and the preserved fundae of the uterine glands in it.
During the first two days of the menstrual cycle (desquamation phase) the necrotized functional layer of the endometrium is rejected. During the following days (recovery phase, days 2 to 5) the endometrium epithelializes. The postmenstrual period (proliferative phase) corresponds to days 5-14 of the cycle and is characterized by increased growth and regeneration of the endometrium under the influence of estrogen.
Reparative regeneration is the restoration of the structural elements of cells and tissues as a result of their pathological death. The rate of recovery of the endometrium after an abortion depends on its type. After medical abortion (minimal injury to the endometrium), the state of the endometrium already at the 7–8th corresponds to the proliferative phase of the menstrual cycle. After a mini-abortion (endometrial injury of moderate severity), there is a delay in proliferative changes in the endometrium by an average of 14 days. After instrumental curettage of the walls of the uterine cavity (maximum trauma to the endometrium), there is a sharp slowdown in the recovery processes in the endometrium. Complete recovery of the endometrium occurs only by the end of the first month after curettage.
Thus, knowledge of endometrial regeneration will help future obstetrician-gynecologists prepare them for their future specialization.

ANOMALIES OF THE DEVELOPMENT OF THE NOSE

Gogulova S. - the 2nd year student
Scientific leaders - A.E. Pavlova, A.A. Ivanov

Deformities of the external nose:
1. Sinking of the back of the nose (saddle-shaped nose)
2. Long nose
3. Humpback nose
4.Combined deformities (long and humped nose)
5. Deformation of the terminal part of the nose

When the cartilage is hypogenetic (weakness of the wings of the nose) it is soft, pliable, without sufficient rigidity, as a result of which, when inhaled, they stick to the nasal septum and further air flow into the nose stops. Inspiratory suction of the wings of the nose is more often due to an innate cause- excessive thinness of cartilage, less often- paresis or paralysis of the muscles that expand the wings of the nose.
In the area of the tip of the nose, there is an indentation due to the divergence of the medial legs, wing cartilages, one of which washes to protrude more anteriorly and feel well. There is also an asymmetry in the size and location of the nasal openings. Of other malformations, dermoid cysts and nasal fistulas are observed. Cases of combined disorders in the development of the external nose and its cavity are not uncommon.
In accordance with the embryomorphological characteristics of congenital malformations, anomalies in the development of the nasal cavity can be conditionally divided into hypergenesis, dysgenesis, persistence and dystopia.
Hypergenesis of the lower nasal concha is its excessive (mainly due to the bone skeleton) development, accompanied by a violation of nasal breathing, sense of smell and other physiological functions of the nose. The large latticed bull and the hook-shaped process are often hidden by the middle nasal shell. At the same time, in the area of the middle and general nasal passages. The middle nasal conch can be pressed towards the nasal septum or hidden by this formation. With hypergenesis

of the hook-shaped process, deformation of the anterior part of the middle nasal concha is observed, with hypergenesis of the large latticed bull- its middle and posterior parts.

ANOMALIES IN THE DEVELOPMENT OF TEETH

Gorozhankina A. - the 2nd year student
Scientific leaders - A.E. Pavlova, A.A. Ivanov

Dental anomalies are accompanied by deformities of the maxillofacial region, malocclusion, difficulty in biting and chewing food, speech defects, and aesthetic defects. According to the information available in dentistry, various dental anomalies affect 40-50% of children and adolescents and 30% of adults. Dental anomalies may be caused by dental trauma, short frenulum of the upper lip or tongue, complicated decay leading to early extraction of teeth, jaw osteomyelitis leading to the death of the dental germs, etc. Retained or overdentified teeth can lead to abnormalities in the position of the teeth.

The anomalies of the individual teeth include: anomalies of size (micro- and macrodentia), anomalies in the number of teeth (partial and full adentia (hypodentia), hyperdentia), anomalies in the shape of the teeth (thyroid, Hetchinson teeth, Fournier, Pfluger, etc.).), abnormalities of hard tooth structure (hypoplasia, hyperplasia, imperfect dentinogenesis, imperfect amelogenesis), abnormal timing of tooth eruption (premature, delayed), dental position (oral, vestibular, distal, mesial, infra position, supra position, turn around the longitudinal axis, transposition), dental color abnormalities (pigmented enamel or dentin coloration).

BIOPRINTING AS A METHOD OF REGENERATION

Gorozhankina A. - the 2nd year student
Scientific leaders - S.V. Barannikov, A.A. Ivanov

The problem of a shortage of donor organs for transplantation forces us to look for biomedical solutions that do not require the use of donor material. In China alone, there are 1.5 million people on the waiting list, in the United States - 113,000, of whom, on average, 20 people a day die without waiting for a donor. It takes three to five years to get a new kidney, the most sought-after organ. Regenerative medicine technologies are considered to be the most promising. These include gene and cell therapy and tissue engineering. Another area of regenerative medicine, bioprinting, has seen rapid development. Bioprinting is the "printing" of tissues of living beings. The principle is the same as in an ordinary office device for printing documents, only instead of ink from the cartridge the biomaterial is fed - cells of different tissues of the body.

Using a bioprinter, a structure is formed from a cell suspension according to a predetermined algorithm, and different types of cells can be used simultaneously. Advances in stem cell research are making it possible to create bioengineered tissues when heterogeneous cell structures are created using a combination of additive methods and technologies for directed stem cell differentiation.

In 2019, researchers from Tel Aviv University 3D-printed the world's first artificial heart using the patient's own cells and biological materials. In the future, such organs could become donor organs for people who need a heart transplant. This is the first time anyone anywhere has successfully designed and printed an entire heart with cells, blood vessels, ventricles, and chambers.

Adipose tissue biopsies were taken from patients for the study. The cellular and cell-free tissue materials were then separated. While the cells were reprogrammed to become pluripotent stem cells, the extracellular matrix (ECM), a three-dimensional network of extracellular macromolecules such as collagen and glycoproteins, was made into a personalized hydrogel that served as "ink" for printing.

After mixing with the hydrogel, the cells differentiated into cardiac or endothelial cells to create patient-specific immunocompatible heart parts with blood vessels and a whole heart.
In 2015, the Russian company 3D Bioprinting Solutions was the first in the world to print an organ construct of the mouse thyroid gland. Over six months of observation, it was confirmed that it restored thyroid function in animals with experimental hypothyroidism.

SODIUM METABOLISM DISORDERS IN THE COMATOSE STATE

Gorozhankina A. - the 2nd year student
Scientific leaders - L.Y. Etmanova, A.A. Ivanov

Isotonic dehydration in coma. The most common dehydration syndrome in comas is isotonic dehydration. It occurs due to fluid loss.
Causes of hypotonic dehydration in a coma may be: increased salt loss due to renal or adrenal insufficiency, in diabetes, fluid replacement without sufficient administration of electrolytes. Its signs: decreased skin turgor, hypotension, tachycardia, decreased serum sodium levels, increased hematocrit. Treatment - administration of hypertonic solutions.
Hypertensive dehydration in a coma may occur due to: decreased water intake or increased water loss with salt retention (hyperthermia, increased perspiration, non-sugar diabetes). Treatment is administration of solutions poor in electrolytes.
The daily sodium requirement is 1.5-2.5 mEq/kg, i.e. 35-50 mg/kg (2-3 g). When the level of sodium in serum drops below 130-133 mEq/L, we speak of hypo-natremia. It is usually a component of hypotonic dehydration. Treatment is causal - elimination of vomiting, normalization of renal function, etc. combined with replenishment of sodium deficiency, which is administered in hypotonic dehydration in doses up to 10-12 mEq/kg per day; in isotonic - up to 8 mEq/kg per day. Administration of isotonic glucose solutions is contraindicated because its metabolism leads to the formation of large amounts of water, decreased osmotic pressure and increased cerebral edema. A 40% glucose solution with insulin is used as an energy substrate. Since with sodium loss there is also loss of potassium, its replacement is necessary (see below). Significant sodium loss itself, i.e. regardless of the cause, can lead to coma and uncontrollable seizures. When serum sodium levels rise to 150 mEq/L or more, hypernatriemia is spoken of. Immediate causes: late hospitalization of unconscious patients, hyperthermia and profuse sweat, non-sugar diabetes. Consequences: hyperosmolar state, intracellular dehydration, metabolic disorders and cerebral edema. Treatment is administration of electrolyte-poor fluid through a gastric tube or parenterally.

DRUG AND ALCOHOL POISONING: SIGNS, FIRST AID

Gorozhankina A. - the 2nd year student
Scientific leaders - Cand. Biol. Sc. I.A. Kreshchenok, A.A. Ivanov

Drug poisoning is a potentially life-threatening condition that occurs when a person intentionally or accidentally overdoses on psychoactive substances. Symptoms, depending on the substance used, may vary. Opiate poisoning is manifested by a combination of symptoms of depression of all bodily functions. Overdose of psychostimulants, such as amphetamines, on the contrary, causes an excited state of the body. First of all, call for an ambulance, lay the person on your side, with the hand underneath pointing forward; free the neck and chest from clothing, and if the drug has been taken enterally, wash the patient's stomach. Rinse every half hour. Give them salted boiled water or mineral water to drink, and induce an gag reflex by pressing on the root of their tongue, if they are unconscious, give them a tissue soaked in ammonia to sniff. You can also tickle their nasal passages or rub their earlobes to affect the nerve endings.

Alcohol poisoning is an acute state of intoxication caused by drinking alcohol (ethanol). Intoxication provides short-term mental disturbance and disruption of the coordination center. Symptoms of alcohol intoxication are: psychomotor agitation; feeling of euphoria; glitter in the eyes, talkativeness; excessive categorical judgments; blushing; pronounced dilation of the pupils. To help the person, you should also call an ambulance. Before the ambulance arrives, lay the victim on his right side, cover him and put something under his head. If unconscious, hold his tongue to prevent retraction. If there is vomit, empty the mouth. Try to revive him, using a cotton swab soaked in ammonia. IMPORTANT: do not bring it closer than 1 cm from the nose. When the victim regains consciousness, give him a weak solution of manganese solution (up to 0.1%) or 1-3 glasses of saline solution (1 tsp of salt per 1 cup of warm water). This is to induce vomiting and cleanse the gastrointestinal tract.
Alcohol and drug poisoning are dangerous enough states for the body, because there are disturbances in metabolic processes and body regulation. All this can lead to various pathologies, up to and including death.

NEUROPHYSIOLOGY OF LEADERSHIP

Gorozhankina A. - the 2nd year student
Scientific leaders – Doc.Med.Sc, Prof. T.A. Batalova, A.A. Ivanov

The drive to lead is innate in our brains, as is the drive for new information, safety, and delicious food. In addition, our brains have subordination programs that help us identify a leader to follow. Everyone's behavior is a delicate balance of striving to lead and striving to obey. On a conscious level, this should be monitored and even controlled, because any behavioral program, if out of line, can lead to a heap of problems, up to and including psychiatric problems, such as megalomania. There is a direct link between aggressiveness and the desire for leadership. Those with a higher contribution of aggression to the brain are more likely to aspire to leadership. Of great importance here is the amygdala, the center, which plays a role in defensive behavior: the larger the amygdala, the more interaction within a particular brain, as well as the interaction of a particular person with other people, more social contact and a desire for leadership. Another significant role is played by hormonal background and mediator balance in the brain. On the hormonal level, leadership drive is supported by substances associated with stress - adrenaline, cortisol. And on the level of mediators these are such substances as dopamine and serotonin. Their adequate work makes it possible to build up the brain in such a way that the desire for leadership is very significant.

PLANNING AND ORGANIZATION OF EVACUATION MEASURES AT THE SITE

Dolgova K. - the 2nd year student
Scientific leaders - Cand. Biol. Sc. I.A. Kreshenok, A.A. Ivanov

The first axiom of life safety states that any activity is potentially dangerous, that is, man-made technical means, equipment and technology, in addition to positive properties and results, have the ability to generate danger. To minimize losses in moments of danger, mankind has identified a set of measures of the appropriate orientation, which is the evacuation.
Evacuation is the organized movement of people, material and cultural values to safe places; withdrawal of troops; removal of state institutions, public organizations and even governments to safe places.
Depending on the situation, people resort to a specific regulation, corresponding to one or another type of evacuation activities, among which there are different types according to three main characteristics: 1) by scale: local, local, regional; 2) by population coverage: general and partial; 3) by timing: anticipatory (advance) and emergency (urgent).

As a rule, the order of organization of evacuation measures is determined at the regulatory level, i.e. by legislative authorities. In our country the Decree of the Government of the Russian Federation of 19.09.2022 N 1654 "On approval of the Rules of evacuation arrangements under the threat or emergence of emergency situations of natural and man-made character" acts.
The decision to carry out evacuation measures determines, among other things: places of collection and (or) boarding of evacuated population on transport, list of material and cultural values to be removed (taken out) beyond exposure to hazards; evacuation routes; list of deployable temporary accommodation and food points in safe areas (places). And also defined the authority to make decisions on evacuation, to ensure evacuation measures and public safety.
The main purpose of the evacuation is not only to reduce the loss of population and loss of cultural and material assets, but also to provide conditions for the forces and means of emergency response during emergency rescue and other urgent work. That is why the order of organization and conduct of evacuation activities is established at the legislative level and covers literally all areas of life and the entire population - in schools, colleges and universities these are preventive talks and annual training alarms, and in the workplace among employees - meetings, trainings and directly practical certification.

ANOMALIES OF EYELID DEVELOPMENT

Eremko J. - the 2nd year student
Scientific leaders - A.E. Pavlova, A.A. Ivanov

The eyelids are important structures that maintain the health of the ocular surface and have an important role in facial esthetics. Any interruption in eyelid development can lead to congenital eyelid deformities. Eyelid abnormalities in children may present at birth due to abnormal embryogenesis (congenital) or may occur at a later stage as the child matures (developmental).
I. Cryptophthalm.
Intrauterine underdevelopment of the eyelids and eyeball; the eyelids are not separated, but represent a single skin flap, often covering an underdeveloped eyeball.
II. Ablefaria.
Complete absence of eyelids; Absence of eyelids in combination with the syndrome of New Laxova (Neu Laxova); Ablephary syndrome with macrosomia.
III. Koloboma:
complex or isolated absence of part of the eye structures.
in combination with facial crevices, for example, Goldenhar syndrome, the Treacher-Collins syndrome (Treacher-Collins);
with severe deformation, the first stage of rehabilitation is surgical correction.
IV. Ankiloblepharon: fusion of the eyelids; narrowing of the eye gap;
there are forms inherited by an autosomal dominant type.
V. Brahyblepharon:
widening of the eye gap;
there are forms inherited by an autosomal dominant type;
can accompany Down syndrome and craniofacial dysostosis.

VITAMIN K

Zakharchenko E. - the 2nd year student
Scientific leaders - Cand. Med. Sc., Assoc. Prof. E.V. Egorshina, A.A. Ivanov

Danish scientist Henrik Dam investigated the consequences of a lack of cholesterol in chickens. During the study, a certain substance was discovered that has the ability to stop bleeding. This substance was called vitamin K (from Koagulationsvitamin - coagulation vitamin). For this discovery, Henrik Dam was awarded the Nobel Prize in 1943.

What does vitamin k do?

Vitamin K is a group of fat-soluble compounds formed in two main forms: phylloquinone (of plant origin, or vitamin K1) and menaquinone (of animal origin, or vitamin K2). Vitamin K is synthesized in the small intestine by specific microorganisms called saprophytic bacteria.

Where can you find vitamin k?

Vitamin K is found in all green plants. In the leaves of goutweed, nettle, linden, birch, raspberry and wild rose. The richest are green leafy vegetables, as well as green tomatoes, rose hips, spinach leaves, oats, soybeans, wheat, rye, needles.

What is vitamin K for?

1. Blood clotting
2. Bone health
3. Heart disease

THE PROBLEM OF COMORBIDITY IN CARDIOLOGY

Krekhov R., Trakhanov S. - the 3rd year students
Scientific leaders - Prof. I.G. Menshikova, A.A. Ivanov

Comorbidity is the coexistence in one patient of two and/or more diseases or syndromes that are pathogenetically interrelated or coincide in time, regardless of the activity of each of them (World Health Statistics, 2008).

The prevalence of comorbidity ranges from 21% to 98%. At the same time, the older the patient, the frequency of this pathology is higher – from 10% under the age of 19 to 80% in people 80 years and older. It is observed in more than 2/3 of patients who died in cardiology departments of a multidisciplinary hospital. Comorbidity is mainly detected in women of older age groups, while in men it is registered 7-15 years earlier (Vertkin A. L. and co-authors).

Arterial hypertension (AH), diseases of the urinary system, coronary heart disease (CHD), cerebrovascular diseases (CVD) and chronic obstructive pulmonary disease (COPD) are most involved in the formation of comorbidity. A significant unfavorable prognostic factor is hypertension. Along with this, the main cause of deaths (94.6%) are cardiovascular and cerebrovascular pathology. The main comorbid conditions in cardiology: Coronary heart disease in combination with hypertension, COPD or type II diabetes mellitus; hypertension together with atrial fibrillation.

Comorbidity aggravates the course of diseases, worsens the prognosis and increases the number of complications. In addition, the appointment of a large number of medications is required, which causes polypragmasia. Thus, comorbid diseases reduce patients' adherence to treatment.

LANDSLIDES AS GEOLOGICAL EMERGENCIES

Mizhit A., Tokash-ool Kh. - the 2nd year students
Scientific leaders - Cand. Biol. Sc. I.A. Khreshchenok, A.A. Ivanov

Landslides are among the most destructive natural hazadrs. They pose a threat to all kinds of engineering structures without exception, kill many people, damage the national economy and make agricultural land useless. In many cases landslides make it extremely difficult to operate railway lines and highways.

Landslide can be defined as the movement of a mass of rock, debris, or earth downward and outward of a slope under the influence of gravity. They are formed in various rocks as a result of their imbalance or weakening of strength. They can be caused by natural or human events: increase in steepness of slopes, undermining of their bases by sea and river waters; seismic shocks; destruction of slopes by road excavations; excessive removal of soil; deforestation; unreasonable farming on slopes. According to international statistics, up to 80% of modern landslides are caused by human activity. A large number of landslides take place in the mountains, at elevations of 1,000-1,700 m (90%). They occur at any time of the year, but most of them occur in spring and summer.

Landslides are classified by their scale (large, middle, and small-scale); type of rocks (from clay masses to rocky rocks); speed of landslide movement along a slope (from 3 m/s to 0,06 m/year); volume of rocks displaced by landslides (from several hundreds to many millions of cubic meters); place of formation (mountain, underwater, adjacent and artificial earth structures (trenches, channels, rock dumps).

Signs of an impending landslide are breaks and cracks in the ground, on roads; violations and destruction of underground and surface communications; displacement, deviation from the vertical of trees, poles, supports; uneven tension or breakage of wires; curvature of walls of buildings and structures, the appearance of cracks on them; changing the water level in wells, wells, in any water bodies.

The primary damaging factors of the phenomenon include heavy moving masses of soil that can cause serious injury. Among the secondary factors are the destruction of roads and communications, destruction of forests.

Preventive measures are an effective measure in combating landslides. These include the collection and removal of surface water, artificial transformation of the terrain (in the zone of possible detachment of the earth reduce the load on the slopes), fixation of the slope with piles and construction of retaining walls.

Residents of hazardous areas should be aware of the flow warning signals and procedures:

1.After receiving signals about the threat of a landslide, you should turn off electrical appliances and gas appliances, water mains, prepare for immediate evacuation according to pre-designed plans

2.Depending on the landslide displacement speed detected by the landslide station, act according to the threat

3.At low displacement speed (meters per month) act according to your capabilities (move buildings to the previously planned place, move furniture, things, etc.). At landslide shift velocity of over 0.5-1.0 m per day, evacuate according to a pre-designed plan

4.When evacuating, It is recommended to take documents with you, highly necessary things, and food for the short term. Evacuate to a safe place immediately and, if necessary, assist rescuers removing victims from the landslide and rendering them assistance.

Thus, the damage caused by the landslide process is significant. The natural disaster damages agricultural areas, settlements and industrial enterprises located in the area of the flow.

BUGCHASING

Buyanov V. - the 5th year student
Scientific leaders - A.E. Pavlova, A.A. Ivanov

Human Immunodeficiency Virus (HIV) is a retrovirus of the lentivirus genus that causes a slowly progressive disease, HIV infection. The virus affects immune system cells that have CD4 receptors on their surface: T-helper cells, monocytes, macrophages, Langerhans cells, dendritic cells, microglia cells. As a result, the immune system becomes depressed and the acquired immune

deficiency syndrome (AIDS) develops, the patient's body loses the ability to defend itself against infections and tumors, secondary opportunistic diseases occur, which are not typical for people with normal immune status. HIV remains a major global public health problem: to date, the virus has caused about 40 million human deaths. In 2021, 650,000 people died from HIV-related causes and 1.5 million new HIV infections were registered. There is no cure for HIV infection. However, with improved access to effective prevention, diagnosis, treatment and care of HIV and opportunistic infections, HIV has become a manageable chronic disease and people with HIV can live long and healthy lives. Bugchasing ("bug hunting") is knowingly and willingly infecting oneself with HIV by having unprotected sex with an HIV-positive person. The concept of bugchasing was first mentioned back in the 1980s. But it was not made public until 2003, after several publications about bugchasing in the popular magazine Rolling Stone. In English, the terms bugchaser and giftgiver are used for this phenomenon. The phenomenon of bugchasing is relatively new and insufficiently studied. The phenomenon of bugchasing is most common among men who have same-sex sexual contacts, although it is observed in heterosexual environments as well. Bugchasing should not include cases where HIV infection occurs through negligence or ignorance, such as when a condom breaks or when one is unaware of one's HIV status. Bugchasing should not be confused with barebacking, in which a person also has unprotected sexual intercourse, but is not intended to infect, although the person is aware of the possibility of infection. Barebackers are aware of the possibility of infection, while bugchasers purposely seek it out. Bugchasers constitute a particular sexual fetishist subculture.

American scientists Moskowitz and Roloff, in 2007, analyzing the available publications on the subject, identify four main groups of reasons why some homosexual men feel the urge to voluntarily acquire HIV. One is the desire to be part of a special "brotherhood of the initiated", which is more cohesive than a separate group of homosexual men. Another reason is the reluctance to protect oneself and the desire to have sex freely, without fear of contracting HIV. This point of view is called the "diabetes metaphor" because such people lightly compare HIV to diabetes, since modern medicine allows people with HIV to live to old age on medication. The third group includes people who deny AIDS as such and reject the "AIDS hysteria" as a made-up theory. The fourth group includes gay men who hold the opinion that AIDS is an integral part of gay life and who want to get infected sooner, so as not to be constantly stressed by the fear of being accidentally infected. Other reasons for taking this step may include a desire to die, a feeling that one's life is worthless, or even a desire to "share" one's fate with a partner one loves. People may deliberately become infected through ignorance, medical illiteracy, psychological co-dependency and an inability to soberly accept their partner's HIV-positive status.

YERSINIOSIS: CLINICAL AND EPIDEMIOLOGICAL FEATURES

Dedovets K. - the 5th year student
Scientific leaders - Cand. Med. Sc. A.V. Zotova, A.A. Ivanov

Yersiniosis is an acute anthropozoonotic intestinal infection, accompanied by a toxic-allergic reaction, characterized by multifocality. Yersiniosis is characterized by the fecal-oral route of transmission. The source of the infection is livestock, rodents and dogs. The incubation period of yersiniosis lasts no more than a week. The symptoms are a general toxic syndrome, maculopapular rashes, dyspeptic disorders; possible hepatosplenomegaly, arthropathic syndrome, development of acute appendicitis, generalized form of yersiniosis. The diagnosis is established on the basis of the isolation of yersinia in various biological environments of the patient.

Yersiniosis is an acute anthropozoonotic intestinal infection, accompanied by a toxic-allergic reaction, characterized by multifocality.

The causative agent is the bacteria yersinia enterocolitica, a mobile gram-negative facultative anaerobic bacillus. Yersinia perfectly tolerates low temperatures, in the refrigerator at 4-6 ° C they can not only survive, but also reproduce on food. (Yersiniosis is often called “refrigerator disease”). Bacteria easily tolerate freezing and subsequent thawing, persist for a long time in water, soil, but are sensitive to sunlight, drying, boiling, and chemical disinfectants. Yersiniae secrete enterotoxin, cytotoxins and endotoxin.

The reservoir and source of yersiniosis are mainly animals: various rodents, livestock (mainly pigs), dogs. Humans can spread the infection, but infection from humans is rare. In cities, the infection is mainly spread by rodents, it is their groups that form epidemic foci of infection during outbreaks. The mechanism of transmission of yersiniosis is fecal-oral, the routes of transmission are food and water. Food of animal origin, insufficiently thermally processed, water sources contaminated with the faeces of sick animals, contribute to the implementation of infection routes. In rare cases, a contact-household transmission route is realized (as a rule, it is associated with a low hygienic culture).

The natural human susceptibility to yersiniosis is low. Healthy people practically do not get sick with clinical forms of infection. A severe and manifest course is typical for children, people suffering from immunodeficiency states, chronic diseases that contribute to a pronounced weakening of the protective mechanisms of the body. Epidemic outbreaks of yersiniosis are quite rare and most often occur with the mass consumption of vegetables contaminated with microbes.

RABIES VIRUS - AN EXPERIMENTAL TREATMENT FOR THE INFECTION

Dolgosheeva A. - the 5th year student
Scientific leaders - Cand. Med. Sc. A.V. Zotova, A.A. Ivanov

Rabies (Hydrophobia, lat. - rabies, greek - lyssa) - is a viral zoonotic disease of natural and human origin with direct contact mechanism of transmission, with severe damage to the nervous system and fatal outcome for humans.

In the Russian Federation the greatest number of epizootic foci is registered in the territory of the Central, Volga, Ural, Southern and Siberian federal districts, which account for 77 % of all registered diseases among animals.

A major role in the spread of rabies is assigned to bats, which are reservoir hosts. Sources of infection for humans are animals in the incubation period of the disease, or with a clinical picture of rabies. Humans become infected by a bite from a sick animal, or by salivation of damaged skin and intact mucous membranes. Aerogenic infection has now been proven, and transmission via the alimentary and transplacental routes cannot be ruled out. Rabies is not transmitted from person to person by direct contact. Although the saliva of a person infected with rabies contains the rabies virus.

The virus penetrates and multiplies in nerve tissue. Death occurs due to asphyxia and cardiac arrest as a result of damage to the vital centers - respiratory and vasomotor.

There is no specific treatment for rabies. The experimental rabies treatment, the Milwaukee Protocol, has been shown to be ineffective. This experimental course of treatment for rabies in humans was developed by Dr. Rodney Willoughby. The treatment involves putting the patient in an induced coma and administering antiviral medications. The first patient after successful treatment was Gina Guice, a Wisconsin teenager who survived symptomatic rabies without the administration of the rabies vaccine.

Currently, the only method of preventing rabies, after contact with a sick animal, is post-exposure prophylaxis, which should be given before the first clinical signs of rabies appear.

NOROVIRUS INFECTION

Mursky P. - the 5th year student
Scientific leaders - Cand. Med. Sc. A.V. Zotova, A.A. Ivanov

Norovirus infection is an acute viral disease manifested mainly by gastroenteritis syndrome. The main symptoms are nausea, vomiting, pain, abdominal murmur and watery diarrhea, less often – a severe temperature reaction of the body, respiratory manifestations. Diagnosis of the disease consists in the detection of the virus in biological materials, antibodies to it in the patient's blood. Treatment is usually symptomatic, aimed at correcting the water-electrolyte balance. Enzymes, sorbents, antispasmodics are used; a sparing diet is of great importance.

Norovirus infection is a viral lesion of the intestine. The pathogens of the disease were first isolated in 1972 in the USA and named Norfolk viruses in honor of the place of discovery. Nosology is widespread everywhere, typical seasonality is winter time. In summer, outbreaks can occur in organized children's groups. Noroviruses are the causes of intestinal infections in 50-90% of adult cases and 30% of school-age children. Children, people with the first blood type, pregnant women, the elderly, and HIV-infected people are considered risk groups for norovirus infection.

PECULIARITIES OF THE COURSE OF ROTAVIRUS GASTROENTERITIS IN CHILDREN

Oorzhak S. - the 5th year student
Scientific leaders - Cand. Med. Sc. A.V. Zotova, A.A. Ivanov

Rotavirus gastroenteritis is an acute viral disease, characterized by severe diarrhea, vomiting, fever, weakness and adynamy in newborn children. The disease is widespread, especially among young children.

The number of cases of rotavirus gastroenteritis worldwide is estimated to exceed 140 million cases per year. The disease is fatal in 80,000 children from 6 months to 2 years of age. Rotavirus infection accounts for about 50% of diarrheal diseases, even in economically developed countries, but is diagnosed much less frequently because of difficulties in etiologically identifying diarrhea in children under 2 years of age.

Clinical manifestations: acute onset, fever, nausea, vomiting, diarrhea, abdominal pain. It is characterized by watery stools with a pungent odor, without admixtures. Clinical forms range from asymptomatic to severe, with dehydration and death. The virus was excreted in massive amounts in the feces from the first day of illness until 7-8 days. If the course is favorable, antibodies begin to be produced from day 3 and will persist for several years.

EXPERIMENTAL METHODS AND APPROACHES IN THE THERAPY OF PRION DISEASES

Slavnykh D. - the 5th year student
Scientific leaders - Cand. Med. Sc. A.V. Zotova, A.A. Ivanov

Prion diseases are a group of neurodegenerative diseases characterized by spongy degeneration of central nervous system tissue, often accompanied by neuronal loss and astrocytosis. Currently, there is no etiotropic or pathogenetic therapy, the main set of measures is aimed at symptomatic treatment. The main representatives of prion diseases in humans are: Creutzfeldt-Jakob disease, variable protease-sensitive prionopathy, fatal insomnia, Kuru, prion disease associated with diarrhea and autonomic neuropathy.

The difficulty in creating effective antiprion drugs lies in the complex process of experimentally modeling the pathology. However, research does not stand still and there is already a progress in the exact construction of the links of pathogenesis. By evaluating the signaling cascades that take or may take part in the development of prion diseases, it is possible to isolate individual driver links of pathogenesis that can serve as potential targets for therapy.

Common strategic approaches to date include targeting the markers PrPC, PrPSc and PrPC is the normal isoform of the membrane protein. PrPSc is its abnormal infectious counterpart. The researchers have the task of disrupting the conversion of PrPC to PrPSc. The use of the PrPC/PrPSc signaling pathway includes various pathways such as inhibition of PrPC delivery to the plasma membrane, stabilization of the PrPC structure by chemical chaperones, and interference with the interaction between PrPC and PrPSc. Antiprion agents belonging to the group of experimental drugs are classified into: 1) chemical compounds - pentosan polysulfate, quinacrine, doxycycline, flupertine maleate, guanobenz; 2) immunotherapy - in this case, monoclan and recombinant antibodies are used, with paratopic modifications; 3) natural extracts - which are plant extracts that have an inhibitory effect on prions, these include resveratrol and curcumin.

Despite the extensively presented strategies, all of them are only preclinical and are currently being tested in animal models, which in the future may help form an effective therapy against prion diseases. Research on this topic is actively carried out in research centers: the State Laboratory for the Prevention and Control of Infectious Diseases, the Laboratory of Medical Virology and Viral Diseases, the Joint Innovative Center for the Diagnosis and Treatment of Infectious Diseases, the National Institute for the Control and Prevention of Viral Diseases (PRC).

TEETH. DENTAL DEVELOPMENT

Koso Ogly N. - the 2nd year student
Scientific leaders - A.E. Pavlova, A.A. Ivanov

The ectoderm of the primary oral cavity and the mesenchyme of the first gill arch are involved in the formation of teeth. The enamel of the teeth is of ectodermal origin, while dentin, pulp, cementum and periodontium develop from mesenchyme. At 6-7 weeks of embryonic development, the ectoderm thickens on the upper and lower surfaces of the oral cavity, resulting in the formation of upper and lower dental plates. Over time, secondary thickenings - enamel (epithelial) organs - appear on them, according to future teeth.

Epithelial bodies increase in size, penetrate deeper into the underlying mesenchyma and take the form of an inverted bowl. Its cavity is filled with mesenchyme, which is called the dental papilla. The mesenchyme surrounding the enamel organ is indicated by a dental sac. In the future, dentin and tooth pulp come from the dental papilla, and cement and periodontium come from the pouch.

Although the enamel organ is separated from the dental plate, it retains a connection with it, which is called the neck. From the edge of the dental plate and the neck of the enamel organ, an additional enamel organ of the permanent tooth is formed. After that, the dental plates and necks begin to gradually dissolve. Sometimes their remnants can persist and give rise to cysts (hollow growths).

Thus, the rudiment of a permanent tooth is located next to the milk one (in one alveolus). But, unlike him, it grows much slower, and its growth is activated only after the eruption of baby teeth.

The internal ectodermal cells of the enamel organ adjacent to the dental papilla turn into ameloblasts (adamantoblasts) - enamel builders.

The external mesenchymal cells of the dental papilla adjacent to the ameloblasts are transformed into odontoblasts that produce dentin. Ameloblasts and odontoblasts have a cylindrical shape with a process from which the substance secreted by the cell body - enamel and dentin - comes out.

THE CONGENITAL CLUBHAND

Orlenko A. - the 2nd year student
Scientific leaders - A.E. Pavlova, A.A. Ivanov

The incidence of congenital clubhand is up to 13% in the structure of upper limb malformations. This pathology occupies a special place among the deformities of the musculoskeletal system because it has severe cosmetic defects and a high degree of functional impairment; thus, it is still of current importance.

Congenital clubhand is a pathology of the upper extremity, which can be a consequence of congenital shortening of the tendon muscles and ligaments, underdevelopment or lack of radius and ulnar bones. There are two types of causes of this pathology: exogenous and endogenous factors. The first include malnutrition of the mother, infectious diseases, and radiation exposure. To the second - late pregnancy, hormonal disorders, somatic diseases of the mother, functioning and pathological changes in the uterus. The critical period is the first five weeks of pregnancy.

Congenital clubhand is classified into radial and ulnar. The first is formed when the radius and associated tendons are underdeveloped or absent. The second is formed when the ulna and associated tendons are underdeveloped or absent. Each type of congenital clubhand is divided into several subtypes based on the degree of bone underdevelopment. The main classification features of radial club hand are the degree of radial bone reduction, the size of the angle of deviation of the hand to the radial side, the presence of secondary compensatory deformity of the ulna, and the size of the anatomical shortening of the segment. For ulnar obliquity, the signs are the degree of ulnar bone reduction, the presence of a secondary compensatory deformity of the radius, the presence and magnitude of dislocation of the head of the radius, and the magnitude of anatomical shortening of the segment.

The symptoms of this disease depend on the degree and type of clubhand. Diagnosis of congenital clubhand is not difficult due to visually visible deformities and obvious disorders of limb function. In order to accurately assess the degree of underdevelopment of bone structures and clarify the further treatment plan, an X-ray of the forearm bones and an X-ray of the hand bones are performed. To assess the condition of soft tissues, MRI of the forearm and electromyography are prescribed.

Treatment of congenital clubhand begins from the first days of the patient's life. Infants under the age of 6 months are prescribed conservative therapy aimed at "stretching" soft tissues, reducing and preventing the development of contractures. The patients are referred for physiotherapy, massage and wearing orthoses. The operations are recommended to be performed at the age of 1 year, the optimal period is 6-9 months. Indications for surgical intervention are persistent contractures in the wrist and elbow joints, an incorrigible deviation of the hand in relation to the forearm and limitations of the function of the hand. Depending on the degree and type of deformation, the intervention can be either one-stage or multi-stage.

SIGNS OF CLINICAL DEATH

Permyakova A. - the 2nd year student
Scientific leaders - Cand. Biol. Sc. I.A. Khreshchenok, A.A. Ivanov

Clinical death is a reversible stage of death, a transitional period between life and biological death. At this stage, heart and respiration stop working, and all external signs of the body's work completely disappear. At the same time, hypoxia does not cause irreversible changes in the organs and systems sensitive to it. This period of terminal state, with the exception of rare cases, on average

does not last more than 3 - 4 minutes, maximum 5 - 6 minutes, with initially decreased or normal body temperature. Signs of clinical death include coma, apnea, absence of pulse in the main arteries. Coma is diagnosed on the basis of absence of consciousness and pupillary reflex. Apnea is registered visually, by absence of respiratory movements of the chest. Absence of pulse on the main vessels can be observed in asystole, ventricular fibrillation or electromechanical dissociation. This triad refers to the early period of death, when a few minutes have elapsed since asystole, and does not apply to those cases in which there are already clear signs of biological death. The shorter the period between the statement of clinical death and the beginning of resuscitation measures, the greater the chances for the patient's life, so diagnosis and treatment are carried out in parallel. Additional signs of clinical death are wide pupils, areflexia (no corneal reflex and pupil response to light), pallor, cyanosis of the skin. Signs of clinical death should be well distinguished in order to take life-saving measures in time.

MALOCCLUSION

Sevostyanov E. - the 2nd year student
Scientific leaders - A.E. Pavlova, A.A. Ivanov

A bite is the relationship of the tooth rows with maximum contact and full occlusion of the upper and lower jaws. A distinction is made between physiological and pathological occlusion. A physiological bite ensures the proper functioning of the dentition and jaw system: normal chewing, clear articulation, free breathing, etc.

Bite anomalies.

Prognathia (overlapping of the lower jaw incisors of the upper jaw);

Prognathia (forward tilting of the upper and lower teeth);

Closed bite (upper incisors completely overlapping the lower incisors);

Open bite (gap between upper and lower incisors);

Cross bite (the front teeth close properly and the lower molars are positioned outward from the upper teeth).

Unrepaired bite anomalies lead to jaw deformities, chewing and breathing disorders, etc.

PSYCHOLOGICAL REHABILITATION OF VICTIMS OF DISASTERS AS THE BASIS OF PERSONAL SECURITY

Sergeev K. - the 2nd year student
Scientific leaders - Cand. Biol. Sc., Assoc. Prof. V.V. Zaritskaya, A.A. Ivanov

Any emergency situation is undoubtedly a traumatic situation. The result of the influence of extreme, emergency situations are changes in the cognitive, emotional, behavioral spheres of the human psyche.

Assessing the traumatic impact of certain adverse factors occurring in life-threatening situations on human mental activity, it is necessary to distinguish between psychoemotional (normal) reactions of people to an extreme situation and pathological conditions.

According to statistics, post-traumatic stress disorder (PTSR) develops in 25-80% of people who have suffered as a result of emergency circumstances.

The outcome of the disease and rehabilitation largely depends on how early the help was provided. The system of comprehensive care is built as a complementary chain: from emergency social assistance, psychological support to specialized assistance and consultation in specialized centers.

The main most effective directions in rehabilitation PTSR are considered to be four directions of methods:

1. The educational direction includes information support, discussion of books and articles, acquaintance with the basic concepts of physiology and psychology.
2. Holistic direction - the area of holistic attitude to health. A healthy lifestyle - with sufficient physical activity, proper nutrition, lack of alcohol abuse, drug withdrawal, with the ability to treat many events of our life with humor - creates the basis for recovery after severe traumatic events.
3. Social direction. This can include the development of a self-help network, the formation of public organizations that support people with PTSR.
4. The therapeutic direction (pharmacotherapy, psychotherapy) includes psychotherapy itself, aimed at working out the traumatic experience, dealing with grief, and the reasonable use of pharmacotherapy to eliminate individual symptoms.
Of the self-help methods that lead to the weakening of undesirable reactions, you can try the following ways: compliance with the work and rest regime, proper nutrition, sports, communication with people, doing those things that cause emotional comfort.
It should be remembered that the primary task of psychological rehabilitation is to help a person to survive and accept a traumatic situation, to realize how well he coped with post–traumatic disorder, a test that life itself suits.

PECULIARITIES OF PROTEIN DIGESTION IN THE STOMACH, THE ROLE OF HYDROCHLORIC ACID, FUNCTIONS AND ACTION OF PEPSIN

Sergeev K. - the 2nd year student
Scientific leaders - Assoc. Prof. E.V. Egorshina, A.A. Ivanov

Proteins occupy a leading place among organic compounds. They perform a number of important biological functions.
The daily protein requirement of an adult depends on age, physical activity, and physiological state. Full-fledged proteins should enter the human body with food. Animal proteins are preferable, because they almost completely turn into the body's own proteins.
All the conditions for the digestion of proteins are available in the stomach. Firstly, gastric juice contains the active enzyme pepsin. Secondly, due to the presence of free hydrochloric acid in the gastric juice, an optimal environment (pH 1.5-2.5) is created for the action of pepsin.
The essential role of hydrochloric acid in the digestion of proteins should be emphasized: it converts inactive pepsinogen into active pepsin, creates an optimal environment for the action of pepsin, in the presence of hydrochloric acid, protein swelling occurs, partial denaturation and, possibly, hydrolysis of complex proteins. In addition, hydrochloric acid stimulates the production of secretin in the duodenum, accelerates the absorption of iron and has a bactericidal effect.
Note that with some lesions of the stomach (usually with inflammatory processes), the secretion of hydrochloric acid and, accordingly, the digestion of proteins may be disrupted.
Pepsin, which catalyzes the hydrolysis of peptide bonds formed by aromatic amino acid residues, breaks down almost all natural proteins. The exceptions are some keratins, protamines, histones and mucoproteins. During hydrolysis of proteins, peptides of various sizes and a small number of free amino acids are formed. The gastric juice of infants contains a very active enzyme rennin, which is different from pepsin. It catalyzes the coagulation of milk proteins. In adults, this function is performed by pepsin. The mechanism of this process, despite its apparent simplicity, has not yet been clarified in detail.

THE ORGAN OF BALANCE

Sergeev K. - the 2nd year student

Scientific leaders - Assoc. Prof. T.L. Ogorodnikova, A.A. Ivanov

The human ability to maintain balance, correctly estimate his position in space and speed of movement is unique. This ability has been developed for millions of years. It was intensively practiced by monkeys, our ancestors, jumping from branch to branch. With the beginning of walking upright, the task of maintaining balance on just two legs (and without a tail support) has become very relevant! A special organ is responsible for balance and other above-mentioned sensations in the body: the vestibular apparatus. The vestibular apparatus is represented by a small organ in the inner ear, which provides us with a sense of balance. The location of the receptors of the balance organ is the vestibular part of the membranous labyrinth. It consists of two sacs – elliptical, or uterus and spherical, communicating by means of a narrow channel and connected with three semicircular channels. These channels at their junction with the elliptical pouch have extensions – ampoules. In the wall of the membranous labyrinth in the area of elliptical and spherical sacs and ampoules there are areas containing sensoepithelial cells. In pouches, these areas are called spots, or macules, and in ampoules - scallops. These spots are lined with epithelium located on the basement membrane. The surface of the epithelium is covered with a special gelatinous otolith membrane, which includes crystals consisting of calcium carbonate – otoliths. The macula of the elliptical sac is the place of perception of linear accelerations and gravity. The macula of the spherical sac, being a gravity receptor, simultaneously perceives vibrational vibrations. Ampullary scallops in the form of transverse folds are located in each ampullary extension of the semicircular canal. The ampullary scallop is lined with sensory hair and supporting epithelial cells, the apical part of these cells is surrounded by a gelatinous transparent dome. Functionally, the gelatinous dome is a receptor for angular accelerations. With the movement of the head or accelerated rotation of the whole body, the dome easily changes its position. After analyzing the work of the balance organ, it can be concluded that the balance organ performs the following functions: provides an analysis of the position of the body in space during movement and maintaining balance during movement, provides processing of information related to the assessment of the position of the head and the trajectories of its movement, provides orientation in space with the exclusion of the visual analyzer, creates antigravity forces of the body.

Thus, the vestibular apparatus plays an important role in human life. An interesting fact is that the vestibular apparatus differs in people in its capabilities. A strong vestibular apparatus makes a person's life better. People with a weak vestibular apparatus, prone to seasickness, motion sickness, dizziness, are recommended exercises for coordination of movements, training to hold objects on their heads, walking, yoga classes, classes with simulators, swings, rocking chair. And, of course, do not forget about a healthy lifestyle.

BIOLOGICAL BIORHYTHMS AND THEIR RELATIONSHIP WITH THE DATE OF BIRTH OF A PERSON

Sergeev K. - the 2nd year student

Scientific leaders - I.V. Siyanova, A.A. Ivanov

Changes constantly take place in our lives and they affect each of us. These changes affect a person's appearance, his inner thinking and subconscious. Periods of prosperity and increase of vital activity and periods of decline and fading constantly alternate in human life. Scientists have long been interested in the body's reflection of cyclical phenomena of nature.

It is scientifically proven that biorhythms control all processes in the body and synchronize the work of internal organs: brain, skin, muscles, kidneys and liver.

Human biorhythms are formed and begin to work simultaneously at the moment of birth. Their reference points are located in our brain and heart muscle.

Three main types of biorhythms accompany a person's life:
- physical (The duration of this type of biorhythms is 23 days. Physical strength is regulated by the activity of the adrenal glands, adrenaline. Energy and endurance increase during the period of increasing activity. The period of decline is characterized by health problems, fatigue and loss of strength. These features should be taken into attention when planning physical activity);
- emotional (The cycle lasts 28 days. This resource is associated with the activity of sex hormones. It determines the state of the nervous system and mood, affects the integration of a person into society, the ability to read people's reactions, build their own relationships in the team and life);
- intellectual (The cycle lasts 33 days. Intelligence is regulated by the thyroid gland. The resource of intelligence is the ability to think logically, generalize, draw conclusions, perceive beauty, create. Neural connections in the brain influence intellectual biorhythms. Neural circuits are developed throughout life, and the processes of remembering and forgetting are also associated with them. The functioning of these processes will be different on different days).
Scientists suggest to calculate your biorhythms to use the capabilities of your body not to miss a favorable time for rest, sports, study, or, conversely, to pay attention to physical capabilities, emotional state. The calculation can be done using a special program or independently:
- the number of years lived, excluding leap years, multiply by 365;
- then multiply the number of leap years (every 4th year) by 366;
- the received amount will show the number of days lived. Then divide it by 23 days (physical cycle). We get a number with a remainder. For example, if the remainder is 18, it is the 18th day of the physical cycle of biorhythms. It is also possible to determine the day of the emotional and intellectual cycles.
There are 6 days in a year when the beginning of two cycles coincides. These days will be quite difficult. The beginnings of all three cycles of biorhythms coincide on the 1st day of the year. This day will be especially difficult.
The ability to decipher the meaning of biorhythms will allow you to become productive on days good for work, study, sports, creativity or to help yourself in time to get more energy reading books, dancing, walking in the parks, admiring the nature.

DRUG TRAFFICKING AS A FACTOR OF NEGATIVE INFLUENCE ON THE NATIONAL INTERESTS OF THE RUSSIAN FEDERATION

Sych E. - the 2nd year student
Scientific leaders - Cand. Biol. Sc., Assoc. Prof. Zaritskaya V.V., A.A. Ivanov

The spread of drugs has a negative impact on society, as well as on ensuring the national interests of the Russian Federation and is one of the main sources of threats in the sphere of state and public security of the Russian Federation, affects the national security of our country. Working with drug addiction is a complex task, so drug treatment must be carried out step by step in the same order: withdrawal syndrome removal, maintenance of physical condition, psychological rehabilitation and re-socialization. According to article 228.1 of the Criminal Code of the Russian Federation, criminal liability is provided for the illegal sale of narcotic drugs, psychotropic substances or their analogues, as well as plants containing narcotic drugs or psychotropic substances, or parts thereof containing narcotic drugs or psychotropic substances. The punishment for committing these acts can be from 4 years of imprisonment to life imprisonment.

OPTOGENETICS AS A METHOD OF NERVE TISSUE RESEARCH

Tryukhan P. - the 2nd year student
Scientific leaders - S.V. Barannikov, A.A. Ivanov

The human and animal nervous system consists of a great variety of cell types, primarily neurons and glia. Nerve cells are interconnected by synaptic sites and gap junctions, ultimately forming functional neuronal networks, which, like a powerful supercomputer, control reception, processing and memorization of sensory information, as well as behavior of living organisms.

Optogenetics is a modern technique that allows using light to control nerve or muscle cells in a living organism. In addition, similar methods are used to partially restore lost vision and hearing and to control muscle contraction. Methods of optogenetics are also used to study properties of natural neural networks, which are responsible for emotions, decision-making and other complex processes in living organisms. The most common tool of optogenetics is the light-sensitive protein ChR2 (channel rhodopsin), isolated at the beginning of the XXI century from the green algae Chlamydomonas reinhardtii. Scientists embed this protein in the membranes of living cells. When exposed to light, it opens up, letting positive ions through the cell membrane and into the cell. In the case of a nerve cell it triggers membrane depolarization, imitating the passage of a nerve signal and activating a particular neuron. Optogenetics made it possible to study the brain from a new perspective. For example, high-precision targeted activation or high-precision targeted deactivation of brain zones allowed to map areas responsible for long- and short-term memory.

Thus, optogenetic methods can help to develop effective therapies for the treatment and diagnosis of various neurodegenerative diseases.

CLINICAL AND ANATOMICAL PECULIARITIES OF EYEBALL STRUCTURE IN THE NEWBORN

Tryukhan P. - the 2nd year student
Scientific leaders - A.E. Pavlova, A.A. Ivanov

The lacrimal gland in a newborn is not fully developed and has a small volume. About 5% of babies are born with a closed opening of the bony part of the nasolacrimal duct.

The size of the eyeball is relatively high: a characteristic feature of newborn eyes is a shift in the visual axis, so they have a shifted focus of vision. The cornea protrudes forward in the form of a roll, the lens approaches a spherical shape and protrudes deeply into the anterior chamber, reducing its size. Parts of the tendons are poorly developed in the external eye muscles. The iris of the eye is narrow, thin and mobile, but poor in pigment, while the vasculature is relatively thick, containing much pigment and rich in nuclei.

Thus, almost all children (especially premature babies) have an albino ocular fundus. The blind part of the retina is narrow, and the central fossa is tiny. The macula is characterized by weak development of the inner part of the outer nuclear layer. The optic nerve is short and thin (0.8-1.2 mm in diameter). By the time of birth it consists of small myelinated fibers. A recess of the nerve papilla is expressed.

HERS` DISEASE

Shoidokova D. - the 2nd year student
Scientific leaders - L.Y. Etmanova, A.A. Ivanov

Hers` disease (glycogenosis type VI) is a genetic metabolic disorder that is caused by a deficiency of the enzyme glucose-6-phosphate. This enzyme is needed to break down glycogen, a carbohydrate that is stored in the liver and muscles and used as an energy source.

Hers disease is a rare type of glycogenosis and is inherited in an autosomal recessive pattern.

The disease is diagnosed in early childhood, characterized by a sharp decrease in blood glucose (sometimes up to 0.55-1.1 mmol/l) and accompanied by the development of convulsions, vomiting, and collapse. Hepatomegaly without liver dysfunction and stunting are observed.
The main genetic defect underlying this disease is a deficiency of the enzyme glucose-6-phosphatase, which is inherited autosomally recessively. In this case, glucose-6-phosphate accumulates in the liver tissue, activating the D-form of glycogen synthetase. The latter leads to a progressive increase in glycogen content in the liver. At the same time, excessive deposition of glycogen in renal tubules is detected. Reduced glycogen phosphorylase activity is also found in leukocytes. The prognosis of the disease is favourable due to replenishment of phosphorylase enzyme defect due to activation of gluconeogenesis reactions.
Treatment is aimed at combating metabolic disorders. In some cases, the use of glucagon, anabolic hormones and glucocorticoids is effective.

CLINICAL AND ANATOMICAL FEATURES OF THE SIGNALING SYSTEM CONCEPT

Shoidokova D. - the 2nd year student
Scientific leaders - A.E. Pavlova, A.A. Ivanov

The signalling system is a system of conditionally and unconditionally reflexive connections of the higher nervous system of humans and animals with the environment. A distinction is made between I and II signal systems. This term was introduced by Academician I.P. Pavlov. This system is the subject of study of the physiology of higher nervous activity of humans and animals. The first signal system is the perception of the world with the help of the senses, well developed in almost all animals. The second signal system arose in the course of evolution, in the process of social labor. The second signal system is unique to humans, but according to scientists, it is possible in some highly organized animals. This is due to the fact that only humans are capable of forming an image abstracted from circumstances. In combination with a word it forms a concept. And the more images are associated with the word, the deeper and more multifaceted is the understanding of what it is. Ability to generalized reflection of phenomena and objects gave man unlimited opportunities of orientation in the surrounding world and allowed him to create science. The first and second signal systems are different levels of the unified higher nervous activity, where the second signal system plays the leading role. The formation of the second signal system occurs only under the influence of association, i.e. is determined not only by biological, but also by social factors. Unlike the conditioned reflexes of animals, which reflect the surrounding reality by means of specific auditory, visual and other sensory signals, the stimuli of the second signal system reflect the validity of using generalized, abstract concepts expressed in words. Animals operate only with images, which are formed on the basis of signal stimuli, while humans operate not only with images, but also with thoughts associated with them, meaningful, containing semantic information.

FIRST AID FOR CRAMPS

Shoidokova D. - the 2nd year student
Scientific leaders - Cand. Biol. Sc. I.A. Khreshchenok, A.A. Ivanov

A cramp is a sudden, involuntary, often painful contraction of a muscle. It happens to everyone from time to time: at night during sleep, during physical exertion, and sometimes at rest. The cramp can occur in any part of the body - in the limbs, in the side, in the buttock, in the abdomen.
What not to do when cramping: you can not press a person to the ground, because of this you can get additional injuries; you can not put foreign objects in the mouth, so as not to damage the teeth and

jaw; do not make artificial respiration. When the attack is over, in almost all cases, the person breathes on their own; no liquids should be given until the person regains consciousness completely.
What should be done: lay the person on the floor; put something soft under the head (you can roll up things that were at hand); gently turn the person on his side. In this position it will be safe: to breathe freely and the person will not choke if vomiting begins; there should be no sharp and hard objects around; if people are crowded together, you should ask them to step aside to provide air access; remove glasses, loosen the collar or tie; if the attack did not pass in 5 minutes or happened again, head injury, there are other injuries, the victim does not come to consciousness for over 10 minutes - call an ambulance.
Seizures can be of different types, but most of them pass within a few minutes. The most important thing at this point is to keep the victim safe.

FIRST AID FOR VARIOUS TYPES OF POISONING

Kondrashin N. - the 2nd year student
Scientific leaders - Cand. Biol. Sc. I.A. Khreshchenok, A.A. Ivanov

In everyday life, people interact with various substances that, under certain circumstances, can cause poisoning. Most poisonings have an acute, sudden nature and in a short time can lead to the violation of vital functions, and in the absence of timely assistance, death. Poisonings are pathological processes resulting from human or animal exposure to exogenous chemical substances that can cause violations of various physiological functions and pose a threat to life.
Proceeding from statistical data on the Amur region the specific weight of poisonings among men makes 58,8 %, among women - 41,2 %. The indicator of acute poisonings with alcohol-containing products among children was 8.4 cases per 100 thousand children in 2019.
At home, the most common types of poisoning are poor-quality or spoiled food, medicines, alcohol, household chemicals and gases. These substances quickly penetrate into the tissues and lead the body into a state of acute intoxication, so the provision of timely assistance to the victim is the primary task in case of poisoning. It should be borne in mind that each toxic substance has its own principle of action, and this determines the order of care and a set of primary measures.
General principles of first aid for poisoning include the following measures. Stop the poison from entering the victim's body (e.g. remove from the gassed area). Interview the casualty and try to find out what type of poisonous substance was taken, in what quantity, and for how long. Clarification of these questions may facilitate the first aid, diagnosis and intensive care of the poisoning by qualified specialists later on. If the poisonous substance is unknown, collect a small amount of vomit for later medical evaluation. Try to remove the poison (induce vomiting, wipe or wash the toxic substance off the skin, etc.). Assess the condition of the victim and provide first aid depending on the severity and type of poisoning.

BIOLABORATORY OF LIVING ORGANISMS OF THE DEPARTMENT OF BIOLOGY AND HISTOLOGY AS A SCIENTIFIC AND PRACTICAL BASE FOR BASIC RESEARCH AND ITS ROLE IN THE EDUCATION OF THE FUTURE DOCTOR

Kondrashin N. - the 2nd year student
Scientific leaders - Cand. Biol. Sc. A.A. Perminov, A.A. Ivanov

An experiment using laboratory animals and other living objects is one of the leading methods of cognition in modern medicine, pharmacology, veterinary medicine, biology. According to the traditional approach, the use of animals is a necessary source of knowledge for science in general and especially medicine, and without it humanity will not be able to test new methods of diagnosis and

treatment of diseases; create new drugs and train students of biomedical profiles (biologists, biochemists, doctors, geneticists, etc.).
The department contains and propagates the following animals:
- mollusks - ampullaries, coils, achatins, far eastern mollusks;
- crustaceans - marble, California and blue Cuban crayfish;
- fish - ternetii, barbuses, danios, cockerels, rotans, minnows and other Amur fish species;
- amphibians - dwarf and spur frogs, spanish newts, axolotls;
- reptiles - red -eared turtles;
- birds - zebra amadina.
Students conduct various studies and experiments on these organisms.
The research is carried out in the following areas:
1. Phenogenetics
2. Medical parasitology
3. Morphology and physiology
4. Regeneration and embryology
5. Ecology of animals and humans
6. Pathology of laboratory animals
This year, the staff of the department and students carried out a number of studies. Most of which concerned the study of pathology of laboratory animals. Studies were conducted on the effect of thermal burn on the general condition of the Mexican ambistoma larva, the pathomorphological effect of temperature on axolotl tissue. "Clostridium perfringens". Now the staff of the department is creating life cycles of some Far Eastern flukes in laboratory conditions. This study is of great importance for general parasitology and clinical medicine. In addition, students of the Amur GMA will have the opportunity to study the life cycle and pathogenic effect of trematodes on intermediate and final hosts. The department has created a public library for the maintenance and care of animals, uses the extensive capabilities of the cathedral equipment and the biological laboratory of living organisms. The laboratory plays an important role in the education of future doctors, helping to solve theoretical and applied issues of biology and medicine, forms a reverent and attentive attitude to living matter, and most importantly allows you to be surprised by the world around you and love life in all its manifestations.

BIOCHEMISTRY AND PHYSIOLOGY OF LOVE

Kondrashin N. - the 2nd year student
Scientific leaders - Doc. Med. Sc., Prof. E.A.Borodin, A.A. Ivanov

Love (falling in love) is a complex feeling that includes attachment, desire, respect for a partner and a number of tender feelings. From the point of view of biochemistry, it is an active multi–stage hormonal process that sometimes defies consciousness. During the formation of this feeling, hormones of "love" are produced in the body of a man and in the body of a woman. British biologists Andreas Bartels and Semir Zeki (Bartels, Zeki, 2000, 2004) believe that love is a specific brain activity caused by the activation of "love" hormones. They examined the brains of seventeen volunteers who described their condition as "terribly crazy love." During the experiment, they were shown photos of their loved ones. At the same time, all seventeen lovers, when looking at an exciting object, activated four areas of the brain, which remained at rest if there were just friends or strangers in the photos. Two of these areas are located in the part of the brain that can also be activated after taking narcotic substances that cause intoxication and euphoria. The other two are in the department that is most active when we receive emotional reward for our experiences.

American anthropologist Helen Fisher and her colleagues (Fisher, 2004; Fisher et al., 2006) conducted a study using brain scanning techniques to determine which areas of the brain are responsible for love. The place of three types of emotions in the brain was determined: lust, infatuation and attachment. Each emotion corresponded to its own specific chemical reactions that activated the brain when its owner was attracted to someone. At the stage of passionate attraction, several powerful chemicals are released that cause a feeling of uplift. Dopamine gives a feeling of well-being, phenylethylamine increases the level of arousal, serotonin creates a sense of emotional stability, and norepinephrine gives the impression that you can achieve any goal.

Since falling in love is a complex phenomenon, it is associated with the activity of many parts of the brain responsible for various mental functions: the feeling of pleasure, the formation of attachments, the motivation of purposeful behavior, social cognition and self—image. This conclusion was reached by scientists from the University of Syracuse in the USA and the University of Geneva in Switzerland (Ortigue et al., 2007, 2010).

At the sight of the object of his adoration, substances are produced in the human body that excite a state of euphoria in the brain. The "love rush" stimulates twelve different parts of the brain, causing them to produce substances such as dopamine, oxytocin, adrenaline and vasopressin. Curiously, the same set of substances is produced by the brain after taking a dose of cocaine. Thus, the state of falling in love can really be considered narcotic intoxication. The greatest "narcotic" pleasure is brought by passionate love, during which the part of the brain responsible for the body image is actively working.

OPERATION BENTALL

Romanov A. - the 1st year student
Scientific leaders - Doc. Med. Sc., Prof. E.A.Borodin, A.A. Ivanov

The Bentall procedure is performed for an aneurysm of the ascending aorta with aortic insufficiency. It consists in the replacement of the aortic valve and the ascending aorta with a valve-containing conduit with reimplantation of the orifices of the coronary arteries into the conduit.

Cardioprosthetic psychopathological syndrome.

Cardioprosthetic psychopathological syndrome (also known as Skumin's syndrome) is a borderline mental disorder that develops in some patients who have undergone a surgical operation to replace the valvular apparatus of the heart and manifests itself in the form of a specific symptom complex of mental health disorders.

Artificial heart valves.

In case of disease or dysfunction due to pathological development of one of the four valves of the heart, the solution to restore its working capacity may be to replace the natural valve with its prosthesis. This usually requires open heart surgery.

The valves are an integral part of the normal physiological functioning of the human heart. The natural valves of the heart develop into forms that functionally support the unidirectional flow of blood from one chamber of the heart to another.

Among artificial heart valves, mechanical and biological structures stand out.

Ebstein`s anomaly.

Ebstein's anomaly is a rare congenital heart disease. In this heart disease, the leaflets of the right atrioventricular valve originate from the walls of the right ventricle, and not from the atrioventricular ring, and do not fully close. Thus, the cavity of the right ventricle is reduced compared to the norm, and the part of the right ventricle from the atrioventricular ring to the downwardly displaced tricuspid valve becomes a continuation of the right atrium. Also, with an anomaly, non-closure of the foramen ovale is observed.

PERCUSSION IS A METHOD OF DIAGNOSING DISEASES OF INTERNAL ORGANS

Kornilovich Y. - the 3rd year student
Scientific leaders - Cand. Med. Sc. I.V. Sklyar, A.A. Ivanov

Percussion is a method of examination of the patient consisting in tapping on the surface of the body. Percussion has been used since Hippocrates. However, as a method, percussion was described and introduced by the Viennese physician Auenbrugger in 1761. This method found universal acceptance 47 years later, when in 1808 professor Corvizart of the University of Paris translated Auenbrugger's book into French, supplemented by his own research.

«Early detection of viral pneumonia or how not to end up in intense care?».

Causes of pneumonia:

It's cold outside.

Appear in crowded places.

What to do at the first signs of disease?

1) call the local doctor
2) to do a COVID test
3) measurement of saturation
4) examination of throat
5) prescribing medication

However, after a couple of days, you realize that there is no improvement in your health condition. What measures do you take to take.CT, MRI These studies are currently not available to anyone. They are expensive and can be booked a month in advance, so percussion diagnosis is necessary in cardio-pulmonary research. Of course, you should go back to the specialist, but while you're waiting, you can do a comparative lung percussion. For this you will need two hands of a friend or a family member and do not even need a phonedoscope and a list of standard rules and knowledge to conduct research at home.Finger-finger percussion technique. The finger-plessimeter is applied tightly to the surface of the body, but without heavy pressure. The finger-hammer is applied two jerky, short, equal-dimensional strikes on the plessimeter, the direction should be strictly perpendicular to the plessimeter. Movement of the hand only in the radiant joint. The room should be warm, quiet, the doctor's hands - warm.

The comparative Percussion is performed at symmetric, strictly defined points. It is percuted from right to left. If it is known beforehand that the pathological process is localized in the right lung, then fart left to right. They usually have deep percussion, i.e., they percolate along the middle phalanx of the finger- plessimeter, and the impact is medium.

FREQUENCY OF OCCURRENCE OF DIALYSIS PERITONITIS IN PATIENTS WITH TERMINAL RENAL INSUFFICIENCY

NikonovaY., Petrova V., Volkova S. - the 6th year students
Scientific leaders - Cand. Med. Sc. E.I. Smorodina, A.A. Ivanov

The number of patients with chronic renal failure increases annually by 10-12%. In our country, the average age of patients receiving renal replacement therapy is 47 years, i.e., the young, able-bodied part of the population suffers to a great extent. Today, despite certain progress in the development of renal replacement therapy in Russia over the last 10 years, the availability of such therapy in the Russian Federation remains 2.5-7 times lower than in the European Union countries, and 12 times lower than in the USA. At the same time, the opportunities of neuroprotective therapy, which allows

to slow the progression of CKD and stabilize kidney function, and the cost of which is 100 times lower than that of renal replacement therapy, are not always used effectively.

The only possible method of treatment of patients with peritoneal CKD is renal replacement therapy, which is among the lifesaving types of medical care for these patients. Renal replacement therapy methods include program hemodialysis, permanent ambulatory peritoneal dialysis and kidney transplantation.

Peritoneal dialysis is the removal of low molecular weight impurities from colloidal systems and solutions of high molecular weight compounds using semi-permeable membranes that allow small ions and molecules to pass through, but retain colloidal particles and macromolecules. Dialysis is based on diffusion processes. Diffusion is accelerated by increasing the area of the membranes to the volume of the dialyzed liquid, with increasing temperature, agitation, creation of pressure differences on different sides of the membrane, frequent, or continuous change of the solvent to which ions or molecules of low molecular weight substance diffuse through the membrane.

Peritoneal dialysis maintains residual renal function for a long time. In comparison with hemodialysis, peritoneal dialysis eliminates toxins better. It is possible to achieve almost normalization of the water metabolism and nutrition. You can perform it at home under periodic nursing supervision. In addition, technically peritoneal dialysis is much simpler than hemodialysis, cheaper, more accessible to patients, and, most importantly, more physiological.

The procedure of dialysis solution replacement (in the amount of 2-3 liters per exchange) is repeated 4-5 times for 30 minutes during the day (immediately after waking up, at lunch, during dinner, before going to bed). Prepared solution is used, packaged in transparent soft plastic containers. Before infusing the solution into the abdominal cavity, the abdominal drain is flushed, draining the first 20-30 ml of the solution directly into the drain. The solution in the abdominal cavity is kept permanently. Volume and osmotic pressure of the solution is selected taking into account achieved total (dialysis and renal) clearance of urea, creatinine and ultrafiltration rate. In recent years, automated methods of peritoneal dialysis are used.

The main complications in patients treated with peritoneal dialysis are infections, in the form of dialysis peritonitis, hernias, and protein-energy deficiency.

Peritonitis is the most frequent and serious complication that patients have. It leads either to the patient's death (in most cases from sepsis) or puts the patient in need of switching to another form of treatment - program hemodialysis. Risk factors for peritonitis include: age, female gender, low socioeconomic status, coronary artery disease, chronic obstructive pulmonary disease, arterial hypertension, low glomerular filtration rate, etc. The complication is treatable, with recovery occurring 14 to 21 days from the start of antibiotic therapy depending on the causative agent, but with each subsequent infectious complication the recovery time is delayed or not resolved at all, then the patient is decided to switch to another method of renal replacement therapy.

In the Amur region permanent outpatient peritoneal dialysis was introduced in 2004 at the dialysis department of the Amur Regional Clinical Hospital. Since then, patients living in remote areas of the region have also been provided with dialysis care. According to the report for the period 2019 - and 2020 replacement kidney therapy by permanent outpatient peritoneal dialysis on the territory of Amur region was received by up to 48 people.

According to the Russian Dialysis Society Register, in 2007 more than 20,000 people received various types of renal replacement therapy; the annual increase in the number of these patients is 10.5% on average. Today, despite certain progress in the development of renal replacement therapy in Russia in the last 10 years, the availability of these forms of treatment in Russia remains 2.5-7 times lower than in the European Union countries and 12 times lower than in the USA. At the same time, the potential

of nephroprotective therapy, which allows to slow the progression of CKD and stabilize kidney function, and the cost of which is 100 times lower than that of renal replacement therapy, is not used very effectively.

The average incidence of dialysis peritonitis is more frequently up to 6 episodes every 18 months. Ideally, the rate should not exceed 1 episode every 18 months. In almost all patients, peritonitis is manifested by diffuse opacification of the dialysis solution and abdominal pain. Fever, diarrhea, and nausea are also common. At the same time, a reliable diagnosis of dialysis peritonitis and the choice of adequate etiotropic therapy are possible only after receiving the results of sowing dialysis solution. When seeding is taken immediately after the first clinical manifestations of peritonitis, high cytosis is noted. With adequate antibiotic therapy, these values decrease as early as the second day (from 2 to 4,000 cells per 1 ml).

There is no direct link between dialysis peritonitis and patient survival, but repeated episodes of peritonitis have a negative impact on patient survival.

Patients with dialysis solution that is not clear are considered as patients with peritonitis, which is confirmed by cell counting (cytological study of peritoneal dialysis solution), differential diagnosis and seeding (bacteriological study of peritoneal solution). Diagnostic confirmation of the complication is cytological examination of the dialysate, with a quantitative cell count that should exceed 2 or more times the number of leukocytes, or a positive or sterile seeding which does not exclude the presence of peritonitis.

Differential diagnosis is made in the presence of "cloudy" dialysate with infectious peritonitis with positive cultures, infectious peritonitis with sterile cultures, chemical peritonitis, eosinophilic dialysate, hemoperitoneum, malignant tumor (rare), chylous dialysate (rare). Management tactics for patients with suspected peritonitis most commonly: antibiotic therapy (14-21 days), empirically selected antibiotics affecting Gram-positive and Gram-negative microorganisms simultaneously. A specific choice of drugs is recommended, according to the sensitivity experience of the microorganisms that caused the peritonitis. With each subsequent development of peritonitis, it is often decided to change the method to program hemodialysis. Studying the statistics of lethality of patients at the Amur Regional Clinical Hospital for 2020 - 2021, it was found that the average life expectancy of patients on renal replacement therapy by permanent outpatient peritoneal dialysis was 28 months (2 years, 4 months). The average life expectancy of patients on planned hemodialysis renal replacement therapy was 42 months (3 years, 6 months).

It has been noted that the incidence of peritonitis is influenced by the presence of diabetes mellitus. In the presence of diabetes mellitus, the incidence of dialysis peritonitis can increase 4 times. Another leading factor is the patient's living conditions, i.e., compliance with sanitary and hygienic norms when performing the procedure at home.

The number of patients diagnosed with chronic renal failure has increased in the Amur region in recent decades. The number of patients receiving peritoneal dialysis as a replacement therapy has also increased at the same rapid pace. Elderly patients with chronic renal failure are characterized by a significant number of comorbidities and diseases that aggravate the course and outcomes of the underlying disease and significantly worsen the quality of life.

Each method of renal replacement therapy is effective and provides an opportunity for normal social life. For timely detection and treatment of complications, it is necessary to educate patients, nursing and junior medical staff, because patients' lives are in their hands.

Conclusion.

Thus, peritonitis remains the leading complication of peritoneal dialysis. They lead to method failure and hospitalization, and are sometimes associated with patient death. When prescribing peritoneal

dialysis renal replacement therapy to a patient, the physician must consider all factors that may influence the development of dialysis peritonitis. But not a small role is played by the patient himself and his adherence to therapy. Renal replacement therapy makes the patient socially and emotionally vulnerable. Therefore, programs should be created that encourage the patient's independence and resumes the former interests of life, as well as help in overcoming psychosocial problems.

DEUTSCHE ABTEILUNG

СЕКЦИЯ НЕМЕЦКОГО ЯЗЫКА

Руководитель секции: старший преподаватель Ткачева Н.А.
Председатель: Ооржак А.
Секретарь: Лылова Е.

AUS DER GESCHICHTE DER KONFERENZ IN FREMDSPRACHEN

Oorshak A. – die Studentin des 4. Stuienjahres
Wissenschaftliche Leiter: D.m.W. Karnaukh W. N, Tkatschjowa N. A.

Die erste Studentenkonferenz mit Vorträgen in Fremdsprachen fand im März 1973 statt. Es wurden Berichte präsentiert: "Die neuesten Errungenschaften der in- und ausländischen Medizin", "Kunstherz", eine Reihe von Berichten über berühmte Ärzte usw.

Die zweite Studentenkonferenz mit fremdsprachigen Referaten fand im März 1974 statt. Berichte zu medizinischen Themen wurden durch fachspezifische Berichte zur lateinischen Sprache ergänzt.

Bis 1980 fanden jährlich studentische Konferenzen an der ASMA statt. Von 1981 bis 1989 wechselten die Konferenzen. Sie wurden während des Gruppenunterrichts durchgeführt. In jeder Gruppe hilten 2 - 3 Studenten ihre Berichte zu medizinischen Themen vor.

Dann gab es eine Pause in der Arbeit der Konferenzen. Und erst im Jahr 2000 wurde beschlossen, wieder studentische wissenschaftliche Konferenzen mit Berichten in Fremdsprachen im Umfang von ASMA abzuhalten. Arbeit der Konferenzen wurde geändert. Die Studierenden begannen, ihre wissenschaftliche Arbeit in einer Fremdsprache zu präsentieren.

So fand am 17. April 2000 (Studienjahr 1999 - 2000) gemeinsam mit dem Fachbereich Biologie die 9. wissenschaftliche Studentenkonferenz statt.

Am 5. Dezember 2000 fand die 10. Studentische Wissenschaftliche Konferenz statt. An der Konferenz nahmen die Studenten teil, die mit wissenschaftlich Arbeit an vielen Fachbereichen der ASMA gearbeitet haben. Die Arbeit der Konferenz wurde in drei Sektionen eingeteilt: Englisch, Deutsch, Französisch mit Latein. Die Referenten waren Studenten vom ersten bis zum sechsten Jahr.

Am 4. Dezember 2001 fand die 11. Studentische Wissenschaftliche Konferenz statt. An der Konferenz nahmen 59 Studierende teil. In der englischen Sektion wurden 14 mündliche und 19 Posterpräsentationen vorbereitet. An der Sektion Deutsche Sprache - 11 Berichte. In der Abteilung für französische und lateinische Sprachen - 8 Berichte.

In allen folgenden Jahren fand die Studentenkonferenz alljährlich statt und erlangte damit den Status einer Traditionsveranstaltung.

Am 21. Dezember 2020 fand an der Amurer Medizinischen Akademie die30. wissenschaftliche Jubiläumsstudentenkonferenz mit fremdsprachigen Vorträgen (mit internationaler Beteiligung) statt.

Aufgrund der aktuellen epidemiologischen Situation wurde diese Konferenz im „on-line“-Modus abgehalten. Die Nutzung der Zoom-Plattform für diese Veranstaltung trug zum reibungslosen Ablauf der Konferenz und zur Beteiligung aller Teilnehmer, einschließlich ausländischer Kollegen aus China, bei.

Am 13.12.2021 fand die nächste (31.) wissenschaftliche Studentenkonferenz mit fremdsprachigen Vorträgen unter internationaler Beteiligung statt. Die Anwesenheit einer deutlich größeren Zahl ausländischer Studierender bei der 31. Wissenschaftlichen Studierendenkonferenz weist auf ein gesteigertes Interesse hin, an dieser Veranstaltung teilzunehmen und ein höheres Niveau zu erreichen. Alle Referenten erhielten Urkunden und Preise für die besten Leistungen.

Die Teilnahme an der Konferenz motiviert Studenten zum Erlernen von Fremdsprachen, verbessert das intellektuelle Niveau der Studenten, hilft, neue Kontakte zu knüpfen, Gleichgesinnte unter ausländischen Kollegen zu finden.

DER KERATOKONUS

Tabakaewa T. - die Studentin des 5. Studienjahres
Wissenschaftliche Leiter: Drownjak J. A., Tkatschjowa N.A

Der Keratokonus ist eine progressive, bilaterale Erkrankung mit Hinweisen auf eine inflammatorische Komponente. Die Hornhaut nimmt infolge einer Stromaverdünnung und Protrusion eine konische Form an. Mit einer Inzidenz von 1/2000/Jahr wird die Erkrankung autosomal-rezessiv oder -dominant vererbt und in ihrer Expressivität durch bestimmte Umwelteinflüsse moduliert. Aus diesem Grund zeigten sich bei zweieiigen Zwillingen unterschiedliche Krankheitsverläufe.

Eine keratometrische Asymmetrie vermindert den Erfolg eines exakten refraktiven Ausgleichs mittels sphärozylindrischer Gläser, obschon harte Kontaktlinsen in der Frühphase der Erkrankung gute refraktive Ergebnisse erzielen. Es bestehen unter anderem systemische Assoziationen z. B. zum Down-Syndrom.

Im Rahmen der Spaltlampenuntersuchung können sich Vogt-Linien, ein Fleischer-Ring und das Munson-Zeichen, skiaskopisch ein Öltropfen- oder Scherenreflex zeigen. Die empfindlichste Methode zur Früherkennung und Verlaufskontrolle ist die Hornhauttomographie, um v. a. Veränderungen der Hornhautrückfläche zu diagnostizieren.

Die Hornhauttomographie liefert Analysen der Hornhautoberfläche sowie -rückfläche und kann dreidimensionale Darstellungen der gesamten Hornhaut inklusive flächiger Pachymetrie generieren.

Die meisten Tomographiesysteme arbeiten mit einer rotierenden Scheimpflug-Kamera, die den Benefit der exakten Analyse der Hornhautperipherie im Gegensatz zu einer zentral lokalisierten Kamera bietet. Wenn Bild- und Objektebene nicht parallel zueinander liegen, wird die sog. „Scheimpflug-Intersection“ vom System generiert, um das nichtparallele Objekt scharf in seiner Gesamtheit darzustellen.

Die meisten Tomographiesysteme arbeiten mit einer rotierenden Scheimpflug-Kamera.

DIFFERENZIALDIAGNOSTIK VON GESICHTSSCHMERZEN

Spilewaja A. – die Studentin des 4. Stuienjahres
Wissenschaftliche Leiter: D.m.W. Karnaukh W. N, Tkatschjowa N. A.

Gesichtsschmerzen (Prosopalgie, orofaszialer Schmerz) sind ein konditionierter kollektiver klinischer Begriff, der alle Schmerzsyndrome kombiniert, die in der Region lokalisiert sind.
Nozizeptiver Schmerz. Die häufigsten Ursachen sind Erkrankungen der Zähne und des parodontalen Gewebes. Es ist nicht nur zur Ausstrahlung fähig, sondern auch zur Reflexion in andere Zonen (Reperkussion). Es ist also bekannt, dass bei einem Weisheitszahnschlag oder
selbst bei seiner schwierigen Zahnen kann der Schmerz im Ohr und im Bereich des Kiefergelenks spürbar sein. Wenn die Backenzähne betroffen sind, können Schmerzen im Oberkiefer auftreten, die sich in den temporalen Bereich, den Oberkiefer, ausbreiten. Die Niederlage der Backenzähne des Unterkiefers kann Schmerzen verursachen, die sich im Kehlkopf- und Scheitelbereich, dem sublingualen Bereich, widerspiegeln. Bei der Pathologie der Schneidezähne spiegelt sich der Schmerz normalerweise im Nasen- und Kinnbereich wieder.
Neuropathischer Schmerz. Am häufigsten tritt es auf, wenn der Trigeminusnerv oder andere empfindliche Hirnnerven betroffen sind. Gekennzeichnet durch intensive Schmerzen eines

brennenden, schießenden Charakters, der einige Sekunden dauert und in die Innervationszone ausstrahlt.
Myogene Schmerzen und myofasziale Schmerzsyndrome. Bei längerem Hypertonus treten sekundäre lokale Störungen in den Kau-, Schläfen- und Geflügelmuskeln auf, wie vaskuläre, metabolische, entzündliche Erkrankungen, die als Triggerpunkte angesehen werden. Zu den häufigsten ätiologischen Faktoren, die myofasziale Störungen im Gesicht verursachen, gehören Biβtörungen (Knochen-Syndrom), die durch Schmerzen im Kiefergelenk und spezifische akustische Signale im Innenohr (Quetschen, Quietschen, Klingeln) gekennzeichnet sind, die beim Öffnen des Mundes und beim Schlucken auftreten, sowie reflektierte Schmerzen von den Nacken- und Oberarmmuskeln.
So können Gesichtsschmerzen viele Ursachen haben. Um ihre Ursache zu klären, ist es wichtig, die Art des Schmerzsyndroms, die Anamnese und die notwendigen Untersuchungsmethoden zu klären.

AUS DER ENTSTEHUNGSGESCHICHTE DER IMMUNOLOGIE IN ASMA

Pantschewa A. - die Studentin des 4. Studienjahres
Wissenschaftliche Leiter: K.m.W. Reschetnikowa L.K., Tkatschjowa N.A.

In den 70er Jahren des letzten Jahrhunderts wurde ein herzchirurgisches Zentrum gegründet. Ohne Übertreibung kann man sagen, dass das Hauptverdienst des Professors, des Herzchirurgen J.P. Kulik, ist. Es gibt Legenden über die Persönlichkeit dieser außergewöhnlichen Menschen. Und wir, die damals mit ihm gearbeitet haben, können bestätigen, dass er tatsächlich ein talentierter Wissenschaftler war, der einen tiefen Verstand, Gelehrsamkeit und außerordentlichen Fleiß hatte. Viele originelle Methoden der Herzchirurgie sowie die Methode der extrakorporalen Sauerstoffversorgung mit einem biologischen Organ (Spenderlunge), die hyperthermische Hilfszirkulation und viele andere wurden entwickelt und eingeführt. Die Entwicklung der immunologischen Forschung wurde auch damals begonnen. Zuerst wurden unspezifische Schutzfaktoren (Lysozym, Beta-Lysine, Komplement usw.) bestimmt, und dann wurden Methoden zur Bestimmung der zellulären Immunität eingeführt. Wir haben in Wladiwostok, in Moskau am Institut für Organ- und Gewebetransplantologie am Institut für Immunologie, mit dennen wir enge Verbindungen haben, immunologische Methoden studiert und beherrscht. Diese Forschungsmethoden wurden bei der Untersuchung von herzchirurgischen Patienten verwendet, ihre Ergebnisse wurden in wissenschaftliche Dissertationsarbeiten aufgenommen. Später wurde ein Immunologiekurs an der AGMA eingerichtet, in dem die Immunologie von Studenten studiert wird.
Man möchtet an die Namen der KCZ-Mitarbeiter erinnern, die zusammen mit J. P. Kulik mitarbeiteten und das KCZ schufen und verbesserten. Es gibt viele von ihnen und das ist die Geschichte. Aber jetzt arbeiten sie auch in der ASMA: L.I. Pobereshskaja, A.A Stukalow, O. S Olifirowa., L. K. Reshetnikowa. Vor kurzem ist aus dem Leben der Mitarbeiter von J. P. Kulik Professor W. W. Shimko verstorben.
Jetzt entwickelt sich die Klinik für Herzchirurgie prächtig und ist mit modernster Ausrüstung ausgestattet, Es wurden die neuesten herzchirurgischen Techniken eingeführt, die Arbeit geht weiter. Aber wir erinnern uns daran, wo alles begann und erinnern uns dankend an den Namen des Gründers des herzchirurgischen Dienstes im Amurgebiet - Kulik Jaroslaw Petrowitsch.

KOMPLIKATIONEN BEI DER KARDIOPULMONALEN WIEDERBELEBUNG UND LÖSUNGEN FÜR DIESES PROBLEM

Rudych S.- die Studentin des 2. Studienjahres
Wissenschaftliche Leiter: K.b.W. Sarizkaja V.V., Tkatschjowa N. A.

Rechtzeitige und korrekte Hilfe bei einem plötzlichen Kreislaufstillstand ist ein aktuelles Problem der Medizin und die Pflicht von Ärzten aller Fachrichtungen. Laut Statistik werden in der Russischen Föderation 290-300 Tausend Todesfälle pro Jahr im Zusammenhang mit einem plötzlichen Herzstillstand registriert. Die richtige Anwendung von KPW bestimmt das erfolgreiche Ergebnis der Wiederbelebung und reduziert die Behandlungszeit des Betroffenen erheblich, um ihn schnell wieder in Arbeit und normales Leben zu bringen. Um die Wahrscheinlichkeit eines günstigen Ergebnisses zu maximieren, muss eine angemessene KPW durchgeführt werden. Die am Tatort anwesenden Personen können den Zustand des Opfers lindern, die Entwicklung lebensbedrohlicher Komplikationen verhindern, die Arbeit der wichtigsten Körpersysteme - Atmung und Durchblutung - wiederherstellen. Das Hauptziel der ersten Hilfe ist es, die Entwicklung schwerer Folgen zu verhindern. Ungeschickte Handlungen führen zu einem umgekehrten, manchmal tragischen Ergebnis. Die Qualität der KPW wird nicht nur durch den schnellen Beginn und die Durchführung der Defibrillation bestimmt, sondern auch durch die Qualität der Brustkompressionen. Es ist wichtig, KPW-Schulungen sowohl für medizinisches Personal als auch für alle Bürger des Staates massenhaft durchzuführen.

Eine häufige Komplikation bei KPW ist die Aufstockung mit anschließender Aspiration des Mageninhalts, was bei wiederbelebten Patienten zu einer lebensbedrohlichen Aspirationspneumonie führt. Ein Rippenknorpelgelenk-Bruch und eine Rippenfraktur sind oft schwer zu vermeiden, da es wichtig ist, den Brustkorb so zu verkleinern, dass eine ausreichende Durchblutung gewährleistet ist. Kinder haben Frakturen aufgrund der Elastizität des Brustkörpers selten. Eine Knochenmarkembolie in die Lunge nach einer äußeren Herzmassage tritt selten auf, es gibt jedoch keine offensichtlichen Beweise für ihre Wirkung auf den Tod. Schäden am Lungengewebe sind selten, aber ein Pneumothorax kann bei einer Rippenfraktur auftreten. Ein angespannter Pneumothorax sollte bei Patienten vermutet werden, die nach einer langen KPW die spontane Durchblutung wiederhergestellt haben und später die Belüftung schwierig machen oder Hypoxie und plötzliche Reorganisation haben. Schwere Myokardschäden nach einer Kompression sind äußerst unwahrscheinlich. Leberschäden sind eine seltene, aber schwere (manchmal tödliche) Komplikation, die normalerweise auftritt, wenn unter dem Brustbein Druck auf die Brust ausgeübt wird. Ein Bruch des Magens, wenn er durch Luft gestreckt wird, tritt ebenfalls selten auf, ebenso wie ein verzögerter Bruch der Milz.

Die Lösung dieses Qualitätsproblems und der Wirksamkeit ist einer der wichtigsten Wege, um die Sterblichkeitsrate zu senken und die Wirksamkeit der medizinischen Versorgung für die Bevölkerung zu erhöhen. Die Studie untersuchte die Hypothese, dass das Überleben von Patienten, die außerhalb des Krankenhauses einen Kreislaufstillstand entwickelten und die KPW gemäß den Anweisungen des Disponenten durchgeführt wurde, zum Zeitpunkt der Entlassung aus dem Krankenhaus unterschiedlich war. Die Daten bestätigen, dass Zeugen eines Kreislaufstillstands, keine professionellen Rettungskräfte sind, nur dann eine künstliche Beatmung während der CPW verwenden können, wenn sie die Technik der KPW ausreichend beherrschen.

Die erhaltenen Daten bestätigen somit die Meinung, dass sich die Anweisungen des KPW-Spezialisten-Managers positiv auswirken.

HÄUFIGKEIT DER VERWENDUNG VON LATINISMEN IN AUTHENTISCHER MEDIZINISCHER LITERATUR AUF DEUTSCH

Schuler-ool Sch. - die Studentin des 3. Studienjahres
Wissenschaftliche Leiter - Tkatschjowa N.A.

Im Laufe ihrer Existenz haben verschiedene Sprachen der Welt im Kontakt mit anderen Sprachen, insbesondere mit Latein, ihren Wortschatz ergänzt

und ihren Wortschatz und ihre Grammatik durch Anleihen entwickelt. Diese Methode der Bereicherung ging nicht an der deutschen Sprache vorbei.
Der Begriff "Latinismus" bezeichnet ein Wort oder eine Redewendung, die der lateinischen Sprache entlehnt oder einem Wort oder Ausdruck nachempfunden ist. In der russischen Sprache, in der sich Latinismen auf einen beruflichen, in vielen Fällen medizinischen Weg beziehen, werden Latinismen im Deutschen so oft verwendet, dass man manchmal nicht einmal merkt, dass manche Wörter Latinismen sind. Ziel meiner Forschung ist es daher, die Häufigkeit der Verwendung von Latinismen im Deutschen zu ermitteln.
Um das Ziel der Studie zu erreichen, wurde authentischer Text „Zum Wasserproblem“ verwendet. Bei der Analyse des Textes stellte sich heraus, dass Latinismen in diesem Text in ziemlich großer Zahl vorkommen.
Das Wort Problem im Titel des Textes kommt also vom lateinischen Wort problema, was ein Problem bedeutet, das gelöst werden muss. Dann gibt es solche Anleihen wie:
Deutsch Sanierung - lat. Sanare;
Deutsch Prozent - lat. Prozent;
Deutsch Korper - lat. Korpus;
Deutsch transportiert - lat. transportieren;
Deutsch Lymphe - lat. Lymphe;
Deutsch Organen - lat. Organum;
Deutch Konferenz - lat. Conferentia;
Deutch Direktor - lat. Director;
Deutsch Zelle - lat. cellula und viele andere.
Diese Wörter und einige andere, die nicht in der Liste enthalten sind, kommen in fast jedem Absatz vor. Auf dieser Grundlage reift die Meinung, dass auch Latinismen sowohl im Alltag als auch in größerem Umfang in der Medizin häufig gebrauchte Wörter sind.
Zusammenfassend möchte ich sagen, dass Latein, obwohl es als „tote“ Sprache gilt, in Form von Latinismen nicht nur im Deutschen, sondern in vielen anderen Sprachen noch immer aktiv funktioniert, ohne sich zu verändern.

DER DALTONISMUS

Minina T. – die Studentin des 1. Studienjahres
Wissenschaftliche Leiter - Naumenko V.A., Tkatschjowa N.A.

Daltonismus ist eine Störung der Farbwahrnehmung, bei der die Person zwischen einigen Farben (meist rot und grün) nicht unterscheidet, während die normalen Indikatoren der übrigen Funktionen des Sehorgans beibehalten werden. Die Krankheit wurde nach dem englischen Chemiker John Dalton benann, an der erblichen Form dieser Krankheit litt und sie 1794 in seinen Werken beschrieb. Pathologie ist am häufigsten bei männlichen Personen (8%), kommt nur in 1% der Frauen vor.
Das wichtigste Symptom des Daltonismus ist die Unmöglichkeit von Rot, Grün oder Blau zu unterscheiden, eine Störung der Farbgestaltung. Für einen Mann mit Daltonismus ist es schwer zu erkennen, welches Ampelsignal brennt, welche Farbe der Apfel oder die Kleidung hat. In einigen Fällen geht Daltonismus mit einer geringen Sehschärfe einher. Daltoniker können die Objekte grauen, blass sehen.
Die Vererbung des Daltonismus ist mit dem X-Chromosom verbunden und wird von der Mutter - dem Träger des Gens - auf den Sohn übertragen. Bei Frauen ist Farbblindheit möglich, wenn Vater und

Mutter des Mädchens an der Erkrankung litten. Dann wird das Gen des Daltonismus von beiden Eltern übertragen.
Zur Diagnose des Daltonismus werden polychromatische Tabellen (Ischichara, Justowa, Rabkina) verwendet. Sie sehen wie eine Ansammlung von bunten Kreisen gleicher Helligkeit aus. In den Kreisen befinden sich Linien, Formen und Zahlen anderer Farben. Einige Tabellen ermöglichen es, einen Fehler zu erkennen und den Typ des Daltonismus zu bestimmen.
Grundlegende Arten von Daltonismus: 1) Dichromasie - der Mensch nimmt nur zwei Farben von drei Hauptfarben wahr; 2) Monochromasie - Mensch ist in der Lage, nur eine Farbe zu unterscheiden; 3) Achromasie - ein Mann mit Daltonismus ist nicht in der Lage, alle drei Farben zu unterscheiden; 4) Die seltenste Form der Farbanomalie ist Achromasie. In den Augenkegeln fehlen alle Pigmente, und das Auge sieht nur Grautöne.

AMYLOID-THEORIE DER ALZHEIMER-KRANKHEIT

Rudych S.- die Studentin des 2. Studienjahres
Wissenschaftliche Leiter: Barannikow W.W., Tkatschjowa N. A.

Die Alzheimer-Krankheit (AK) wird von der Weltgesundheitsorganisation als globales vorrangiges gesellschaftliches Problem anerkannt. Bis heute gibt es keine eindeutige Ätiopathogenese dieser Krankheit, die mit der komplexen Wirkung von genetischen Faktoren und Umweltfaktoren verbunden ist. Die Amyloid-Hypothese, dass in den Neuronen der großen Hemisphäre durch die Störung der sequenziellen Spaltung von BAV (Beta-Amyloid-Vorläuferprotein) durch β- und γ-Sekretase in gesunden Neuronen eine Ansammlung pathologischer Formen von Beta-Amyloid (Aß) auftritt, zeichnet sich durch die Pathogenese BA aus, wobei diese Enzyme in den präsynaptischen Zonen der Neuronen lokalisiert sind.
Es wurde ursprünglich angenommen, dass fibrilläres Amyloid in Plaques mit dichtem Kern oder neurofibrillären Verwicklungen lag und auf die Ansammlung von Aß-Neuronen zurückzuführen ist. Außerdem werden neuropile Filamente, dystrophische Neuritis, assoziierte Astrogliose und Aktivierung von Mikroglia sowie zerebrale Amyloidangiopathie beobachtet. Die Folgen dieser pathologischen Prozesse werden später die Neurodegeneration mit dem Verlust von Synapsen und Neuronen sein, was zu makroskopischer Atrophie führt und ein kritischer Faktor für die Entwicklung von BA ist. Bis heute gibt es Daten mehrerer Forscher (Papagei E.A. «Pharmakologische Korrektur der Kalziumdysregulation in Hippocampus–Neuronen - ein neuer Ansatz zur Behandlung von Alzheimer» Dessert), bei denen Aß-Oligomere bereits auf dem Niveau löslicher Formen eine pathologische Wirkung auf das Nervengewebe haben Auf der Grundlage von Forschungsdaten des FGBOW in der «National Research Mord State University von ihnen N.P. Ogarev", Chumakov N.M. und Co-Autor von 2020, kam zu dem Schluss, dass Amyloid-Plaques entweder als «Reservoir» wirken können, wenn Oligomere in Nervengewebe diffundiert werden. Die Monomere verbinden sich nur an den Enden der Fibrillen und obwohl der Verbindungsprozess reversibel ist, wird das Gleichgewicht zwischen den Fibrillen und dem freien Aß in Richtung der Fibrillenbildung und - tau-Hyperphosphorylierung als Ergänzung zur Aktivierung der destruktiven Entzündungskaskade verschoben.
Daher lässt die Analyse der wissenschaftlichen Literatur, die der BA gewidmet ist, zu dem Schluss kommen, dass es immer noch keine einzige Theorie gibt, die das Auftreten und Fortschreiten dieser Krankheit erklärt. Weitere Forschung auf diesem Gebiet wird zur Bildung eines neuen Konzepts der Pathogenese von BA führen.

KREATIVE AKTIVITÄTEN VON STUDENTEN IM MODERNEN BILDUNGSRAUM DER UNIVERSITÄT

Bondarewa A.- die Studentin des 4. Studienjahres
Wissenschaftliche Leiter: K.m.W. M.W. Sulima, Tkatschjowa N. A.

Kreative Aktivität ist einer der wichtigsten Aspekte der modernen Gesellschaft. Es ist in verschiedenen Lebensbereichen notwendig: Wissenschaft, Bildung. Es spielt eine wichtige Rolle in der Kommunikation und Organisation der Freizeit der Gesellschaft. Die Begabung und Originalität des Denkens jungen Menschen ist einer der Impulse für die Entstehung neuer Technologien und der größten Entdeckungen, die in der Zukunft gefragt sein warden/

Derzeit umfasst die Amurische Medizinische Akademie viele außerschulische Organisationen, die helle, aktive, ehrgeizige und kreative Studenten umfassen, die sich in verschiedenen Lebensbereichen manifestieren möchten. Die Jungs wählen ihre Richtung nach ihren Interessen: Musikgruppen, Tanzgruppen, die Kunst der Fotografie , Forschungs- und Forschungskonferenzen, all dies ermöglicht es, neue Freunde zu finden, die Angst der Öffentlichkeit zu überwinden, die Schüchternheit und Selbstzweifel zu überwinden, positive Emotionen zu vermitteln und vor allem die Bildung einer kreativen Persönlichkeit und die Selbstverwirklichung eines jeden Studenten zu fördern.. «hallo, wir suchen nach Talenten», neujahrskonzert, tudentischer Frühling, einweihung an Studenten und andere Aktivitäten ermöglichen es jedem, alle Facetten seines Talents zu zeigen. Anschließend werden die Leistungen unserer Studierenden auf Studierendenfesten und städtischen Veranstaltungen demonstriert.

Die Arbeit der Schüler im praktischen Unterricht zeichnet sich auch durch ein hohes Maß an Kreativität und Fantasie aus. Die Erstellung interessanter Präsentationen, die Lösung von Fallproblemen, Vorträge vor Publikum, die Erstellung von Notizen, die Erstellung informativer Schemata und sogar der Aufbau einer Antwort auf die Frage des Lehrers bringt die Entwicklung kreativen, kritischen und logischen Denkens, die Fähigkeit des Sprechens und die Fähigkeit, die Aufmerksamkeit der Zuhörer zu behalten/ All diese Fähigkeiten sind für jeden Spezialisten in seiner beruflichen Tätigkeit unerlässlich.

Zusammenfassend lässt sich sagen, dass unsere Akademie große Möglichkeiten bietet, das kreative Potenzial jedes jungen Menschen zu verwirklichen, die Fähigkeit zur Kommunikation, Führung, Zusammenarbeit, Analyse, Fähigkeit zur Präsentation seiner Ideen und zum Aufbau von Teamfähigkeiten zu entwickeln. Es sind diese Fähigkeiten, die für das Erreichen von beruflichem Wachstum und die Verbesserung von Kompetenzen von grundlegender Bedeutung sind.

PROTEINPATHOLOGIE BEI ALZHEIMER-KRANKHEIT

Rudych S.- die Studentin des 2. Studienjahres
Wissenschaftliche Leiter: Krjutschkowa A.J., Tkatschjowa N. A.

Die Alzheimer-Krankheit ist eine chronische neurodegenerative Erkrankung, die vor allem bei älteren Menschen häufig vorkommt.

Die klinische Diagnose der Alzheimer-Krankheit wird durch das Vorhandensein und die Ansammlung von Amyloidablagerungen im Gehirn bestätigt. Amyloid wird hauptsächlich in den Terminalzonen von Neuronen in Form von morphologisch heterogenen Ablagerungen gefunden, die auch als senile Plaques (neurofibrilläre Verwicklungen) bekannt sind. Der Hauptbestandteil der Amyloidablagerungen ist ein Polypeptid, das hier als Aß (Amyloid-beta) bezeichnet wird. Aß ist normalerweise ein löslicher Bestandteil der Zerebrospinalflüssigkeit. Aß kann in seiner reifen Form 39 bis 43 Aminosäuren haben, normalerweise 40 Aminosäuren, und wird als proteolytisches Spaltprodukt aus einem Zelloberflächenprotein, dem Amyloid-Vorläuferprotein (AVP), freigesetzt.

Die Präzipitation von synthetischem Aß wird durch mehrere externe Faktoren verursacht, darunter niedrige pH-Werte, hohe Salzkonzentrationen und das Vorhandensein von Metallen wie Zink, Kupfer und Quecksilber (Bush et al., 1995). Aß selbst bindet Zink auf spezifische Weise und bis zur vollständigen Sättigung mit einer hochaffinen Bindung (KD = 107 nM) in einem Molverhältnis von 1: 1 (Zink: Aß). Diese Bindung findet bei physiologischen Konzentrationen von Zink statt.
Neurofibrilläre Verwicklungen sind fadenförmige Einschlüsse, die sich in einer bedeutenden Anzahl von Gehirnneuronen von Patienten mit AA ansammeln. Der Hauptbestandteil der neurofibrillären Verwicklungen ist das Tau-Protein, das mit Mikrotubuli assoziiert ist. Im normalen Zustand ist Tau ein lösliches Protein, das zur Montage und Stabilisierung von Mikrotubuli beiträgt. Bei der Hyperphosphorylierung geht es in einen pathologischen Zustand über, gefolgt von der Bildung von fadenförmigen Strukturen. Hyperphosphoryliertes Tau-Protein zeigt eine verminderte Affinität zu Mikrotubuli. Bei AA wird die Pathologie des Tau-Proteins nur in Neuronen beobachtet. Bei anderen Erkrankungen im Zusammenhang mit der Pathologie des Tau-Proteins, wie progressiver supranukleärer Lähmung und kortikobasaler Degeneration, werden Tau-Einschlüsse auch in der Glia beobachtet.
Die Haupthypothese der Pathogenese von BA ist seit zwei Jahrzehnten die Amyloidhypothese, die auf der Vorstellung basiert, dass pathologische Ereignisse, die durch die Kaskadenaggregation von Aß verursacht werden, der Hauptinitiator des neurodegenerativen Prozesses sind. Gemäß dieser Hypothese ist die Ansammlung von Amyloidpeptiden im Gehirn der ursprüngliche Faktor für die Pathogenese und setzt sich im Verlauf der Entwicklung der Krankheit als Ergebnis eines Ungleichgewichts zwischen Bildung und Ausscheidung von Aß fort. Klinische Studien von Medikamenten, die den Stoffwechsel und den Katabolismus von Amyloidpeptiden verändern, erwiesen sich jedoch als nicht schlüssig. Dies gilt für Impfstoffe und Antikörper gegen Aß, γ-Sekretase-Inhibitoren und Medikamente, die die Aß-Aggregation direkt blockieren.

SEITEN DER GESCHICHTE

Kasakowa A. - die Studentin des 4. Studienjahres
Wissenschaftlicher Leiter: K.m.W. Reschetnikowa L. K., Tkatschjowa N. A.

Goremykin Alexander Andrejewitsch (1897-1965) ist Mikrobiologe, Oberstleutnant des medizinischen Dienstes, Wissenschaftler, Gründer und erster Leiter des Lehrstuhls für Mikrobiologie am BSMI.
Er wurde im Dorf Krasnyi Jar des Bezirks Mikhailowskii des Amurgebits in einer armen Bauernfamilie geboren. Nachdem er seinen Vater im Alter von 7 Jahren verloren hatte, um zu überleben, bat er ihn an die lokalen Fäuste und besuchte am Abend eine Kirchenschule. Seit 15 Jahren arbeitete er als Müller, seit 19 Jahren als Soldat des Artillerieregiments von Wladiwostok, wo er die Sanitärkurse am Lazarett absolvierte und als Kämpfer der Roten Garde und als Militärhelfer der Partisanenabteilung kämpfte und bis November 1921 gleichzeitig ihre medizinische Versorgung organisierte.
In den Jahren 1921 bis 1922 hat er als medizinischer Assistent und Militärkommissar für Sanitätsteile viel getan, um den medizinischen Dienst im Fernen Osten zu organisieren.
In 1924-1927 studierte er an der militärischen medizinischen Fachschule. Nach der Demobilisierung aus den Reihen der Roten Armee in 1926 arbeitete A.A. Goremykin als Sanitäter und Apotheker in der Bahnärztliche Versorgung in Chabarowsk.
Und in 1927 trat er in das Medizinische Institut von Tomsk ein, das er 1931 abgeschlossen hatte.

1939 verteidigte er seine Doktorarbeit zum Thema «Präzipitationsreaktion als schnelle Methode zur Diagnose von Lebensmittelvergiftungen mit Fleisch» und erhielt sechs Monate später den DozentTitel.
1940 wurde er an das Unionsinstitut für Experimentelle Medizin in Leningrad geschickt, wo das Material für die Arbeit an einer Dissertation in anderthalb Jahren gesammelt wurde, aber der beginnende Krieg verhinderte, dass die Arbeit daran beendet wurde, was das gesamte gesammelte Material vollständig vernichtet. Alexander Andrejewich hat den ganzen Krieg durchgemacht und als Chef eines klinisch-bakteriologischen Labors am Evakuierungskrankenhaus an seinen Fronten gearbeitet.
1946-1953 wurde er als Direktor des Nordossetischen, stellvertretender Direktor und Leiter der Impfabteilung des Instituts für Epidemiologie und Mikrobiologie in Chabarowsk, und in Teilzeit – Assistent des Lehrstuhls für Mikrobiologie am Medizinischen Institut in Chabarowsk.
Im August 1953 wurde er als Leiter des Lehrstuhls für Mikrobiologie am Medizinischen Institut der Verkündigung eingeladen, wo er bis in die letzten Tage seines Lebens arbeitete. Die wissenschaftlichen Interessen von A.A. Goremykin konzentrierten sich auf die Untersuchung von Typhus-, Paratyphus- und Ruhrgruppen sowie auf die antimikrobielle Wirkung von Pflanzen aus Sibirien und dem Fernen Osten.
Unter den Mitarbeitern und Studenten genoss er enorme Autorität und allgemeinen Respekt, schuf ein kleines, aber freundliches professionelles Team.
Die Exponate, die der Biografie von Alexander Andrejewich gewidmet hatte, werden im Amur-Heimatmuseum aufbewahrt. Für seine Verdienste um seine Heimat wurde Professor A.A. Goremykin mit Orden und Medaillen ausgezeichnet, darunter der Orden des Roten Sterns, der Orden des Ehrenzeichens sowie das Abzeichen des «Ausgezeichneten Gesundheitswesens», das sorgfältig in seiner Familie aufbewahrt wird, deren Mitglieder den Weg von Alexander Goremykin in der Medizin fortsetzten.

VERÄNDERUNGEN DER THYREOZYTEN BEI JODMANGELERKRANKUNGEN

Eltschaninow E. – der Student des 2. Studienjahres
Wissenschaftliche Leiter: Barannikow W.W., Tkatschjowa N. A.

Jodmangelerkrankungen sind ein aktuelles Problem im Amurgebiet. Nach den Daten des regionalen Gesundheitsministeriums für 2020 beträgt die tägliche Jodaufnahme bei 20% der Einwohner des Amurgebiets 80 mg, während der normale Jodbedarf für Erwachsene etwa 100–150 mg pro Tag und 175–200 mg für schwangere und stillende Frauen beträgt. Damit ist jeder fünfte Einwohner der Region gefährdet, an Jodmangelerkrankungen zu erkranken.
Die Schilddrüse ist eine Art des zentralen Regulationslabors, in dem Jodverbindungen gebildet und angereichert werden. Dieser Prozess ist ziemlich kompliziert, deshalb habe ich beschlossen, ihn in meinem Bericht offenzulegen. Jod ist ein essentielles Spurenelement für die Funktion des Körpers. Der Körper eines gesunden Menschen enthält 15-20 mg Jod, wovon sich 70-80 % in der Schilddrüse anreichern und als notwendiger Bestandteil für die Synthese von Schilddrüsenhormonen dienen, die zu 2/3 aus Jod bestehen: Trijodthyronin (T3) und Thyroxin (T4). Thyreoglobulin dient als Substrat für die Synthese der Schilddrüsenhormone Thyroxin und Trijodthyronin sowie für die Einlagerung inaktiver Formen von Schilddrüsenhormonen und Jod im Follikellumen des Schilddrüsenfollikels. Jodmangel reduziert die Synthese von Schilddrüsenhormonen, d.h. beginnt etwas mehr als T3 und etwas weniger als T4 zu produzieren, aber innerhalb normaler Referenzwerte. Das Intervall der Normalwerte für Hormone wird als Referenzwert bezeichnet. Der Spiegel der Hormone Trijodthyronin und Thyroxin ist normal, es entwickelt sich jedoch ein Missverhältnis: Trijodthyronin

ist etwas höher und Thyroxin etwas niedriger. Als Reaktion auf ein solches Missverhältnis beginnt eine zusätzliche Ausschüttung von TSH durch die Hypophyse und die Schilddrüse wird stimuliert. Und als Folge dieser Stimulation entwickelt sich eine Hypertrophie der Thyreozyten, das Volumen der Schilddrüsenzellen nimmt zu. Es entsteht eine Vergrößerung der Schilddrüse. Jodmangel verursacht ein Missverhältnis der autokrinen lokalen Gewebewachstumsfaktoren IGF-1, EGF, FGF, die in größeren Mengen freigesetzt werden und eine Hyperplasie der Thyrozyten verursachen, die der Bildung von Knoten zugrunde liegt. Und so bildet Jodmangel eine Zunahme des Volumens der Schilddrüse und gibt einen Impuls zur Bildung von Knoten. Es bildet sich entweder ein knotig proliferierender Kropf oder ein diffuser endemischer euthyreoter Kropf. Bei unzureichender Jodaufnahme bei Erwachsenen entwickeln sich verschiedene Arten von Krankheiten: diffuser Kropf (Vergrößerung der Schilddrüse), einknotiger Kropf, mehrknotiger Kropf und so weiter. In dieser Arbeit habe ich mich entschieden, eine der Jodmangelkrankheiten in Betracht zu ziehen - den diffusen endemischen Kropf. Die Stimulation der Drüse über viele Jahre trägt zu morphologischen Veränderungen nicht nur in Thyrozyten, sondern auch in ihrem Stroma bei. Zu den Auslösern der striagenen Wirkung von Jodmangel gehören seine ungleichmäßige Verteilung im Parenchym der Drüse sowie die Überempfindlichkeit der Thyreozyten gegenüber dem normalen TSH-Spiegel. Es ist möglich, dass andere Kompensationsmechanismen auf verschiedenen Ebenen bei der Pathogenese des endemischen Kropfs eine Rolle spielen - von der Beteiligung von Dophamin, Noradrenalin und Serotonin an der Regulation der Bildung von Thyroliberin und TSH über den Transport von Hormonen bis hin zur peripheren Umwandlung von T4 bis T3 (einschließlich umgekehrtes, inaktives T3) und der Zustand der Aufnahme von Schilddrüsenhormonen auf der Ebene der Zielzellen. Es wird auch vermutet, dass die Prostaglandine E und F indirekt an der Pathogenese des endemischen Kropfs durch erhöhte trophoblastische Wirkungen von TSH beteiligt sind.

FUNKTIONELE ASYMMETRIE DER GEHIRNHALFTAN

Spilewaja A. – die Studentin des 4. Stuienjahres
Wissenschaftliche Leiter: D. m. W. Karnaukh W. N, Tkatschjowa N. A.

Unter "funktionale interhemisphärische Asymmetrie des Gehirns" soll man die ungleichen Funktionen der rechten und linken Gehirnhälfte bei der motorischen, sensorischen und geistigen Aktivität von Mensch und Tier verstehen.

Das Phänomen der Asymmetrie manifestiert sich in allen funktionellen Funktionen des Körpers und unterscheidet drei Arten von Asymmetrien (motorisch, sensorisch, mental). Mentale Prozesse, die von der rechten Gehirnhälfte abhängig sind, umfassen sensorische Asymmetrien und auf der linken Seite motorische. Wissenschaftlern zufolge ist die ganzheitliche geistige Aktivität eines gesunden Menschen umso effektiver, je asymmetrischer sie ist. Diese Asymmetrie soll im Gegensatz zur raumzeitlichen Organisation der beiden Hemisphären stehen, insbesondere in der Zeit: von der Gegenwart zur Vergangenheit und von der Gegenwart zur Zukunft.

Für jede Person sind der Grad der Dominanz und die Art der Funktionsverteilung zwischen den Hemisphären individuell. In diesem Zusammenhang wird der Begriff Seitenprofil verwendet, das durch eine Reihe von Tests bestimmt wird, die den führenden Arm, das führende Bein, das Auge oder das Ohr identifizieren.

Asymmetrien im motorischen Bereich werden am häufigsten mit der dominanten Hand in Verbindung gebracht. In der Literatur findet man folgende Bezeichnungen der dominanten Hand – Linkshänder, Rechtshänder oder Ambidexter (gleichermaßen erfolgreicher Handbesitz).

Auch bei den Beinen gab es Unterschiede. Die Beine sind auch nicht gleich in Kraft, Schrittlänge, Genauigkeit, Koordination und Bewegungsbewusstsein. Das rechte Bein ist häufiger der „Treiber" des Tempo- und Kraftregimes.
Auch das Gesicht ist asymmetrisch – die vordere Hälfte ist breiter und niedriger, die mimischen Muskeln werden kontrollierter als auf der gegenüberliegenden – schmaler und höher. Die linke Gesichtshälfte hat eine niedrigere Schmerzschwelle.
Viele Studien haben die ungleiche Natur der Hemisphären in der Manifestation höherer mentaler Funktionen gezeigt, insbesondere Wahrnehmung, kognitive, mnestische Prozesse. Beispielsweise sind die kürzeste Zeit für eine einfache visuell-motorische Reaktion auf Licht- und Schallreize, eine hohe funktionelle Labilität des visuellen Systems typisch für junge Männer mit einem überwiegend rechten Ensemble funktioneller Asymmetrien und einem dominanten linken Auge. Der Wert der Schmerzschwelle und die Zählgenauigkeit der Dauer einer einzelnen Minute sind bei rechtshändigen jungen Männern deutlich höher. Die anfängliche Genauigkeit der Zeit- und Raumwahrnehmung ist bei Personen mit überwiegend rechten Asymmetrien höher.
Es wird eine Hypothese aufgestellt, wonach die Dominanz der linken („parasympathischen") Hemisphäre bei der Kontrolle motorischer Reaktionen der führenden rechten Hand bei Rechtshändern die Organisation motorischer Fähigkeiten der führenden Hand verbessert. Bei Linkshändern hingegen trägt die Summe des Energieverbrauchs der dominanten Hand und der rechten („sympathischen") Hemisphäre zum Energieabbau des Nervensystems und zu diversen Störungen in der Regulation der Körperfunktionen bei.

IMMUNOONKOLOGIE. NEBENWIRKUNG, ERFAHRUNG IN DER CHEMOTHERAPEUTISCHEN ABTEILUNG AMURER REGIONALEN ONKOLOGISCHEN KLINIK

Jasykowa D. – die Studentin des 4. Studienjahres
Wissenschaftliche Leiter: Ekonia D. T., Tkatschjowa N.A.

Krebs umfasst viele verschiedene Krankheiten, die alle durch eine unkontrollierte Proliferation abnormer Zellen mit der Fähigkeit gekennzeichnet sind, sich auf gesunde Organe und Gewebe auszubreiten. Es gibt eine Reihe von therapeutischen Ansätzen zur Behandlung von Krebs, einschließlich Chirurgie, Bestrahlung und anderen Strategien.
Immuntherapie ist eine medikamentöse Behandlungsoption für Tumore, die darauf gezielt sind, ihre eigene Antitumor-Immunantwort zu stimulieren.
Die Immunoonkologie ist ein innovatives Forschungsgebiet, das darauf gezielt ist, das eigene Immunsystem des Körpers zur Bekämpfung bösartiger Neoplasmen zu stimulieren. Und das ist ein grundlegend neuer Ansatz bei der Behandlung von Onkologie.
Zur Zeit stehen Onkologen verschiedene Arten von Immuntherapie zur Verfügung: monoklonale Antikörper, Kontrollpunkthemmer, Krebsimpfstoffe, Immunmodulatoren, zelluläre Immuntherapie.
Die Wirkung von Immunmitteln unterscheidet sich grundlegend von anderen Behandlungsmethoden. Es zielt auf das Immunsystem des Körpers ab, nicht auf den Tumor. Die Medikamente ermöglichen es dem Immunsystem, Tumorzellen selektiv zu erkennen und anzugreifen. Darüber hinaus geben die Medikamente dem Immunsystem Langzeitgedächtnis, so dass sie eine längerfristige Reaktion auf Tumorzellen ermöglichen können.
Immunologische Medikamente werden gegen Krankheiten wie Lungenkrebs, Nierenkrebs, Leberkrebs, Melanom, Magenkrebs, Darmkrebs, Eierstockkrebs, Blasenkrebs, Kopf-Hals-Krebs, Glioblastom verschrieben.

Bei der Behandlung von Lungenkrebs werden verwendet: Bevacizumab (Avastin), Bavituximab. Zur Behandlung von Prostatakrebs werden folgenden Medikamente am häufigsten verwendet: Der GVAX-Impfstoff, der Prostvac-Impfstoff. Bei Brustkrebs wird hauptsächlich Impfstoffe und monoklonale Antikörper verwendet: Herceptin. Zur Behandlung von Magenkrebs werden in Kombination mit Chemotherapie folgende Immunmedikamente verwendet: Imatinib (Taverbb), Nivolumab.

ONKOLOGISCHE GMU

Schestakow E. – der Student des 1. Studienjahres
Wissenschaftliche Leiter: K.m.W. Gigoljan M.A., Tkatschjowa N.A.

Wenn eine Person mit einer onkologischen Erkrankung (oder ihre Angehörigen) Fragen über Behandlung hat (Behandlungstaktiken, verwendete Medikamente usw.), hat sie das Recht, sich für eine unabhängige Studie an Experten zu wenden.

Wer führt die onkologische Untersuchung durch?

Rechtsmediziner verfügen über die erforderliche Qualifikation, um diese Untersuchung durchzuführen. Sie haben Dokumente über die Hochschulbildung, Zertifikate, die ihre Akkreditierung als forensische Experten und Onkologen bestätigen.

Das Bundesgesetz Nr. 73-FZ vom 31. Mai 2001 „Über staatliche Gerichtsaktivitäten in der Russischen Föderation“regelt die Tätigkeit eines Sachverständigen (oder einer Sachverständigenkommission) während einer Prüfung.

Wie läuft eine onkologische Untersuchung ab?

Eine onkologische Untersuchung besteht aus folgenden Schritten:

1. Zunächst werden alle verfügbaren medizinischen und sonstigen Unterlagen, die den Sachverständigen in Papier- und elektronischer Form zur Verfügung gestellt werden sollen, in einem zufriedenstellenden Zustand geprüft. Daraus wird die Vorgeschichte des Arztbesuchs des Patienten im Zusammenhang mit einer onkologischen Erkrankung ermittelt. So wird die Entwicklung dieser Krankheit verfolgt. Die Experten erfahren auch, welche Behandlungstaktik die Spezialisten gewählt haben und ob sie richtig war, welche Fehler im Behandlungsprozess gemacht wurden und ob sie zu einer Verschlechterung des Gesundheitszustands geführt haben. Darüber hinaus wird medizinische Fachliteratur studiert.
2. Sofern vorhanden, wird ein histologisches Präparat (Schnitt eines biologischen Ob-jekts) zur Verfügung gestellt, das lichtmikroskopisch untersucht wird.
3. Basierend auf den Ergebnissen der Studien zur medizinischen Dokumentation und zum histologischen Präparat wird ein Gutachten (Expertenausschuss) gemäß der Vorlage der Organisation erstellt.

Weiterhin wird das fertige Gutachten dem Gericht oder dem Auftraggeber vorgelegt. Gege-benenfalls kann ein Sachverständiger als Zeuge vor Gericht geladen werden.

Die Durchführung dieser Untersuchung von Spezialisten für forensische Untersuchungen und Forschung ermöglicht es festzustellen, ob bei der Behandlung von Krebs Fehler gemacht wurden und ob die Behandlung selbst korrekt war.

Durchführung einer strafrechtlichen Untersuchung

Dekret des Plenums des Obersten Gerichtshofs der Russischen Föderation vom 21. De-zember 2010 N28 "Über die forensische Untersuchung in Strafsachen" kann eine Sachverständi-genprüfung in einem Strafverfahren entweder von einer staatlichen Sachverständigeneinrichtung oder von einer gemäß dem bürgerlichen Gesetzbuch der Russischen Föderation und dem Bundesgesetz „Über

nichtkommerzielle Organisationen“ gegründeten gemeinnützigen Organisation forensische Gutachtertätigkeit nach Maßgabe der von ihnen erlassenen Schatzungendurchgeführt werden.
Gewerbliche Organisationen und Laboratorien, Unternehmer, Bildungseinrichtungen sowie gemeinnützige Organisationen, für die die Sachverständigentätigkeit nicht gesetzlich vorgeschrieben ist, haben in einem Strafverfahren keinen Prüfungsanspruch. Gutachten, die von diesen Organisationen im Rahmen eines Strafverfahrens erstellt wurden, können als unzulässiges Beweismittel anerkannt werden, d.h. Beweismittel, die entgegen den Anforderungen des Verfahrensrechts erlangt wurden.
Unzulässige Beweismittel dürfen im Beweisverfahren nicht verwertet und nicht aus den Unterlagen des Strafverfahrens ausgeschlossen werden.

AUSWIRKUNGEN DER NEUEN CORONAVIRUS-INFEKTION AUF DAS ZNS

Oorshak A. – die Studentin des 4. Stuienjahres
Wissenschaftliche Leiter: D.m. W. Karnauch W. N, Tkatschjowa N. A.

Der Ausbruch der Coronavirus-Infektion, der im Dezember 2019 in der Provinzhauptstadt Hubei (Wuhan) auftrat, breitete sich sofort auf der ganzen Welt aus, und trotz der von der WHO eingeführten Maßnahmen ist die Zahl der Neuerkrankungen und Todesfälle durch COVID-19 in verschiedenen Ländern nicht zurückgegangen . Patienten suchen weiterhin Hilfe bei Problemen im emotionalen Bereich, wie z. B. Gefühl unangemessener Angst, erhöhte emotionale Erregbarkeit, Kopfschmerzen, Gedächtnisstörungen, Verwirrtheit, ständige Schwäche, Appetitschwankungen und Geschmacksveränderungen, Geruchsempfindungen. Es gab auch Fälle von neurologischen und psychiatrischen Störungen bei Patienten, die COVID-19 hatten. Daher ist die Untersuchung der Auswirkungen von COVID-19 auf das Nervensystem der Bevölkerung ein dringendes Problem der modernen Medizin.
Das Internet und die Medien spielen eine besondere Rolle bei der Beeinflussung des menschlichen Nervensystems, da die Öffentlichkeit Nachrichten extrem ausgesetzt hat. Besondere Aufmerksamkeit sollte dem Ausbruch häuslicher Gewalt geschenkt werden. So stieg laut Hotline die Anzahl der Anrufe in China um das Dreifache, in Frankreich um 30%. Am empfindlichsten gegenüber Auswirkungen auf das Nervensystem sind ältere Menschen, schwangere Frauen und psychisch kranke Menschen. Als Folge der Pandemie sind die Exazerbationsrisiken bei Patienten mit psychopathischen Störungen dramatisch gestiegen. Laut einer im Frühjahr 2020 in Italien durchgeführten Studie wurden nach 3-4 Wochen Selbstisolation und Quarantäne folgende psychische Störungen festgestellt: 20,8 % der Befragten hatten schwere Angstzustände, 37 % hatten eine posttraumatische Belastungsstörung, 22,8 % hatten schwere Belastungen, 7,3 % - Schlaflosigkeit, 21,8 % - Anpassungsstörungen, 17,3 % - depressive Störungen.
Coronavirus ist auch neurotrop – es verursacht neurologische Störungen. Ein Drittel der Patienten, die COVID-19 hatten, entwickeln neurologische Störungen. Dies geschieht entweder durch eine direkte Wirkung des Virus auf das Nervensystem (über den Riech-/Nerv trigeminus oder durch die Blut-Hirn-Schraenke), auch durch eine überschießende Immunantwort (Zytokinsturm) oder indirekt als Komplikation der Erkrankung (durch die Art der Hypoxie, metabolische Azidose, Dysregulation der Homöostase). Die charakteristischen neurologischen Symptome in der Akutphase einer neuen Coronovirus-Infektion sind Geruchs- und Geschmacksstörungen, hämorrhagische und ischämische Schlaganfälle sowie zerebrale Venenthrombosen.
Es ist interessant, dass in den meisten Fällen Patienten neurologische Symptome (arterielle Hypertonie, koronare Herzkrankheit, Herzrhythmusstörungen, Diabetes mellitus, chronische Nierenerkrankung) haben.

Daher können 3 Gruppen von neurologischen Erkrankungen im Zusammenhang mit einer Coronavirus-Infektion unterschieden werden:
1. Verletzung des zentralen Nervensystems (Kopfschmerzen, Schwindel, Verwirrtheit, epileptische Anfälle);
2. Verletzungen des peripheren Nervensystems (beeinträchtigter Geruchssinn, Geschmack);
3. Schäden am Bewegungsapparat.

URSACHEN DES BULBÄREN UND PSEUDOBULBÄREN SYNDROMS

Lylowa E. – die Studentin des 4. Studienjahres
Wissenschaftliche Leiter: D. m. W. Karnauh W. N., Tkachjewa N. A.

Bulbäres Syndrom tritt auf, wenn die Kerne der zungenflochigen, Vagusnerven und sublingualen Nerven im Bereich des länglichen Gehirns oder ihrer Wurzeln auf der Basis des Gehirns oder der Nerven selbst betroffen sind. Dies kann sowohl eine einseitige als auch eine bilaterale Niederlage sein. Es gibt eine Lähmung des weichen Gaumens, des Kehlkopfes. Der Kehlkopfnerv innerviert die Muskeln des Rachens und sorgt für seine Empfindlichkeit, ist für die Geschmacksempfindungen der hinteren Zunge verantwortlich, gibt eine parasympathische Innervation der Ohrspeicheldrüse. Der Vagusnerv innerviert die Muskeln des Rachens, des weichen Gaumens, des Kehlkopfes, der oberen Teile des Verdauungstraktes und der Atemwege. Es gibt eine parasympathische Innervation der inneren Organe (Bronchien, Herz, Magen-Darm-Trakt). Der sublinguale Nerv sorgt für die Innervation der Zungenmuskulatur. Der klinische Symptomkomplex ist eine Triade von Symptomen: Schluckstörungen (Dysphagie), Artikulationsstörungen (Dysarthrie) und Sprachtonlautstärke (Dysphonie).

Ursachen: Die Niederlage der Nervenkerne im länglichen Gehirn oder ihrer Wurzeln am Ausgang ist sekundär und ist eine Folge unterschiedlicher Art und Ätiologie von ZNS-Läsionen. Progressive bulbare Lähmung wird häufig bei Erkrankungen des Motoneurons, infektiösen Läsionen des zentralen Nervensystems, volumetrischen Prozessen der hinteren Schädelgrube, demyelinisierenden Erkrankungen beobachtet.

Pseudobulbäres Syndrom ist mit einer gestörten Durchblutung der Hirnnerven des länglichen Gehirns verbunden. Pathologie ist häufiger bei älteren Menschen als Folge von Atherosklerose der zerebralen Arterien. Im Gegensatz zu Bulbar ist das pseudobulbäre Syndrom nicht lebensbedrohlich, sondern reduziert seine Qualität und Dauer.

Ursachen: Pseudobulbäre Lähmung wird durch diffuse vaskuläre Prozesse im Gehirn sowie perinatale Hirnschäden, erbliche Veränderungen der kortikalen und nuklearen Wege, Peak-Krankheit, Creutzfeldt—Jakob-Krankheit, Postreanimationskomplikationen bei Personen beobachtet, die eine Hirnhypoxie erlitten haben. In der akuten Periode kann eine zerebrale Hypoxie als Folge einer diffusen Schädigung der Großhirnrinde beobachtet werden.

Die qualitative Behandlung von Bulb-Lähmungen bietet eine günstige Prognose, die eine Stabilisierung der Körperfunktionen und eine vollständige Wiederherstellung der Muskeln beinhaltet. Prävention beinhaltet eine sorgfältige Kontrolle über Ihre eigene Gesundheit und die rechtzeitige Beseitigung von Pathologien, die eine Schädigung der Hirnnerven hervorrufen können.

ARTEN VON SCHMERZSYNDROMEN

Lylowa E. – die Studentin des 4. Studienjahres
Wissenschaftliche Leiter: D. m. W. Karnauh W. N., Tkachjewa N. A.

Schmerzsyndrom wird als ein Zustand bezeichnet, bei dem eine Person über Schmerzen in verschiedenen Körperteilen besorgt ist.

Der Schmerz ist der Schutz des menschlichen Körpers und stellt ein Signal dar, dass seine Arbeit gestört wird. Normalerweise ist der Schmerz in einem bestimmten Teil des Körpers lokalisiert, der dem betroffenen Organ entspricht.
Der Schmerz kann akut und chronisch, paroxysmal oder dauerhaft sein. An der Stelle der Manifestation von Schmerzen kann es in Kopf-, Gesichts-, Lendenwirbelsäule und andere unterschieden werden.
Der Schmerz kann lokal sein (in der Reizzone der Schmerzrezeptoren), Projektion (manifestiert sich im Verlauf der gereizten peripheren Nervenstrukturen), Ausstrahlung (die sich aus der von den peripheren Nervenzweigen innervierten Zone ausbreitet, deren Rezeptoren in die anderen Zweigen des gleichen Nervs innervierten Zonen oder durch Anastomosen über die Innervationszone hinaus ausbreitet).
Basierend auf den pathophysiologischen Mechanismen des Schmerzes wird es in nozizeptive und neuropathische unterteilt.
Nozizeptiver Schmerz tritt auf, wenn ein gewebeschädigender Reiz auf die peripheren Schmerzrezeptoren wirkt. Die Ursachen für diesen Schmerz können eine Vielzahl von traumatischen, infektiösen, dysmetabolen und anderen Läsionen (Karzinomatose, Metastasen, retroperitoneale Neoplasmen) sein, die die Aktivierung peripherer Schmerzrezeptoren verursachen. In der Regel ist der Schmerzreizmittel offensichtlich, der Schmerz ist normalerweise gut lokalisiert und von den Patienten leicht beschrieben. Charakteristisch für diese Art von Schmerz ist ihre schnelle Regression nach Beendigung des schädlichen Faktors und einer kurzen Behandlung mit adäquaten Schmerzmitteln. Es sollte jedoch betont werden, dass eine längere periphere Reizung zu einer Funktionsstörung der zentralen nozizeptiven und antinozizeptiven Systeme auf der rücken- und zerebralen Ebene führen kann, was die Notwendigkeit einer möglichst schnellen und wirksamen Beseitigung von peripheren Schmerzen verursacht.
Neuropathischer Schmerz tritt als Folge von Schäden oder Veränderungen im somatosensorischen Nervensystem auf. Neuropathische Schmerzen sind in ihren klinischen Eigenschaften viel vielfältiger als nozizeptive. Bei verschiedenen Formen von Läsionen des Nervensystems, auf verschiedenen Ebenen und Stadien der Entwicklung des pathologischen Prozesses kann die Beteiligung verschiedener Mechanismen der Schmerzentstehung ebenfalls unterschiedlich sein. Gemeinsame Merkmale sind anhaltende Natur, lange Dauer, Unwirksamkeit von Analgetika für ihre Linderung, Kombination mit vegetativen Symptomen.
Der Schmerz bleibt aufgrund der unzureichenden Wirksamkeit der Behandlung der Betroffenen ein aktuelles Problem der modernen Neurologie und benötigt weitere klinische und experimentelle Studien.

ACETYLCHOLIN IST EIN SPEICHER- UND LERNMEDIATOR

Rudych S.- die Studentin des 2. Studienjahres
Wissenschaftliche Leiter: Gasanowa S. N., Tkatschjowa N. A.
Neuropsychische Aktivität wird nicht nur im Hinblick auf die Gesamtheit der Verhaltensmanifestationen betrachtet.
Das mediatorische System des Gehirns ist eine Sammlung von Strukturen des Nervensystems, die bestimmte Funktionen erfüllen. Neuronen, die zu demselben Mediatorsystem gehören, initiieren und kontrollieren mit Hilfe eines identischen Satzes von Mediatoren und Modulatoren die Aktivität des Organismus, seiner Organe und Systeme. Verhaltensreaktionen, Emotionen, Motivationen, Gedächtnis und ihre Reifung sind mit dem Funktionieren der Mediatoren verbunden. Im

Nervensystem werden viele Mediatoren isoliert, die in verschiedenen Abteilungen des Gehirns vorkommen.
Der Hauptmediator des cholinergen Systems ist Acetylcholin (AH). Mit Hilfe von AH in der neuromuskulären Verbindung wird die Erregung vom Nerv zum Muskel ubertragen. Im Gehirn befindet sich AH in den Basalganglien, im Thalamus, im limbischen System des Gehirns, insbesondere im Hippocampus und in den Kernen des Hirnstamms. Das cholinerge System ist mit Lernen und Gedachtnis verbunden.
Acetylcholin spielt eine Schlüsselrolle bei der Gewährleistung der Aufmerksamkeitsstabilität durch eine aktivierende Wirkung auf die Großhirnrinde. Eine Funktionsstörung des cholinergen basalen Systems führt zu erhohter Ablenkbarkeit, verminderter Konzentration und als Folge des schnellen Verlustes erworbener Informationen.
Die durchgeführten neuropsychologischen Studien zeigten einen negativen Einfluss von Anticholinergika auf die Durchführung von Tests zur Bewertung des Gedachtnisses. Der cholinerge Rezeptorantagonist, insbesondere Scopolamin, stört aufgrund der großen Anzahl von fremden Reizen, die zum Zeitpunkt der Informationsverarbeitung auftreten, den Prozess des Erinnerns neuer Informationen. Im Gegensatz dazu führt die Verwendung von Mitteln zur Verbesserung der cholinergen Übertragung bei Patienten mit verschiedenen organischen Hirnlasionen oder nach Einnahme von anti-cholinergen Medikamenten zu einer Verbesserung der neuropsychologischen Tests.
Mit Storungen des cholinergen Systems sind das Symptom «Mudigkeit» oder «Schwache» der Muskeln sowie degenerative Prozesse des Nervensystems verbunden.
Cholinreiche Lebensmittel sind nützlich, um die Synthese von Acetylcholin zu verbessern. Dies sind Eier, Nüsse, Fleisch, Fisch, Haferflocken, gekeimtes Getreide, Orangen. Personen, die keine tierischen Produkte konsumieren oder sich an eine fettarme Diät halten, wird empfohlen, zusätzliche Nahrungserganzungsmittel einzunehmen. AH wird im Körper sehr schnell von einem spezialisierten Enzym — Acetylcholinesterase abgebaut wird.
Ein Uberschuss an Acetylcholin im Korper verursacht einen Krampf aller Muskeln, Krämpfe und einen Atemstillstand — für diesen Effekt sind einige Nervengase ausgelegt. Ein Mangel an Acetylcholin führt zur Entwicklung von Alzheimer und anderen Arten von seniler Demenz. Als unterstützende Therapie wird den Patienten ein Medikament verschrieben, das die Zerstorung von Acetylcholin blockiert - ein Acetylcholinesterase-Inhibitor.

ANALYSE DER STERBLICHKEIT DER BEVÖLKERUNG DES AMUR-GEBIETS DURCH KREISLAUFERKRANKUNGEN WÄHREND DER COVID-19-PANDEMIE

Tschernomorzew I., Dzyga K. - die Studenten des 5. Studienjahres
Wissenschaftliche Leiter: Prof. I.G. Menschikowa, N.A. Tkatschjowa

Herz-Kreislauf-Erkrankungen bleiben eine der Hauptursachen für die Sterblichkeit der Bevölkerung, was sich negativ auf die demografische Situation und die sozioökonomischen Indikatoren in der Russischen Föderation auswirkt. Während der Pandemie einer neuen Coronavirus-Infektion durch das SARS-CoV-2-Virus (COVID-19) wurde ein Anstieg der Sterblichkeit registriert, wobei die kardiovaskuläre Pathologie als Risikofaktor für einen ungünstigen Verlauf von COVID-19 angesehen wird.
Wir haben für den Zeitraum 2019 bis 2021 eine Analyse der Sterblichkeit der Bevölkerung des Amurgebiets in der Pathologie der Kreislauforgane durchgeführt. Es wurde festgestellt, dass im Jahr 2021 die Sterblichkeit durch Erkrankungen des Kreislaufsystems (EK) im Vergleich zu 2019 um 14,3% gestiegen ist und sich auf 647,9 bzw. 566,8 pro 100.000 Einwohner betragt. Bei allen

verstorbenen Patienten im Jahr 2021 waren es 48,8% der Männer, bei den Frauen 51,2%, während bei den Personen im erwerbsfähigen Alter eine signifikante Männerprävalenz zu verzeichnen war (78,8%). Im Vergleich zum Jahr 2020 hat sich der Anstieg der Sterblichkeit etwas verlangsamt und betrug 2%. Es sollte angemerkt werden, dass im erwerbsfähigen Alter in den letzten 3 Jahren auch die EK–Sterblichkeit gestiegen ist (2019 – 169,0; 2020 – 183,7; 2021 - 195,0 pro 100 000 Einwohner).
Der größte Beitrag zur EK–Sterblichkeitsrate wird von Kardiale Ischämie geleistet: 2021 - 294,6 pro 100 000 Einwohner. (2019-254,0; 2020 - 258,1). Zerebrovaskuläre Erkrankungen: 2021-215,0 (2019 - 195,5; 2020 -226,3). Akuter Zerebrovaskulärer Unfall: 2021 - 118,1 (2019) - 97,0, 2020 - 113,7). Akuter Myokardinfarkt: 2021 – 47,7 (2019) - 44,0; 2020 - 49,0). Hohe Sterblichkeitsraten durch kardiovaskuläre Pathologie werden im Dorf registriert. Der Fortschritt beträgt 10,0, im Konstantinowskij-Bezirk 885,8, im Bezirk Raitschikhinsk 886,8, im Bezirk Michailowskij 875,5 pro 100 000 Einwohner. Bei allen an EK gestorbenen Patienten im Jahr 2021 traten 64,4% des Todes außerhalb des Krankenhauses auf (2019: 60,5%; 2020: 68,4%).
Angesichts der Pandemie einer neuen Coronavirus-Infektion gab es Veränderungen im spezialisierten Bettsfond des Amurgebiets. 2019 wurden 295 kardiologische Betten in Betrieb genommen, 2020 - 164 und 2021 - 219.
Der Anteil der Vollzeitstellen für Kardiologen an Einzelpersonen ist in Krankenhäusern gesunken (2019: 69,8%; 2020: 59,4%; 2021: 51,0%). In den Kliniken betrug der Rückgang jeweils 77,0%, 80,0%, 66,7%.
Um die Sterblichkeit der Amur-Bevölkerung durch Herz-Kreislauf-Erkrankungen zu reduzieren, ist es notwendig: das Personal der medizinischen Einrichtungen mit Kardiologen auszustatten; die Kontrolle über die rechtzeitige Registrierung von kardiologischen Patienten und deren Wirksamkeit zu verstärken; wenn die Koronavirus-Infektion abnimmt, muss ein spezialisierter Bettsfond wiederhergestellt werden; die Informationsarbeit zur Prävention von Herz-Kreislauf-Erkrankungen und deren Komplikationen bei Patienten mit hohem Risiko muss intensiviert werden.

NICHT KLASSISCHER VERLAUF DER EILEITERSCHWANGERSCHAFT

Oorshak A. – die Studentin des 4. Stuienjahres
Wissenschaftliche Leiter: Stokoz K. J., Tkatschjowa N. A.

Eileiterschwangerschaft stellt trotz moderner therapeutischer und diagnostischer Möglichkeiten eine Bedrohung für die Gesundheit und das Leben einer Frau dar und ist eine der Ursachen für den Tod der Mutter. In Russland ist die Häufigkeit von Todesfällen bei Eileiterschwangerschaften dreimal höher als in den Vereinigten Staaten und 2-3 mal höher als in europäischen Ländern.

Die Dringlichkeit des Problems ergibt sich aus der Tatsache, dass Eileiterschwangerschaft eine der Ursachen für tubal-peritoneale Unfruchtbarkeit ist. Laut in- und ausländischen Quellen leiden mehr als 50–80% der Patienten nach der chirurgischen Behandlung einer Eileiterschwangerschaft später an Unfruchtbarkeit, und die Häufigkeit wiederholter Fälle dieser Pathologie liegt zwischen 2 und 30%.
Die Symptomatologie einer Eileiterschwangerschaft nach Art des Fötusbruchs wird klassischerweise von einem Krankheitsbild eines "akuten Abdomens" begleitet: Schmerzen im Unterbauch vor dem Hintergrund eines gestörten Menstruationszyklus nach einer Verzögerung der Menstruation - Schmierblutungen . Charakteristisch sind kurzzeitige Bewusstlosigkeit, Übelkeit, Erbrechen, kalter klebriger Schweiß, Blässe der Haut und der Schleimhäute, weite Pupillen, häufiger Puls mit kleiner Füllung und Blutdruckabfall. Änderungen der Körperposition führen zu Reizungen neuer Bereiche des Peritoneums und verstärkten Schmerzen, das Shchetkin-Blumberg-Symptom ist stark positiv. Die

Symptomatik der Eileiterschwangerschaft nach Art der Abtreibung wird von einem unschärferen Krankheitsbild begleitet. Die fortschreitende Eileiterschwangerschaft hat kein spezifisches Krankheitsbild.
Die Diagnose der Krankheit erfolgt durch Bestimmung der Menge an β-hCG im Blutserum. Diese Analyse ist der einzige biochemische Marker einer Eileiterschwangerschaft. Normalerweise beträgt der Anstieg von β-hCG alle 48 Stunden während einer Gebärmutterschwangerschaft mehr als 50 %. Nur 17 % der Eileiterschwangerschaften haben einen Anstieg des Serum-β-hCG, wie bei normalen Schwangerschaften. Eine Abnahme oder ein geringer Anstieg von β-hCG in Kombination mit dem Fehlen einer Schwangerschaft in der Gebärmutterhöhle im Ultraschall weist auf eine Eileiterschwangerschaft hin.
Bis heute gibt es keine absolut zuverlässige Methode zur Diagnose dieser Pathologie. Daher bleibt die Eileiterschwangerschaft trotz der entwickelten klinischen Leitlinien aufgrund des oft nicht klassischen Verlaufs eine schwierige diagnostische Aufgabe für den Kliniker.

AUS DER GESCHICHTE DES LEHRSTUHLS FÜR FREMDSPRACHEN

Rudych S.- die Studentin des 2. Studienjahres
Wissenschaftlicher Leiter: Tkatschjowa N. A.
Der Lehrstuhl für Fremdsprachen wurde im September 1952 gegründet und ist Gleichaltrige des Instituts.
Der Lehrstuhl hatte lange Zeit keine eigene Basis. Der Unterricht wurde in allen Gebäuden des medizinischen Instituts durchgeführt.
Foto von 1960 Blagoweschtschensk - Holz und Bau, Stadtplanung
Im Januar 1990 erhielt die Abteilung eine neue Aufenthaltserlaubnis: Gorki-Straße, 95, Gebäude Nr. 1, dritter Stock, linker Flügel, wo sie sich derzeit befindet.
Der Lehrstuhl für Fremdsprachen kann gleichzeitig acht Gruppen für die Durchführung von Auditoriumsunterricht aufnehmen.
Die Unterrichtszimmer sind thematisch gestaltet: 3 auf Englisch, 2 auf Deutsch, 1 auf Französisch, 2 auf Latein.

Die Leitung des Lehrstuhls

Am 15. September 1952 wurde der erste Abteilungsleiter ernannt. Poluektov Mikhail Nikolaevich, Kandidat der Veterinärwissenschaften, außerordentlicher Professor
Michail Nikolajewitsch leitete den Lehrstuhl vom 15.09.1952 bis zum 9.06.1953.
Lempel Nathan Maximowitsch wurde 1920 geboren, 1946 absolvierte er die Staatliche Universität in Lemberg. Ein hochgebildeter Mensch, ein Intellektueller, er sprach Latein, Griechisch, Deutsch, Französisch und Ukrainisch fließend.
Er arbeitete am BSMI von 1954 bis 1956 und unterrichtete medizinisches Latein. Er sammelte Material für ein Lehrbuch über Latein und veröffentlichte eine Reihe wissenschaftlicher Arbeiten.
Im Jahr 1963 veröffentlichte Lempel NM eine "Sammlung verschreibungspflichtiger Übungen" für Medizinstudenten.
Im selben Jahr veröffentlichte er das «Latein-russische Wörterbuch».
1966 wurde sein Nachkomme, das Lehrbuch "Lateine Sprache", veröffentlicht, das vom Gesundheitsministerium der UdSSR als Hauptlehrbuch in Latein für Studenten medizinischer Instituten empfohlen wurde.
Medizinstudenten studieren nach diesem Lehrbuch mehr als 15 Jahren.
Für die Erstellung des Lehrbuchs wurde Lempel N.M. der Titel eines außerordentlichen Professors verliehen.

Seit dem 05.04.2004 leitete sie den Lehrstuhl Lyudmila Ivanovna Špilchuk.
Dann wurde der Leiter des Lehrstuhls Natalia Anatolijewna.
Es gibt Lehrer auf dem Lehrstuhl, die fast ihr ganzes Leben der Arbeit an der BGMI und dann an der AGMA gewidmet haben. Dies sind Ljudmila Eugenewna Sajkowa (ab 1964) und Walentina Dmitrijewna Jegorowa (ab 1971), Swetlana Ilinitschna Nazarkina, Ljudmila Iwanowna Tshpilchuk (ab 1976), Nina Anatolijewna Subatschewa (ab 1982).
Alle Lehrer beteiligen sich aktiv nicht nur am Leben der Akademie, sondern auch an Veranstaltungen anderer Universitäten in Russland.
Die erste Studentenkonferenz mit Vorträgen in Fremdsprachen fand in März 1973.
Im Jahr 2020 fand die 30. Jubiläumskonferenz statt, die bereits den Status "Internationale" erhielt, weil Studenten aus Japan und China daran teilgenohmen haben.
Austausch von Studenten fand jahrlich während der medizinischen Sommerpraxis mit den Universitäten von Harbin. Dies ist die medizinische Universität von Heilongjiang für traditionelle chinesische Medizin und die Medizinische Universität von Harbin
20 Studenten von 2-4 Kursen reisten nach China und 20 Studenten von diesen Universitäten kamen zu unserer Akademie, um ein Sommerpraktikum durchzufuhren.
Die Studenten der Akademie reisten nicht nur nach China, sondern auch nach Japan, der Türkei, den Malediven, Serbien und Israel.
Die Studentische wissenschaftliche Gesellschaft existiert seit 1972 am Lehrstuhl. Die Arbeit begann mit zwei Kreisen: Englisch und Deutsch.
In den Kreisen beschäftigten sich jährlich etwa 30 Personen.
Die Kreise beschäftigten sich mit Übersetzungen der ursprünglichen medizinischen Literatur, hörten Referatsmeldungen zu, führten mündliche Gespräche zu medizinischen Themen. Und in einer schwierigen Zeit der Pandemie hören die Studenten nicht auf, ihre Kenntnisse Sprachen zu becherschen.

SIAMESISCHE ZWILLINGE

Pantschewa A. – die Studentin des 4. Studienjahres
Wissenschaftliche Leiter: Stokoz K. J., Tkatschjowa N. A.

Es handelt sich um eine spezifische Fehlbildung bei monochorionischer Monoamnion-Schwangerschaft. Solche Zwillinge sind in bestimmten Bereichen des Korpers miteinander verbunden. Sie ist das Ergebnis der Teilung einer befruchteten Eizelle nach dem 13. Tag, wenn sich die Keimscheiben (Embryonen) bereits gebildet haben. Die Haufigkeit dieser Pathologie liegt bei 1 % der monochorionischen Zwillinge.
Die Diagnose kann bereits in der vorgeburtlichen Zeit durch Ultraschall des Fotus, MRT, Messung bestimmter Hormonwerte und Chorionbiopsie gestellt werden. Nach der Geburt zielt die Untersuchung darauf ab, den Grad der Verschmelzung zu bestimmen und eine Behandlungsstrategie zu entwickeln. Unter gunstigen Bedingungen ist es moglich, siamesische Zwillinge zu trennen, die dann ein erfulltes Leben fuhren.
Die wahren Ursachen der Embryonenbildungsstorungen sind nicht bekannt. Gynakologen und Neonatologen nennen mehrere typische atiologische Faktoren, darunter:

- Mutterliches Alter (nach 40 und vor dem 18. Lebensjahr).
- Gynukologische Erkrankungen (angeborene oder erworbene Verformung der Gebarmutter, chronisch entzundliche Erkrankungen der Genitalien).
- Teratogene Faktoren (nachteilige Auswirkungen auf den Korper der schwangeren Frau in den ersten Wochen nach der Empfängnis).

• Verwandtschaftliche Ehen.

In der praktischen Medizin werden siamesische Zwillinge in mehrere Untergruppen unterteilt, je nach der Variante der Verschmelzung der Kinder miteinander. Dies ist wichtig, um die Prognose zu bestimmen. Die wichtigsten Varianten der siamesischen Zwillinge:

• Thoracopagus. Die haufigste Art der Pathologie. Die Kinder verschmelzen im Brustbereich und das Herz ist betroffen, so dass die Chancen auf eine erfolgreiche Operation gering sind. Eine Unterart von thoracopagus ist xiphopagus, bei der nur der Knorpel des Brustbeins verwachsen ist.

• Omphalopagus. Die Fusion wird im Bereich des Bauches und des unteren Brustkorbs festgestellt, wobei Kinder haufig den Verdauungstrakt und die Leber mitbenutzen.

• Iliopagi. Kennzeichnend ist die vollstandige Verschmelzung von Rucken-zu-Rucken-Gewebe, einschließlich des Gesaßes. Ein Ruckenmark in zwei zu haben, wird als besonders nachteilig angesehen.

• Ischiopagi. Verbunden am Gurtel der unteren Gliedmaßen: Bei Kindern wird ein großer Beckenring gebildet, der jeweils 2 Kreuzbeine und Schambeinfugen umfasst.

• Parapagus. Die Gelenke treten "nebeneinander" auf; manchmal betrifft der pathologische Prozess auch das Herz, die Leber und andere lebenswichtige Organe.

• Craniopagi. Die Köopfe sind miteinander verbunden, wahrend die Torsi getrennt sind. Parasitische Craniopagans, bei denen zwei Kopfe auf demselben Rumpf sitzen, aber einer der Zwillinge kein eigenes Bewusstsein hat, werden als eigene Unterart bezeichnet.

Die Sterblichkeitsrate bei siamesischen Zwillingen lag fruher bei 99 %, aber mit der Verbesserung der chirurgischen Techniken ist die Rate gesunken. Die Prognose hangt in erster Linie von der Art der Fusion ab: Je weniger Kinder sich Organe teilen, desto einfacher ist die Operation und desto besser sind die Erfolgsaussichten.

REVERSE ARTERIELLE PERFUSION-SYNDROM

Sheltotschenko V. S. - die Studentin des 4. Studienjahres
Wissenschaftliche Leiter: Stokoz K.Ju., Tkatschjowa N.A

Das Reverse arterielle Perfusionssyndrom von SOAP ist eine spezifische Pathologie bei Mehrlingsschwangerschaften, die durch vaskuläre Botschaften zwischen den Föten, vollständige oder teilweise Abwesenheit des Herzens und Anomalien der Organe des Empfängers gekennzeichnet ist.

2 grundlegende SOAP-Hypothesen:

1. Die Bildung eines fetalen Akardius ist mit dem Vorhandensein von arteriellen Anastomosen zwischen den Plazenta-Kreislaufsystemen verbunden, die bei einem Fötus einen umgekehrten Blutfluss verursachen. Der umgekehrte Blutfluss sichert das Überleben des Akardius, führt aber zur Bildung von Akardie. Die Entwicklung eines Mangels an den meisten Organsystemen eines abnormen Fötus kann auf hämodynamische Störungen zurückzuführen sein, die sich dadurch manifestieren, dass das Blut unter geringem Druck und geringer Sauerstoffkonzentration zu ihm gelangt.

2. Die zweite Hypothese legt nahe, dass die Bildung grober Fehlbildungen der inneren Organe auf Chromosomenanomalien zurückzuführen ist, die unabhängig von der Anwesenheit abnormaler Anastomosen in der Plazenta zwischen den Kreislaufsystemen eines gesunden und abnormen Fötus eine Verletzung der Anordnung vieler Organe, einschließlich des Herzens, verursachen.

Der betroffene Fötus ist durch pathologische Veränderungen oder ein vollständiges Fehlen der cephalischen Abteilungen des Körpers sowie des Herzens, der oberen Extremitäten und vieler innerer Organe gekennzeichnet. Die unteren Extremitäten des fetalen Akardius sind in der Regel aufgrund ihrer anatomischen Nähe zu den Nabelarterien mit dem umgekehrten Blutfluss wesentlich besser

geformt. Der fetale Spender hat in der Regel keine strukturellen Anomalien, aber es kann Anzeichen einer Herzinsuffizienz aufgrund einer erhöhten Belastung des Herzens geben.
Je nach Aussehen des Fötus werden vier Arten von Akardiusfruchten unterschieden: 1. Acardius acephalus: Es fehlen die Strukturen des Schädels und der Brust; manchmal ist ein abnormaler Rumpf vorhanden, aber die unteren Extremitäten sind gut erkennbar; tritt bei 60-75% auf. 2. Acardius amorphus: wird durch amorphes Gewebe dargestellt, das Fehlen gut unterscheidbarer fetaler Formen; das Auftreten beträgt bis zu 20%. 3. Acardius anceps: Die Strukturen des Schädels und / oder der Keime des Gehirns, des Rumpfes und der Gliedmaßen sind deutlich zu unterscheiden; das Auftreten beträgt 10%. 4. Acardius acormus: Es werden nur Kopfstrukturen mit einer nahen Nabelschnur definiert; das Auftreten beträgt 5%.
Die einzige Möglichkeit, dem Spender das Leben zu erhalten, besteht darin, die Verbindung des Spenderfruchtteils mit dem Empfänger zu trennen. Dazu werden verschiedene Methoden verwendet, die zur Okklusion der Nabelschnurgefäße des Empfängers beitragen: Nabelschnurverband bei Fetoskopie, endoskopische Lasergerinnung, mono- und bipolare Koagulation, Embolisation der Nabelschnurarterie durch Embolien, thrombogene Spirale, sowie Hysterotomie und selektive Entbindung des Akardius-Fötus. Wenn es nicht möglich ist, die Nabelschnurgefäße des Empfängers zu verschließen, wird eine überschüssige Menge an Fruchtwasser aus der Fruchtwasserhöhle des Spenders entwässert. Diese Manipulation beseitigt die Ursache nicht, reduziert jedoch den intraamniotischen Druck, wodurch die Kompression der oberflächlichen Gefäße der Plazenta reduziert wird, was den Zustand des Spenderfruchtes verbessert.
Im Allgemeinen überleben in solchen Fällen nur 50% der gesunden Föten, und die Sterblichkeitsrate der betroffenen Föten beträgt 100%.

LABORDIAGNOSE DER ZECKEN-ENZEPHALITIS

Stetzko-Watzkowski E. – die Studentin des 3. Studienjahres
Wissenschaftliche Leiter - D.m.W. Tschubenko G.I., Tkatschjowa N. A.

Zecken-Enzephalitis ist eine virale, natürlich vorkommende Übertragungs-Infektion, die mit einer Niederlage des zentralen Nervensystems auftritt. Die Krankheit kann in einen chronischen Verlauf übergehen.
Die Diagnose besteht aus epidemiologischen, klinischen und Labordaten.
Die klinische und epidemiologische Diagnose der Zeckenenzephalitis beruht auf einer Krankengeschichte: Zeckenbiss, Aufenthalt in einem Waldgebiet, Verwendung von roher Ziegenmilch.
Die Labordiagnose basiert auf dem Erkennung des Erregers im akuten Stadium der Krankheit, dem Aufschlussreich des AT-spezifischen Titergewinns bei Rekonvaleszenten sowie der Freisetzung des Virus von blutsaugenden Arthropoden, die in natürlichen Infektionsherden gefangen sind.
Die spezifische Diagnose der Enzephalitis besteht aus serologischen, virologischen und molekulargenetischen Untersuchungsmethoden. Die virologische Untersuchung wird durchgeführt, indem weiße Mäuse mit Blut und Zerebrospinalflüssigkeit von Patienten infiziert werden und in der praktischen Medizin praktisch nicht verwendet werden.
Das Material für die Forschung ist Blut, Plasma, Serum, Zerebrospinalflüssigkeit von Patienten und bei Autopsie das Gehirn. Die optimale Blutuntersuchung ist 15-28 Tage nach dem Zeckenbiss am besten.
Eine universelle und empfindliche serologische Methode ist die immunenzymentative Analyse. Mit seiner Hilfe können sowohl spezifische Antikörper als auch ein spezifisches Antigen des

Zeckenenzephalitis-Virus nachgewiesen werden - Antigen E. Außerdem verwenden man eine Polymerase-Kettenreaktion, um die RNA des Virus zu erkennen.
Bei Verdacht auf Zecken-Enzephalitis sollten Blut und Zerebrospinalflüssigkeit in den ersten Tagen der Erkrankung (6 - 7 Tage) entnommen werden. Für die serologische Untersuchung wird der zweite Teil des Blutes 10 bis 14 Tage nach der ersten Einnahme erhalten. Das Blut wird mit einer Einwegspritze in einer Menge von 5 ml aus der Vene entnommen und in ein steriles Reagenzglas gegeben. Nach der Bildung eines Gerinnsels wird es von der Reagenzglaswand getrennt. Das Reagenzglas wird dann für 18 Stunden bei einer Temperatur von 4 ° c in den Kühlschrank gestellt.
Daher sollte die Diagnose einer durch Zecken übertragenen Enzephalitis auf einer Reihe von epidemiologischen, klinischen und Labordaten erfolgen.

SICHELZELLENANÄMIE

Simonenko A. – die Studentin des 1. Studienjahres
Wissenschaftliche Leiter – Naumenko W.A., Tkatschjowa N. A.

Sichelzellenanämie (S–Hämoglobinopathie) ist eine Art der erblichen hämolytischen Anämie, die durch eine Verletzung der Hämoglobinstruktur und das Vorhandensein von sichelförmigen roten Blutkörperchen im Blut gekennzeichnet ist. Die Häufigkeit von Sichelzellenanämie ist hauptsächlich in Afrika, dem Nahen und Mittleren Osten, dem Mittelmeerraum und Indien verbreitet. Hier kann die Inzidenz von Hämoglobin S in der indigenen Bevölkerung 40% erreichen. Seltsamerweise haben Patienten mit Sichelzellenanämie eine erhöhte angeborene Resistenz gegen Malaria, da sichelförmiges Malariaplasmodium nicht in rote Blutkörperchen eindringen kann.
Die Sichelzellenanämie basiert auf einer Genmutation, die die Synthese von abnormalem Hämoglobin S (HbS) verursacht. Ein Hämoglobinstrukturfehler ist durch den Ersatz von Glutaminsäure durch Valin in der ß-Polypeptidkette gekennzeichnet. Das dadurch entstehende Hämoglobin S erhält nach dem Verlust des anhaftenden Sauerstoffs die Konsistenz eines hochpolymeren Gels und wird 100-mal weniger löslich als normales Hämoglobin A. Dadurch werden die roten Blutkörperchen, die Deoxygemoglobin S tragen, verformt und erhalten eine charakteristische Halbmond- (sichelförmige) Form. Die veränderten roten Blutkörperchen werden steif, kleinplastisch, können die Kapillaren verstopfen, eine Ischämie des Gewebes verursachen, leicht einer Autogemolyse unterzogen werden.
Die Vererbung einer Sichelzellenanämie erfolgt im autosomal-rezessiven Typ. Dabei erben Heterozygoten das defekte Sichelzellenanämie-Gen von einem Elternteil, so dass sie neben veränderten roten Blutkörperchen und HbS auch normale rote Blutkörperchen mit HbA im Blut haben. Bei heterozygoten Trägern des Sichelzellenanämie-Gens treten die Krankheitszeichen nur unter bestimmten Bedingungen auf. Homozygoten erben ein defektes Gen von Mutter und Vater, so dass nur sichelförmige rote Blutkörperchen mit Hämoglobin S in ihrem Blut vorhanden sind; Die Krankheit entwickelt sich früh und verläuft schwer.
Die allmähliche Bildung neuer Formationen, die das Gehirn beeinflussen, die Relevanz des Studiums der Arbeit von GEEbots.

ZELLULÄRE STRUKTUR DER HÄMATOENCEPHALITISCHEN SCHRANKE UND IHRE EMPFINDLICHKEIT GEGENÜBER ARZNEIMITTELN

Merdejew M. – der Student des 2. Studienjahres
Wissenschaftliche Leiter –Barannikow W.W., Tkatschjowa N. A.

Die Blut-Hirn-Schranke grenzt das Nervensystem vom allgemeinen Blutfluss ab und nimmt eine konstante und chemisch optimale Wirkung auf seine Funktion wahr.

Die von den Plexus choroideus abgesonderte Liquor cerebrospinalis zirkuliert in den Ventrikeln und im Subarachnoidalraum und dringt durch die Pachyongranulationen in die Nebenhöhlen der Dura mater ein. Der einzige Bestandteil der Spinalflüssigkeit, der nicht in den Hämatoephesus ° eindringt, wird metabolisiert. Es besteht aus Neurotransmittern, freigesetzten Neuronen, die keiner Wiederaufnahme unterliegen, was es ihnen unmöglich macht, die Blut-Hirn-Schranke zu zerstören.
Das hämatopoetische Stäbchen besteht aus zwei Komponenten.
Die erste wird durch eine Barriere zwischen Blut und Liquor cerebrospinalis auf der Ebene der vaskulären Plexus dargestellt, und die zweite ist eine Barriere zwischen Blut und interzellulärer Flüssigkeit auf der Ebene der ZNS-Kapillaren.
viele gemischte Strukturen in den Endothelmembranen der Gehirnkapillaren. Diese Proteine verarbeiten einige Substanzen aktiv, während sie andere blockieren. dabei ergibt sich durch die Nutzung verschiedener Transportmechanismen eine hohe Selektivität der Blut-Hirn-Schranke.
Ein solcher einfacher Mechanismus ist die Diffusion von lipophilen Endotheliozytenläsionen.
Beispiele für solche Einschlüsse sind Steroidhormone, Morphin usw.
Glukose und Aminosäuren sind im Tannin des Mondes mit belgischen Trägern vorhanden.
Hydrophile Hormone, einschließlich Insulin, und Arzneimittel, die die Haut beeinflussen
Zusammen mit dem oben genannten existierenden Transportmittel, das als "Trojanisches Pferd" bezeichnet wird.
Perivaskuläre Makrophagen, die neben Astrozyten gefunden wurden, wurden von zirkulierenden Monozyten beobachtet, die eine intakte Blut-Hirn-Schranke darstellen. Diese Makrophagen werden gut als früher Datogenkuchen und zur Abgabe von trotivoviralen Arzneimitteln verwendet
Eine dieser Forschungsmethoden ermöglicht es, kleine Gasbläschen in den Gefäßen des Gehirns zu erkennen und die erforderlichen Ergebnisse auf dem Gebiet des Ultraschalls unter der Kontrolle eines Tomographen zu erhalten. Endothelzellen bewegen sich auseinander, Blasen und Ultraschallwellen werden unter mechanischer Einwirkung detektiert und es entstehen Lücken, durch die Arzneistoffe eindringen können.

SECTION du FRANCAIS et du LATIN

СЕКЦИЯ ФРАНЦУЗСКОГО И ЛАТИНСКОГО ЯЗЫКОВ

Руководитель секции: старший преподаватель Л.И.Шпильчук
председатель: А. Ноздрачева
секретарь: А. Золина

ИЗ ИСТОРИИ КОНФЕРЕНЦИИ НА ИНОСТРАННЫХ ЯЗЫКАХ

Кустов Е.- 1 к.
Руководитель – Н.А.Ткачева

Первая студенческая конференция с докладами на иностранных языках состоялась в марте 1973 года. Были представлены доклады: «Новейшие достижения отечественной и зарубежной медицины», «Искусственное сердце», ряд докладов о знаменитых медиках и др.

Вторая студенческая конференция с докладами на иностранных языках прошла в марте 1974 года. К докладам по медицинской тематике добавились доклады по латинскому языку, связанные со спецификой дисциплины.

По 1980 год студенческие конференции на базе АГМА проводились ежегодно. С 1981 года по 1989 год конференции видоизменились. Они стали проводиться во время групповых занятий. В каждой группе 2 – 3 студента предлагали свои доклады на медицинские темы.

Затем в проведении конференций наступил перерыв. И только в 2000 году было решено возобновить проведение студенческих научных конференций с докладами на иностранных языках в масштабах АГМА. Изменилось направление конференций. Студенты стали представлять свою научную работу на иностранном языке.

Таким образом, 9-тая научная студенческая конференция прошла 17 апреля 2000 года (1999 – 2000 уч. год) совместно с кафедрой биологии.

10-тая студенческая научная конференция состоялась 5 декабря 2000 года. К работе конференции были привлечены студенты, занимающиеся научной работой на многих кафедрах АГМА. Работа конференции осуществлялась тремя секциями: английского языка, немецкого языка, французского и латинского языков. Вниманию присутствующих было предложено 20 докладов на английском языке (15 устных, 5 стендовых), 13 докладов на немецком языке, 10 докладов на французском языке. Докладчиками были студенты с первого курса по шестой.

11-тая студенческая научная конференция была проведена 4 декабря 2001 года. В работе конференции приняли участие 59 студентов. На секции английского языка было подготовлено 14 устных и 19 стендовых докладов. На секции немецкого языка – 11 докладов. На секции французского и латинского языков – 8 докладов.

Все последующие годы студенческая конференция проводилась каждый год и приобрела, таким образом, статус традиционного мероприятия.

21 декабря 2020 года в Амурской медицинской академии состоялась 30-я юбилейная научная студенческая конференция с докладами на иностранных языках (с международным участием).

В связи с создавшейся эпидемиологической ситуацией, данная конференция проходила в режиме “on-line”. Использование платформы “Zoom” для проведения данного мероприятия

способствовало бесперебойной работе конференции, подключению всех её участников, в том числе зарубежных коллег из Китая.
Общее количество активных участников английской секции составило 30 человек. Наряду с устными выступлениями были подготовлены тезисы докладов для электронного сборника в количестве 135 на английском языке, 11 - на латинском языке и 18 – на немецком. Всем докладчикам были предусмотрены сертификаты и призовые места за лучшие выступления.
13 декабря 2021 года в Амурской государственной медицинской академии состоялась очередная (31-я) научная студенческая конференция с докладами на иностранных языках с международным участием. Присутствие на 31-й научной студенческой конференции значительно большего количества иностранных студентов свидетельствует о возросшем интересе к участию в данном мероприятии и выходу его на более высокий уровень.
Участие в работе конференции мотивирует студентов к изучению иностранных языков, повышению интеллектуального уровня студентов, помогает установить новые контакты, найти единомышленников среди зарубежных коллег.

ГРЕЦИЗМЫ В ЛАТИНСКОЙ МЕДИЦИНСКОЙ ТЕРМИНОЛОГИИ

Кузнецов Д.-1 к.
Руководитель – Н.А.Ткачева

Воздействие греческого языка на латынь проявилось за несколько столетий до нашей эры: «по времени греческое влияние сопровождает судьбу Рима почти от его основания и через достижение мирового господства до падения империи». Оживленный хозяйственный обмен между римлянами и греками, сходство структур обоих языков, ощутимое превосходство греческой цивилизации — все это обусловило языковые заимствования из греческого, сделало греческий язык одним из источников обогащения латинского языка. Греческие слова, попадая в язык римлян, изменяли свой звуковой облик в соответствии с фонетическими закономерностями латинского языка, подвергались морфологической адаптации.

Известно, какое влияние оказали греки на развитие медицины в древнем Риме, поэтому не случаен тот факт, что в дошедших до нас сочинениях, посвященных вопросам врачебного и аптекарского дела или затрагивающих эти вопросы, обнаруживается обилие греческих терминов, связанных с диагностикой и описанием болезней, с названиями лекарственных средств: (mydriasis «болезнь глаз»; paracentesis «укол, прокалывание» и др.) Некоторые из греческих медицинских терминов, сохраняющих в латинском языке свое значение, являются поздними заимствованиями, отмеченными впервые в медицинских сочинениях Целия Аврелиана (V в. н. э): (empneumatosis «вспучивание, вздутость»; necrosis «омертвение, умирание» и др.)

Некоторые из многозначных греческих слов, заимствованных в латынь, стали употребляться как однозначные медицинские термины: (paralysis «паралич» гр. paralysis «расслабление»; catalepsis «острый приступ болезни» гр. katalepsis «схватывание, захват, поимка» и др.)

На греческой основе были созданы также наименования лекарственных средств, как acesis, rhypodes: acesis «горная зелень, вещество, используемое в лечебных целях»; rhypodes «вытяжной пластырь».

Среди грецизмов, усваиваемых латынью только в одном из значений, также можно выделить слова, значение которых сужается, уточняется. Этому способствует терминологическое употребление заимствованных греческих форм. Медицинские термины: crisis «перелом в болезни, кризис» гр. krisis «разделение, различение, суждения; prognosis «предсказание, особ, как мед. термин» гр. prognosis «предвидение, предсказание; предвидение, прозорливость».

Таким образом, можно сказать, что несомненно греческий язык внёс свою лепту в формирование медицинской терминологии. Многие слова, заимствованные в латынь, стали повсеместно употребляться для обозначения разных болезней, а также лекарственных средств. При этом переходе, греческие слова могли как измениться, дополниться новыми значениями или утратить несколько значений, так полностью сохранить своё исходное значение.

ИСТОРИЯ СТАНОВЛЕНИЯ КЛИНИЧЕСКИХ ТЕРМИНОВ

Нужных А.-1 к.
Руководитель – Н.А.Ткачева

Клиническая терминология начала формироваться еще в эпоху Гиппократа. Многие клинические термины связаны с его именем. Такие термины как succussio Hippocratis - Гиппократов шум плеска, facies Hippocratica - Гиппократова маска, функционируют в клиничекой терминологии до нашего времени. Значительная часть клинических терминов - это сложные и производные слова, построенные на базе анатомо-гистологических наименований и терминоэлементов преимущественно греческого происхождения. Другая часть клинических терминов - это простые и производные слова с самостоятельной основой как латинского, так и греческого происхождения.

Основную роль в усвоении клинической терминологии играют греко-латинские терминообразующие элементы - терминоэлементы. Овладение системой греко-латинских терминоэлементов - это, своего рода, терминологический ключ к пониманию базовой медицинской клинической терминологии. Латино-греческая клиническая терминология весьма конструктивна, а структурные особенности клинического термина дают подробную характеристику понятия. Так, болезни, имеющие воспалительный характер, обозначаются термином, который составляется на основе анатомического названия пораженного органа и терминоэлемента.

Анализируя состав терминов, их происхождение, можно убедиться, что терминология - это в том числе и система ярких, образных наименований, оживляющих и разнообразящих терминологическую систему медицины. Знание истории медицины, истории развития терминологии, истории создания медицинских терминов способствует более глубокому усвоению и осмыслению этих терминов.

ДЕНЕЖНАЯ СИСТЕМА В ДРЕВНЕМ РИМЕ

Пискунов А. – 1 к.
Научный руководитель: Н.А.Ткачёва

Появление монетной системы Древнего Рима оказало существенное влияние не только на экономическую сферу данного государства, но и внесло свою непоколебимую лепту в формирование денежных систем поздней античности и раннего Средневековья в государствах Европы, Малой Азии и Ближнего Востока.

Монетизация достигла Рима довольно поздно. В Греции и Малой Азии монеты появились ещё в VII веке до нашей эры, в то время как в Риме в этот период в коммерции использовали натуральные природные ресурсы: скот, бронзу и серебро.

Чеканку первых римских монет традиция приписывает Сервию Туллию. Учитывая, что к VI в. до н.э. греки и лидийцы уже приняли на вооружение этот инструмент обращения, нет оснований отрицать, что законодательство, фиксирующее те или иные платежи, не может не предполагать одновременную стандартизацию весовых мер, а через это – и нормирование веса слитков монетного материала.

Когда римляне вступили в контакт с греческими цивилизациями на юге Италии в 300 г. до н.э., бронзовых монет было недостаточно для ведения торговли, поскольку города Великой Греции на тот момент использовали в коммерции монеты, сделанные из серебра.

В эпоху античности не существовало единой системы мер. В разные периоды в государствах Древнего Востока, греческих городах-полисах и Римской империи значения мер неоднократно менялись, соотношения же частей оставались постоянными.

Противоречивый путь поисков выхода из затяжного политического кризиса, в котором империя находилась на протяжении 100 лет необходимо было решать и предотвращать путём введения денежных реформ, оказывающих влияние на экономическую и социальную сферы жизни общества в государстве.

Набеги варварских племен и сепаратистские устремления провинций не были непосредственной причиной распада империи. Он явился ближайшим следствием глубокого кризиса надстройки, которая оказалась неспособной мобилизовать силы для защиты границы от посягательств и обеспечить территориальную целостность государства.

РОЛЬ ЛАТИНСКОГО ЯЗЫКА В МЕДИЦИНСКОМ ВУЗЕ

Бугрова А. - 1 к.
Руководитель: Н. А.Ткачёва

Для решения профессиональных задач конкурентноспособному специалисту медицинского профиля необходимо хорошее знание русского, латинского языков, основ медицинской терминологии и как минимум одного иностранного языка.

Одной из дисциплин, имеющих большое значение при подготовке специалистов в области медицины и фармации, несомненно является латинский язык, с которым приходится встречаться в повседневной работе, при чтении названий болезней, анатомических и клинических терминов, названий лекарственного сырья, ботанических терминов,

международно- принятых названий химических соединений и особенно когда приходиться сталкиваться с рецептурой и названиями медикаментов.
Латинский язык имеет и большое образовательное значение, так как помогает лучше и глубже анализировать русский язык, в который перешли многие латинские корни, создав ряд новых слов, например: президиум, консилиум, кворум, университет и так далее.
В латинский язык вошло много греческих слов, которые сохранились до сих пор, главным образом в медицинских названиях: анатомических, терапевтических, фармакологических и других.
Сохранение научной латинской терминологии придает особое значение изучению латинского языка не только как языка одной из древнейших культур, но и как языка необходимого в практической работе. Поэтому, хотя латинский и греческий языки принято называть мертвыми языками, для медицинских работников это живые языки, необходимые для повседневной работы. В настоящее время латинский язык входит в перечень элективных дисциплин, изучаемых в медицинских вузах.
Развивающие методы обучения, используемые при проведении данных курсов, стимулируют в студентах способности к самообразованию, саморазвитию, самостоятельной постановке и решению задач, повышают мотивацию студентов к сознательному углубленному овладению профессиональным языком. При этом увеличивается лексический запас совершенствуется образовательный уровень.
Все это обеспечивает будущим врачам понимание учебной и научной литературы медико-биологических дисциплин, а также взаимопониманию врачей любого профиля. Следовательно, элементы латинского языка и основ научной медицинской терминологии являются обязательным условием интернационализации в условиях современного многоязычия.
Врач обязан обладать большим кругозором, в том числе знать множество профессиональных терминов как на русском, так и на латинском. Изучение латинского языка на первом курсе наряду с анатомией и биологией — необходимость, так-как это мощный импульс для ознакомления и изучения своего профессионального языка.

ПРОБЛЕМЫ АНАТОМИЧЕСКОЙ НОМЕНКЛАТУРЫ В ЛАТИНСКОМ ЯЗЫКЕ

Шестаков Е.-1 к.
Руководитель: Н.А.Ткачева

До конца 19-го века единой анатомической терминологии не существовало. Наиболее крупные органы и структуры имели, как правило, единообразные названия в различных языках, но в деталях было множество отличий. По некоторым оценкам, в то время в ходу было около 50 тысяч анатомических терминов. В 1895 году в швейцарском Базеле была утверждена так называемая Базельская анатомическая номенклатура (Basele Nomina Anatomica, BNA), в которой количество терминов за счёт систематизации и унифика-ции было уменьшено до пяти с половиной тысяч. Впоследствии её неоднократно пытались пересмотреть.

По-настоящему общепризнанной стала ревизия, официализированная на IV международном конгрессе анатомов в 1955 году в Париже (так называемая Parisiensia Nomina Anatomica, PNA) - примерно пятая часть её терминов отличалась от терминов, имевшихся в BNA. Именно она лежит в основе подавляющего большинства учебных пособий по анатомии, выпущенных во второй половине 20-го века, однако, часть изданий ещё до начала 1980-ых годов приводили в скобочках старые термины с пометой BNA. Впоследствии её слегка пересматривали и косметически редактировали чуть ли не на каждом конгрессе (примерно раз в 5 лет). В конце концов после ряда расколов и разладов в высоких анатомических кругах в 1997 году в Сан-Пауло была принята пока ещё окончательная терминология.

Большинство анатомических терминов строится из относительно небольшого количества частотных слов (существительных и прилагательных). К примеру, весьма частыми существительными являются "отверстие", "канал", "гребень", "отросток", "борозда", "поверхность", "край", "доля" и т. п. - слова, которые описывают внешний вид структуры. К числу наиболее частых прилагательных, описывающих форму, относятся такие слова, как "большой", "малый", "круглый", "овальный", "продольный", "широкий", "квадратный" и др. Кроме того, широко используются прилагательные, описывающие местонахождение той или иной структуры: "правый", "левый", "латеральный" (расположенный ближе к боку, вдали от середины), "медиальный" (расположенный ближе к середине, вдали от края), "краниальный" (расположенный ближе к голове), "каудальный" (расположенный ближе к нижней части тела), "проксимальный" (расположенный ближе к телу, если речь идёт о конечностях), "дистальный" (расположенный ближе к периферии), "наружный", "внутренний", "поверхностный", "глубокий" и некоторые другие. Имеется и большое количество "непроизводных" терминов, которые нужно просто зазубрить: названия отдельных костей.

Общее количество терминов в современной номенклатуре - порядка 6-7 тысяч, но подавляющее большинство из них строятся из уже упомянутых мною частотных элементов.

В своей работе я рассмотрел становление международной анатомической но-менклатуры от её истоков и до настоящего времени. Значение анатомических терминов сложно переоценить в медицинской профессии. Студенты начинают изучение латинского языка уже с первого курса обучения в медицинской академии, изучая его одновременно на профильной кафедре и на кафедре нормальной анатомии человека.

ЛАТИНСКИЕ ЗАИМСТВОВАНИЯ В РУССКОМ ЯЗЫКЕ

Новикова А.-1 к.
Руководитель: Н. А.Ткачёва

Латынь – язык Древнего Рима (VI век до н.э. – V век н.э.). Латинский язык сыграл немалую роль в обогащении русской лексики (в том числе и терминологии), связанной преимущественно со сферой научно-технической и медицинской жизни. Латинизмы впервые стали проникать в русский язык еще несколько столетий тому назад. Наибольшее их количество пришло в язык в XVIII и XIX вв., что обусловлено общим культурным влиянием на Россию стран Западной Европы и прежде всего Франции, чей язык является ближайшим

потомком латыни. Слова стали проникать в древнерусский, а затем в русский язык, когда латынь была уже мёртвым языком. Входили они через языки-посредники, сначала через старославянский язык, затем через польский, немецкий, французский и др. Среди слов латинского происхождения много научных и политических терминов, вообще слов, связанных с "учеными" занятиями: абориген, абстракция, адвокат, аксиома, алиби, аудитория, аффикс, вакуум, вена, дедукция, декан, диктатура, инерция, коллега, конус, конференция, меридиан, перпендикуляр, пропорция, радиус, ректор, рецензия, формула, конституция, манифест, меморандум, пленум, революция, республика, референдум, фракция и др. Латинский язык во многих европейских государствах был языком литературы, науки, официальных бумаг и религии (католицизма). Научные сочинения вплоть до XVIII в. часто писались именно на латинском языке; медицина до сих пор использует латынь.

Все это способствовало созданию международного фонда научной терминологии, которая была освоена многими европейскими языками, в том числе и русским.

ЛАТИНСКИЕ ФИТОНИМЫ, ХАРАКТЕРИЗУЮЩИЕ РАСТЕНИЯ ПО ФОРМЕ.

Ляшенко М. Д. - 1 к.

Руководитель – Н.А.Ткачева

В ботанической номенклатуре распространены латинские фитонимы, характеризующие лекарственные растения по форме. Наиболее эффективный метод описания данного свойства растений- применение сравнений. В некоторых случаях данные наименования образуются в результате сравнения анатомических структур растений с орудиями. Например, фитоним Gladiŏlus (шпажник) происходит от gladiŏlus ‘небольшой меч’: возникновение данного наименования связано с тем, что растение имеет листья мечевидной формы. Существуют фитонимы, которые отображают сходство с растениями. Таким образом возникло латинское название Persicaria, которое происходит от persĭca (persĭcus) ‘персиковое дерево’: данное наименование возникло на основе сходства листьев с листьями персика. Выделяют названия, образованные в результате сопоставления частей растения с анатомическими структурами человека или животных. Например, название Plantāgo (подорожник) происходит от существительного planta ‘стопа, подошва’. Данное наименование растение получило из-за своих плоских листьев. Встречаются и наименования, возникшие в результате сравнения растения с космическими обьектами. Примером такого названия может послужить звездчатка (Stellaria). Данное название происходит от прилагательного stellāris, (звёздчатый). Кроме того, выделяют и сложные фитонимы, образованные в результате сложения двух основ. Примером может послужить Leonurus (пустырник). Данное название происходит от латинского leo (лев) и греческого ura (хвост). Пучок верхушечных листьев отдаленно напоминает кисточку львиного хвоста.

САЛЕРНСКИЙ КОДЕКС ЗДОРОВЬЯ

Свирская А. -1- к.

Руководитель – Н.А.Ткачева

Составленный Арнольдом из Виллановы «Салернский кодекс здоровья» - это трактат о практической терапии, диететике и гигиене. Стихи салернского врача сохраняют свою актуальность и значимость в настоящее время.

Произведение содержит множество медицинских рекомендаций по борьбе с отравлениями, изложенных в стихотворной форме. Вообще слова «яд» и «противоядие» довольно часто употребляются в «Кодексе». В нем рассматриваются свойства различных пищевых продуктов, плодов, растений и их лечебное действие. Труд написан по обычаю того времени в стихах: советы, данные в стихотворной форме, лучше запоминаются. Многие из них не утратили своего значения и в наше время.

В первых главах даются диэтетико-гигиенические навыки, подробно рассматриваются свойства различных пищевых продуктов, плодов, растений и их лечебное действие.

«Кодекс» предписывает употреблять в пищу овощи и фрукты. Например, вишни - у Арнольда эти ягоды названы среди продуктов, которые «легко усваиваются желудком и помогают его очищению».

В специальном разделе «Кодекса» повествуется о целебных свойствах ряда растений, которые можно успешно применять для профилактики и лечения болезней.

В «Солернском кодексе здоровья» Арнольд уделил внимание процессу старения, так на основе гуморальной теории объясняет, как в старости наступает плохое пищеварение, потеря аппетита, истощение, дряблость и морщинистость кожи, ослабление зрения, слуха, памяти. Болезни, сопутствующие старости - результат непропорционального соотношения влаг организма. Развитие и образование первичной смеси субстанций происходит с помощью врожденной теплоты тела. Так как процесс образования природного тепла в старости замедляется, то и процесс выздоровления, естественно, происходит медленнее.

Так же трактат показал, что современные принципы диетологии и здорового образа жизни были известны давно. Считалось, что секрет долголетия заключается в рациональном режиме: умеренная еда, отказ от злоупотребления вином, разумное пользование воздухом, сном и бодрствованием, движением и покоем и, наконец, воздержание от излишних страстей – вот, главнейшие правила такого режима. Соблюдая его, человек может прожить столько лет, сколько предназначено ему природой, то есть гораздо больше, чем он живет на самом деле.

Салернский кодекс остается лучшим памятником Салернский медицинской школы, которая просуществовала до середины XIX века.

ДРЕВНЕГРЕЧЕСКАЯ НАУКА И ПИСЬМЕННОСТЬ

Суслова И. - 1 к.

Руководитель - Н.А. Ткачева

Греческий алфавит в его древнейшей форме был точной копией финикийского: у греков сохранилась та же последовательность букв в алфавите и их наименование. Знаки писали справа налево. И только в IV веке до н.э. греки перешли на письмо слева направо. От греческого алфавита ведут свое происхождение почти все европейские алфавиты

Греки применили новый для письма материал - пергамент. Он был более прочный, чем папирус.
В Греции для письма применялись и церы - деревянные дощечки, покрытые воском. На воске они выцарапывали буквы металлической палочкой с острым концом. Противоположный конец делался плоским, чтобы стирать написанное. Эта палочка называлась стилем.
Дощечки употреблялись главным образом для написания писем. Несколько дощечек скреплялись вместе с помощью продернутого с одной стороны ремешка или шнура. Так получалась книга. Этот способ письма получил большое распространение в Риме, а позже и во всей Европе.
Греческая книга имела вид длинной ленты, свертываемой в трубку. Древние греки любили книги, их много раз переписывали и бережно хранили. Благодаря этому часть греческих книг дошла до нашего времени, хотя множество их погибло при пожарах и других несчастных случаях.
Первая греческая письменность появилась на острове Крит. С 20 в. до н.э это были условные иероглифы, а позднее линейное письмо двух видов.
С 19 в. до н.э появляется линейное письмо А. Это упрощенные иероглифы, которые существовали параллельно с условными. В результате ахейского завоевания они были вытеснены линейным письмом Б, существовавшим с 15 по 12 вв. до н.э., но не получившие широкого распространения. Она была уничтожена в результате дорийского завоевания.
Греческое алфавитное письмо возникло на основе письменности финикийцев, около 9 века до н.э. Финикийцы писали знаками, каждый из которых обозначал отдельный звук. Но у них были только согласные буквы.
Греческий архаический алфавит, возникший из финикийского, со временем подвергается переделкам, приспосабливаясь к нуждам греческого языка. Прежде всего создаются особые знаки для обозначения гласных звуков греческого языка. Греки добавили гласные буквы и выработали свой алфавит, в котором - 24 буквы.
К 403 г. до н. э. греки уже имели алфавит из 24 букв (17 согласных и 7 гласных), который стал национальным письмом для всей Греции, а позднее и для Византии, получив название греческого классического алфавита.
Развитие письменности стало основой для развития мировой науки.
Большой вклад в развитие естествознания сделал афинский ученый V в. до н.э. – Демокрит. Он высказал свою мысль, что весь мир состоит из мельчайших частиц – атомов.
В математике всем известны имена нескольких греческих ученых.
Пифагор (6 в. до н.э) – известен в первую очередь теоремой о том, что квадрат гипотенузы прямоугольного треугольника равен сумме квадратов катетов.
Евклид (3 в до н.э) – написал первый теоретический трактат о математике, евклидову или элементарную геометрию мы все проходили в школе.
Архимед (3 в до н.э) – среди множества открытий самые известные – определение удельного веса, путем погружения тела в жидкость.

Гераклид Понтийский (4 в до н.э) – сообщал о вращении земли вокруг своей оси и выяснил, что Меркурий и Венера спутники Солнца.
Аристарх Самосский (3 в до н.э), предположил, что Земля и другие планеты вращаются вокруг Солнца – это за 1800 лет до Коперника и Галлилея!
Эратосфен (3 в до н.э) – первый расчитал длину окружности земли и не сильно ошибся, относительно современных данных. Он же разработал систему параллелей и меридианов.
В IV веке до н. э. жил величайший учёный древней Греции—Аристотель – составил зоологическую систему, а Теофраст ботаническую. Последнего называют отцом ботаники. Аристотель не только изучил все науки, существовавшие в древности, но и продвинул их вперёд. Аристотель был и выдающимся педагогом. Он основал в Афинах лучший в Греции гимнасий - высшую школу, в которой сам преподавал.
Учёные Греции создали труды по медицине, зоологии, ботанике, астрономии, математике.
Греческая культура создавалась за счёт жесточайшего угнетения рабов. Искусство и просвещение были доступны лишь меньшинству населения древней Греции. Для рабов Греция была тюрьмой, где им доставались только непосильный труд, побои и унижения.
На почве античной культуры впервые появились и стали развиваться категории научного мышления. Именно здесь были заложены те фундаментальные знания о мироздании, которыми пользуется современная наука. Любая наука так или иначе связана с этим великим Древний государством.

ИСТОРИЯ РАЗВИТИЯ МЕДИЦИНСКОГО РЕЦЕПТА

Мошконова Э. -1 к.
Руководитель - Н.А.Ткачёва

Рецепт — это письменное обращение врача к фармацевту о приготовлении и отпуске лекарственного средства. Термин «рецепт» происходит от латинского слова recipere (взять). Первые рецепты были написаны на глиняных табличках. При раскопках одного из древнейших шумерских городов — Ниппура в 1889 г. была найдена клинописная табличка с 15 рецептами. Ее текст записан на шумерском языке в конце III тысячелетия до н.э. Самую обширную информацию дает большой медицинский папирус Эберса (XVI век до н. э), найденный в 1872 г. в Фивах. Он называется «Книга приготовления лекарств для всех частей тела». Папирус Эберса содержит 900 прописей лекарств для лечения заболеваний органов пищеварения, дыхательных путей, уха, горла, носа, глаз, кожи. Заглавие каждого рецепта выделено красной краской, форма его, как правило, лаконична. Вначале стоит заголовок, например, «Средство для изгнания крови из раны», затем перечисляются составные части с указанием дозы, в конце дается предписание, например: «варить, смешать». Главный источник сведений о медицине Месопотамии - многочисленные клинописные таблички с текстами об искусстве врачевания. Одна из глиняных табличек, найденных археологами в Месопотамии, сохранила оттиск цилиндрической печати шумерского врача, жившего в XXIV в. до н.э. В одной из древнейших библиотек мира -- собрании клинописных табличек ассирийского царя Ашурбанипала (VII в. до н.э.) было найдено 33 таблички с текстами о целительном действии растений: горчицы,

пихты, сосны, груши, сливы, ивы, съедобного лишайника леконары. В состав лекарств включались также нефть, смола, молоко, поваренная соль, шерсть и части тела животных, панцирь черепахи, органы водяных змей. Библиотека Ашурбанипала содержала собрание заклинаний и описания обрядовых действий под общим названием «Когда в дом больного заклинатель идет». В древних заклинаниях часто соединялись вместе представления о происхождении мироздания, молитвенные формулы и лечебные рецепты.

ЗУБОВРАЧЕВАНИЕ В ДРЕВНЕМ РИМЕ

Полещук Ф. - 1 к.
Руководитель - Н.А.Ткачева

В Древнем Риме зубоврачевание не было выделено в качестве медицинской специализации, а являлось частью общемедицинской деятельности.

В латинском языке той эпохи отсутствовал термин, обозначающий врача, занимающегося зубоврачеванием. В Древнем Риме лечением и протезированием зубов занимались не только врачи, но и знахари, колдуны, цирюльники и ювелиры.

Для избавления от зубной боли вплоть до II века до н. э. римляне использовали настои и отвары растений, заговоры и ритуалы, но все же основным методом являлось удаление зуба.

В дошедших до нас письменных источниках времён императора Тиберия среди хирургических инструментов упоминаются щипцы для извлечения корней зубов. Далеко не все лекари сразу прибегали к удалению зубов. Известно о римлянине Корнелии Цельсе, жившем в первом веке нашей эры. Он не советовал своим пациентам удалять зубы. Сначала он прописывал им полоскания специальными растворами и окуривал рот больных благовониями. Если же больному не становилось легче, то Цельс удалял зубы. Но делал это более прогрессивным способом, чем современники. Кариозную полость лекарь заполнял нитками или заливал свинцом, подрезал десну, расшатывал зуб, а уж потом орудовал щипцами.

Новую страницу в истории зубоврачевания отрыл в I веке до н. э. римский врач Архиген, который впервые с лечебной целью вскрыл пульповую камеру зуба сверлом. Тогда же были описаны различия между пульпитом и периодонтитом. Сделал это знаменитый римский медик Клавдий Гален, после того как на собственном опыте наблюдал течение этих заболеваний.

В эпоху Римской империи практика изготовления вставных челюстей из различных материалов получила самое широкое распространение. Именно в это время в зубоврачевании сложилось некое разделение труда, когда конструкцию зубного моста прорабатывал врач, а исполнял конструкцию в металле и кости либо квалифицированный ремесленник, либо ювелир, если речь шла о работе с драгоценными металлами.

Вставные зубы и зубные протезы были доступны, конечно, только состоятельным гражданам Рима, но и этого было достаточно, чтобы в древнеримской сатирической литературе остались многочисленные «зубоврачебные следы».

СЕМАНТИЧЕСКИЕ СВОЙСТВА СЛОВА «ФОБИЯ»

Мамашокиров Д.- 1 к.
Руководитель - Н.А.Ткачева

Фобия - устойчивые патологические проявления различных страхов, разновидность навязчивых состояний (от греч. Phobeo - боюсь, phobia- обычно в составе сложных слов) устойчивая неприязнь и ненависть к чему-либо.

Синонимы: неприязнь, ненависть, отвращение, нетерпимость.

Антонимы: уверенность, бесстрашие, симпатия, любовь

Гиперонимы: болезнь; страх, чувство

Гипонимы: гидрофобия (аквафобия), гинекофобия (гинефобия, гинофобия), гомофобия (гомофобия), графофобия, декстрофобия, демонофобия (сатанофобия), дентофобия (одонтофобия), дерматопатофобия (дерматофобия, дерматосиофобия), зоофобия, инсектофобия (энтомофобия), канцерофобия и др.

Слово «фобия» прошло сложные трансформации в употреблении, и в настоящее время зачастую под «фобиями» понимаются не только патологические страхи, но и иррациональное резко отрицательное отношение к кому-либо, чему-либо. Некоторые слова из приведённых ниже, — неологизмы, по историческим причинам, имеющие словооснову -фоб- и обозначающие не фобии в клиническом смысле, а скорее иррациональное негативное отношение к чему-либо, не имеющее патологического характера. Например, таково происхождение слов ксенофобия, русофобия, юдофобия, гомофобия и т.д.

РОЛЬ ЛАТИНСКОГО ЯЗЫКА В ФОРМИРОВАНИИ ЕВРОПЕЙСКИХ ЯЗЫКОВ

Бондарь Б.- 1 к.
Руководитель: Н.А.Ткачева

Латинский язык -- явился языком-основой для новых национальных языков, объединяемых под общим названием романских.

К ним принадлежит итальянский язык, создавшийся на территории Апеннинского полуострова в результате исторического преобразования латинского языка, французский и провансальский языки, развившиеся в бывшей Галлии, испанский и португальский - на Пиренейском полуострове, ретороманский -- на территории римской колонии Реции (в части нынешней Швейцарии и в северо-восточной Италии), румынский -- на территории римской провинции Дакии (нынешняя Румыния), молдавский и некоторые другие, из которых следует особо отметить сардинский язык, как наиболее близкий к классической латыни из всех нынешних романских языков.

Например, глагольная система французского языка представляет дальнейшее развитие форм глагола, наметившееся уже в народной латыни. В период формирования французского литературного языка на него оказал сильное влияние латинский синтаксис, под воздействием которого сформировались во французской грамматике правила согласования и последовательности времен, обособленные причастные конструкции, инфинитивные обороты.

Значение латинского языка для постепенного и длительного формирования новых западноевропейских языков сохраняется и после падения Западной Римской империи (традиционная дата -- 476). Латинский язык продолжал оставаться языком государства и школы в раннефеодальном Франкском королевстве (сформированном в конце V века), поглотившем значительную часть территории Западной Римской империи; франкское государство, ставшее империей (Карл Великий принял в 800 титул императора), распалось в середине IX века (в 843) на самостоятельные государства Западной Европы -- Италию, Францию и Германию. Отсутствие в этих государствах в течение нескольких столетий национальных литературных языков заставляло прибегать в сношениях между ними к помощи латинского языка. На протяжении всех средних веков и позже латинский язык является языком католической церкви.

Наконец, латинский язык наряду с древнегреческим с давних пор до настоящего времени служит источником для образования международной общественно-политической и научной терминологии.

ВРАЧЕВАНИЕ В ДРЕВНЕЙ ГРЕЦИИ И РИМЕ

Попкова Р. - 1 к.

Руководитель – Н.А. Субачева

История хирургии, травматологии, анестезии - интереснейший раздел, заслуживающий особого внимания. Изучая большинство этих разделов, нам придется для понимания современного состояния проблемы возвращаться к историческим событиям. Невозможно изучить вопросы переливания крови, обезболивания, асептики и др., не представляя, как решали эти вопросы врачеватели в разные периоды истории.

История хирургии, травматологии, анестезии полна событий, носивших зачастую трагический характер, много ярких личностей определили своей деятельностью развитие этой отрасли медицины

Необходимость развития хирургии, анастезии, травматологии была связана со стремлением выжить. Древние люди оказывали себе и сородичам элементарную хирургическую помощь, изучали учения о повязках, хирургических аппаратах, лечении ран, переломов, вывихов, повреждений головы, в том числе и лицевого черепа, применяли мандрагорское вино при операциях и прижиганиях для снятия болей, а также при бессоннице.

ПЕРВЫЕ ЛЕКАРСТВЕННЫЕ СРЕДСТВА В МЕДИЦИНЕ ДРЕВНЕЙ ГРЕЦИИ И РИМ

Лазарева С. - 1 к.

Руководитель – Н.А.Субачева

На земле большое количество лекарственных средств разного происхождения, которые встречаются совсем в разных местностях и которые прошли долгий путь, прежде чем использоваться в клинике. Уже 800 лет назад до н. э в Древней Греции и Риме были известны многие из них, имели разные свойства и могли применяться для лечения. Опыт их использования накапливался веками и привел к созданию народной медицины.

В данной презентации я расскажу о лекарственных средствах Древней Греции и Рима, их пользе и о различном происхождение (минеральные, животные, растительные и из грибов)

ЭТИМОЛОГИЯ НАЗВАНИЯ НЕКОТОРЫХ АНАТОМИЧЕСКИХ ТЕРМИНОВ

Татарникова И. – 1 к.
Руководитель – Н.А. Субачева

Не является секретом, что все, кто изучал латинскую анатомическую терминологию в курсе изучения латинского языка или анатомии человека обращали внимание на большое количество и разнообразие терминов, используемых для описания структур тела человека. На данный момент согласно «Анатомической номенклатуре» принятой на тринадцатом Международном анатомическом конгрессе в Сан Пауло в 1989 году и опубликованной в 1998 году в организме человека выделяют порядка 7500 макроскопических структур. Следует отметить, что в конце девятнадцатого века для описания различных частей тела использовалось более с 50 000 терминов. Те же структуры были описаны под разными названиями, в зависимости от анатомической школы и национальных особенностей.

Термины, что используются сейчас можно разделить по происхождению на следующие группы:

1. Анатомические названия, отражающие античные представления об окружающем мире и его устройства.
2. Мифологизмы античного происхождения, и библеизмы, отражающие времена Средневековья.
3. Эпонимические названия - название явления понятия, структуры или метода по имени человека, впервые обнаружившего или описавшего их.

В настоящее время периодически собираются международные съезды анатомов, на которых систематически пересматривается, корректируется и обновляется анатомическая терминология. Термины по анатомии интернациональны, так как составлены на латинском языке с переводом на родной язык.

ЛИТЕРАТОРЫ ДРЕВНЕЙ ГРЕЦИИ И РИМА

Дашевский Н. - 1к.
Руководитель- Н.А. Субачева

Проиллюстрируем это следующим примером. Допустим, некто обладает двумя убеждениями (или, если угодно, принципами, или нормами). Согласно первому, он не должен убивать. Согласно второму, он обязан защищать родину. Как ему поступать в случае войны? Ведь, с одной стороны, став солдатом, он окажется в состоянии конфликта со своим убеждением о недопустимости убийства. С другой, отказавшись присоединиться к вооруженным силам, он войдет в противоречие с гражданским долгом по защите родины.

Как разрешить эту дилемму? Является ли одна из этих норм более фундаментальной, чем другая, и если да, то почему? Мыслящий человек должен понимать, в какой мере его участие или неучастие в вооруженных действиях будет вести к минимальным жертвам и насколько его

возможные поступки в подобных ситуациях согласовываются с его принципами. Чем дальше мы углубляемся в такие вопросы, тем больше мы философствуем, то есть мыслим по-философски.

Осознаем ли мы это или нет, но философские размышления пронизывают всю нашу повседневную жизнь. Если их выявление и уточнение осуществляется отдельным человеком, то они носят личностный характер. Однако одновременно они являются и всеобщими, поскольку с их помощью открывается все более глубокое и единое понимание человеческого мира.

Тоже самое касается и наших предков, тех самых философов, которые дали нам путь и наставление. На их рассуждениях и знаниях было построено наше, современное сообщество, которое растет и развивается благодаря их идеям и знаниям. Их легендарные фразы внушают мотивацию в людей и это даёт им силы двигаться дальше

ЛЕКАРСТВЕННЫЕ РАСТЕНИЯ РЕСПУБЛИКИ БУРЯТИЯ

Ванжилова С. -1 к.
Руководитель – Н.А. Субачева

Республика Бурятия – уникальное заповедное место. На многочисленных сопках, высоко в горах, на побережьях Байкала растут неведомые для других российских регионов лекарственные травы.

Целебные растения собирают рядом с Улан-Удэ, на хребтах Хамар – Дабан и Улан – Бургасы, в Забайкальском крае, Иркутской области и пустынях Кяхтинского района. На данный момент введен запрет на посещение лесов, но, тем не менее, есть разрешенные места.

Республика Бурятия обладает громадными природными запасами и большим научным потенциалом для разработки и широкого применения средств растительного происхождения в терапии социально – значимых заболеваний.

Одним из важных и перспективных направлений в решении данного вопроса является фитотерапия, как основа для более широкого и разностороннего развития традиционной тибетской медицины Бурятии.

ИЗ ИСТОРИИ ПРОИСХОЖДЕНИЯ ХИМИЧЕСКИХ ЭЛЕМЕНТОВ

Донгак А. – 1 к.
Руководитель - Л.И Шпильчук

Вселенная практически полностью состоит из темной энергии и темной материи. Обычного вещества совсем немного, и в основном это водород и гелий — два самых легких элемента таблицы Менделеева образовались после Большого взрыва. Двести лет назад ученые заметили, что соли металлов окрашивают пламя в разные цвета. От поваренной соли пламя становится желтым, а от кальция красным. Оказалось, что у каждого элемента есть свой собственный спектр, который можно наблюдать из далека. Изучая спектр солнца во время затмения в 1968 году, сразу несколько астрономов заметили неизвестную полосу в желтой области. Это был Гелий, первый элемент, который был обнаружен в космосе чем на земле. К середине 20 века

астрофизики уже нашли в звездах десятки элементов. Удивительно что в самых больших звездах красных гигантах, впервые обнаружили недолговечный элемент. Это был радиоактивный элемент Технеций, он не имеет стабильных изотопов и живет не долго - миллионы лет, а значит появился значительно позже рождения звезд. Так стало ясно, что многие тяжелые элементы являются продуктом термоядерных и ядерных реакций звезд, они присутствуют в них изначально.

Звезда похожая на солнце сперва сжигает водород, затем он превращается в гелий. Водородного топлива становится меньше, гравитация сжигает звезду, температура растет и после как оно достигает 100 млн градусов начинает гореть гелий и из него получается углерод и кислород – основа земной жизни. Чем дальше находится элемент в таблице Менделеева, тем сложнее синтезировать его в термоядерных реакциях. Поэтому железо и никель образуются только в больших звездах, а следующие элементы только в очень больших звездах. В космическое пространство они попадают, когда звезда взрывается сверхновой. Большинство элементов в составе земли имеет звездное происхождение. Солнечная система была загрязнена выбросами уже вспыхнувших сверхновых звезд. А гелий появился не во время большого взрыва и не в ядре звезды, а это всего лишь продукт распада урана на нашей планете.

ЛАТИНСКИЙ ЯЗЫК В ИСТОРИЧЕСКИХ ПАМЯТНИКАХ ЛЕКСИКИ ВЫСШЕЙ ШКОЛЫ, В ПОСЛОВИЦАХ И ИЗРЕЧЕНИЯХ

Носов К. – 1к.
Руководитель: Л. И. Шпильчук

Латинский язык относится к числу так называемых мертвых языков, т.к. уже давно ни один народ мира на нем не разговаривает. Но в истории мировой цивилизации влияние латинского языка сохраняется и сегодня.

В современном мире мы часто сталкиваемся с пословицами, поговорками и специальными выражениями на латинском языке: цитаты античных и средневековых авторов в научной, публицистической и художественной литературе.

В данном докладе будет разобрано тема употребления конкретных латинских выражений, пословиц и изречений, которые наиболее часто звучат в повседневной и профессиональной жизни людей.

ОЛИМПИЙСКИЕ ИГРЫ В ДРЕВНЕЙ ГРЕЦИИ

Анпилогов Р. – 1 к.
Руководитель – Н.А. Субачева

Каждый из нас хоть раз в жизни слышал об олимпийских играх и, наверное, задавался вопросом: «Как и когда они произошли?».

Знаменитые Олимпийские игры были в эпоху античности не единственными. Они входиди в состав Панэллинских игр, которые также включали: Игры в Дельфах (Пифийские игры), Игры в Коринфе (Древнегреческие народные празднества), Игры в Немее (Немейские игры).

Эти Игры имели особое значение, так как объединили греческий мир в те времена, когда Греция состояла из нескольких городов-государств. Из Греции и ее колоний люди прибывали, чтобы принять участие или посетить Игры, вдохновленные разделяемым всеми чувством принадлежности к одной культуре или религии. Все четыре из Панэллинских игр никогда не проводились в течение одного года. Трудно определить, что послужило причиной зарождения этих Игр. Мифология перемежается с историческими фактами, а события, происходившие в те времена, часто объясняются как следствие божественного промысла. Истоки первых олимпиад теряются в древности, но в 776 г, до н. э. на мраморной доске впервые было записано имя победителя в беге, поэтому принято считать именно этот год началом исторического периода Олимпийских игр, которые входили в состав

Местом Олимпийских празднеств была священная роща Альтис в Олимпии. Все постройки - храмы, сокровищницы, стадион, ипподром - возведены в ровной долине. В храме Зевса Олимпийского находилась статуя бога, которая считалась одним из семи чудес света. В священную рощу съезжались тысячи зрителей. Помимо зрелищ состязаний атлетов, здесь заключались торговые сделки, проходили публичные выступления поэтов и музыкантов, выставки работ скульпторов и художников. С момента объявления священного месяца игр все враждующие стороны прекращали военные действия.

Известно, что в спортивных играх принимали участие лишь мужчины из числа свободных граждан, никогда не привлекавшиеся к суду и никогда не уличенные в бесчестных поступках. Женщины не допускались даже в качестве зрителей. В Древней Греции существовали следующие виды спорта: борьба, состязания бегунов на различные дистанции, метание копья, молота, диска, плаванье, кулачный бой, бег в полном вооружении, состязание колесниц, подъем тяжестей, панкратий (комбинация бокса и борьбы). Атлеты соревновались только обнаженными, чтобы продемонстрировать красоту своего тела. Правила запрещали убивать противника, прибегать к недозволенным приемам, спорить с судьями. Победители игр (олимпионики) награждались венками из дикой сливы, росшей около храма Зевса. В последний день праздника устраивалась торжественная процессия в честь победителей, а возвращение олимпионика в родной город превращалось в настоящий триумф. Весь город выходил ему навстречу, городские власти устраивали пир, а на площади возводили статую победителя: он становился национальным героем и в течение всей жизни пользовался уважением.

ЛАТИНСКИЙ ЯЗЫК ВОКРУГ НАС

Никанорова А. – 1 к.
Руководитель - Л.И. Шпильчук

Латинский язык относится к числу мёртвых языков, так как сейчас нет живого народа - носителя данного языка. История латинского языка восходит к началу первого тысячелетия до н.э. и принадлежит к италийской ветви индоевропейской семьи языков. Он называется именно так: Lingua Latina потому, что на нём говорили латины, населявшие небольшую область Лаций (Latium). Центром этой области в VIII веке до н.э. стал город Рим, поэтому жители Лация стали также называть себя «римляне» (Romani).

В XVII--XVIII вв. латинский язык приобрел большое значение. Тогда на нем велось преподавание во всех крупных университетах, где латинский язык начинает культивироваться и закрепляется как язык науки и философии. Но латинский язык был не только официальным языком политиков, дипломатов, юристов, медиков. Это был еще язык культуры и литературы. В наше время значения языка не утрачено. Сохранение научной латинской терминологии придает особое значение изучению латинского языка, как необходимого в практической работе, а не только как языка одной из древнейших культур. Поэтому хотя латинский и греческий языки и принято называть «мертвыми», однако для медицинских работников это живые языки, необходимые для повседневной работы. Со временем врачи и другие медицинские работники в профессиональном общении перешли на национальные языки, однако доминирование по-прежнему принадлежит греко-латинским элементам, словам и словосочетаниям, в первую очередь благодаря их универсальному национальному характеру, поэтому названия болезней, диагностик и лечений узнаются на любом языке. Поэтому является абсолютно очевидным, владение любым специалистом, работающим в области медицины, принципами образования и понимания латинской медицинской терминологии. Во всех медицинских науках: в анатомии, гистологии, эмбриологии, микробиологии, микробиологии, патологической анатомии и клинических дисциплинах, а также в фармакологии эта традиция номинации никогда не прерывалась и продолжается по сей день. Латинский язык в наше время помимо медицины используется во многих областях науки, например в ботанике и зоологии каждое животное или растение имеет соответствующее «стандартное» научное наименование, что позволяет ученым разных стран четко и недвусмысленно обозначать те или иные явления живой природы, которые имеют абсолютно непохожие названия на разных языках мира. Латинскими и латинизированными греческими словами и элементами слов пользуются все языки во всех областях жизни - от бытовых названий «BonAqua» и «автомат» до узконаучных научных терминов «Томограф», «Синхрофазотрон» и различной общественно-политической терминологии.

С XIX века начала складываться та ситуация, которая сохраняется и по сей день. Латинский язык почти повсеместно ушел из сферы светского образования и культуры. Но, наверно, неправильным будет сказать, что латинский язык исчез, потому что он так и остается основным языком медицины

КАНОНЫ КРАСОТЫ ДРЕВНЕЙ ГРЕЦИИ И РИМА

Горюнова А.-1к.
Руководитель – Н.А. Субачева

Красота во все времена обожествлялась людьми, вызывала восхищение и вдохновляла на подвиги. Каждая эпоха имела свое представление о женской красоте, которое эволюционировало с течением времени. Эталон женской красоты менялся с самого появления человека на земле. Взгляды на женственность и привлекательность базировались на нестабильной основе, которая зависела от религиозных и моральных устоев и веяния культурных ценностей. Во Древние времена красота человеческого тела была возведена

практически в религиозный культ. Ей поклонялись, боготворили и считали наибольшим даром и талантом. Эпоха античности является фундаментом и колыбелью цивилизации для современной Европы. От древних римлян и древних греков осталось очень богатое культурное наследие. Люди античной эпохи обладали прекрасным вкусом, они чтили красоту тела и красоту души, а также воспевали гармонию между внутренними и внешними качествами человека. При этом они допускали, что иногда за некрасивой внешностью может скрываться добродетель. А вот уродство моральное, по их мнению, всегда имело ужасную внешность. Например, Алкивиад, произносил хвалу внешности Сократа, которая была безобразной, но, под её уродливыми чертами скрывалась глубокая внутренняя красота.

Культура античной Греции воспринимается людьми всех следующих за ней эпох удивительно гармоничной и прекрасной. Достижения этой культуры были настолько значительны, что некоторые из них служат буквально «нормой и недосягаемым образцом» вплоть до наших дней. Нигде и никогда позднее человек не был представлен столь естественно-гармоничным и уравновешенно-прекрасным как в знаменитых поэмах Гомера и античной скульптуре. В этом и заключается актуальность рассматриваемой темы «Красота человеческого тела в Древней Греции».

ГЕММЫ АНТИЧНОГО МИРА

Беляева А. - 1 к.
Руководитель - Л.И. Шпильчук

Геммы – уникальное украшение древности. Сначала их создавали, чтобы облегчать быт, а со временем геммы превратились в настоящие произведения искусства и дорогостоящие ювелирные украшения.

В античности весьма своеобразно, по ассоциации с почками растений, «геммами» называли цветные камни узорчатой текстуры. Со временем — только те, которые отличаются блеском, твёрдостью, яркостью и насыщенностью окраски. Такие камни использовали в качестве украшений. Отсюда латинское слово «gemmeus» (сверкающий, блистающий, украшенный).

Настоящий бум глиптики (так называется изготовление гемм) начался в Древней Греции и Древнем Риме. Первые геммы появились в Эгейском мире в IV–III тысячелетии до н.э. Именно там мастера научились вырезать из камней фигурки, которые отражали самые разные сферы античной жизни: от литературы до политики.

МЕДИЦИНСКАЯ ТЕРМИНОЛОГИЯ – КОМПЛЕКС ТЕРМИНОЛОГИЙ МЕДИКО-БИОЛОГИЧЕСКИХ, КЛИНИЧЕСКИХ И ФАРМАЦЕВТИЧЕСКИХ ДИСЦИПЛИН

Ноздрачева А. - 1 к.
Руководитель - Л.И. Шпильчук

Выделяют три основные группы терминов.

Первая группа - анатомическая и гистологическая номенклатуры - включает гистологические и анатомические образования.

Вторая группа - Клиническая терминология - термины различных специальностей: терапии, хирургии, акушерства, гинекологии, неврологии, офтальмологии и психиатрии. Сюда же относятся наименования медицинских инструментов и приборов.
Третья группа - Фармацевтическая терминология - необходима для правильного выписывания и понимания рецептов. Относятся названия лекарственных форм и средств, органов растений и номенклатура на латыни.
В 1965г. Кафедрой гистологии 1 ММИ им. И. М. Сеченова был составлен проект международной гистологической терминологии на латинском языке.
Клиническая терминология.
Это все термины, с которыми студент-медик постоянно встречается на лекциях по различным клиническим дисциплинам, при разборе больных, при составлении истории болезни, при чтении учебников, статей и монографий.
Современная “Международная анатомическая терминология” утверждена на XV Международном анатомическом конгрессе в Риме в 1999г. Фармацевтическую терминологию международная организация здравоохранения установила в качестве “международного языка” для названий лекарственных средств на латинском языке.
Фармацевтическая терминология
Международная организация здравоохранения установила в качестве «международного языка» для названий лекарственных средств латинский язык.
Таким образом
латинизированные терминологические системы и в настоящее время продолжают развиваться в качестве вспомогательных международных знаковых систем в медицине, фармации, ботанике и зоологии.

ИСТОРИЯ ВРАЧЕВАНИЯ ДРЕВНЕГО РИМА И ГРЕЦИИ

Золина А. – 1 к.
Руководитель - Л.И. Шпульчук

Медицина всегда остаётся самой загадочной наукой во всем мире. Начиная с самого древнего мира и до сегодняшнего дня мы узнаем новое и новое. Рассмотрев тему врачевание в Древнем Риме и Греции я узнала много нового. Например, первым документально зафиксированным свидетельством о греческой медицинской практике можно считать сцену из Илиады Гомера, где описывается лечение раненых солдат в Троянской войне. Или из-за расширения армии за пределы Итальянского полуострова означало, что раненых больше нельзя было лечить в частных домах. По этой причине был открыт валетудинарий . Valetudinaria- были полевые госпитали или летающий военные лагеря и начал в качестве небольшого скопления палаток и крепостей , посвященных ранеными. История медицины всегда будет интересна и загадочна, потому что есть факты которые остаются не понятны до сих пор.

О МОЕЙ СТРАНЕ

Нпоча Стевен – 1к.
Руководитель – Л.И.Шпильчук

Le Bénin, pays d'Afrique de l'Ouest, couvre une superficie de 114 763 km2 et s'étend sur 700 km4 du fleuve Niger au nord jusqu'à la côte atlantique au sud. En 2021, la population du Bénin était de 12,5 millions d'habitants. Le pays est bordé par le Togo à l'ouest, le Nigeria à l'est, le Niger au nord-nord-est et le Burkina Faso au nord-nord-ouest.

Les armoiries du Bénin se composent de quatre parties et constituent un écu :

Dans le premier quart de l'écu, le château Somba Or est représenté ;

Dans le deuxième quart de l'écu se trouve l'Etoile du Bénin.

Au troisième quartier - Palmier vert aux fruits ¨Gueules¨

Au quatrième trimestre - un navire naviguant sur la mer d'azur.

Deux panthères dorées tachetées soutiennent les armoiries, et des épis de maïs émergent de deux cornes d'abondance sablonneuses.

Au bas des armoiries on peut lire la devise : Fraternité - Justice - Travail.

Le drapeau du Bénin est tricolore.

Le vert symbolise l'espoir d'un renouveau démocratique.

La couleur jaune est une incitation à préserver les trésors les plus riches du pays.

La couleur rouge rappelle le courage des ancêtres.

La République du Bénin, anciennement connue sous le nom de République du Dahomey, est un pays aux multiples facettes, un pays où différentes époques et mondes s'entremêlent avec de nombreuses attractions touristiques importantes. Voici quelques exemples d'attractions touristiques célèbres du Bénin:

1. PALAIS ROYAL - MUSEE HONME A PORTO-NOVO

Porto-Novo est la capitale de la République du Bénin. La ville abrite le musée Honme, qui était autrefois le palais du roi Toffa, qui fut le premier à signer un traité de protectorat avec les Français pour se protéger des attaques de son rival d'Abomey, le roi Béhanzin. Le musée Honmy est surtout célèbre pour ses collections, qui comprennent environ 230 objets, le reste est en réserve. Ils comprennent des objets religieux, des instruments de musique, de la poterie, des asen (sanctuaires portables), des meubles et des articles ménagers, des photographies de membres des familles royales et un buste en bronze du roi Toff.

2. MUSEE DE L'HISTOIRE DE OUIDA

Ancienne forteresse portugaise, lieu de transit des esclaves africains. Musée de l'Histoire de Ouidah - Musée du Bénin est situé dans la ville de Ouidah. Il est situé dans l'ancien fort portugais de Sant Jao Batista de Ajuda construit en 1721.

Le fort portugais San Jao Baptista de Ajuda a été construit en 1721. Ce fut un fort jusqu'en 1816 puis devint un messie catholique jusqu'à ce qu'il devienne une résidence en 1893 après l'introduction de l'État portugais.

Par décret du 13 novembre 1964, le fort est devenu monument historique. Il est en cours de restauration avec le soutien financier de la France et des États-Unis. Le musée est construit sur l'histoire de Ouida et a commencé ses travaux le 6 septembre 1967.
Le musée se compose de 11 salles qui abritent des objets et collections acquis par le musée depuis 1967, avec l'aide de partenaires étrangers ou lors de fouilles archéologiques.

3. Forêt de kpassè

Il est situé au centre de Ouida. Selon la légende, le roi Kpasse s'est miraculeusement transformé en un grand arbre au milieu de la forêt pour échapper à ses ennemis. Depuis lors, ce lieu est un sanctuaire spirituel qui protège la mémoire du fondateur de la ville, dont l'esprit repose dans ce mystérieux arbre séculaire. Il ressemble plus à un parc urbain qu'à une forêt. Il abrite diverses statues de dieux vaudous et leurs victimes et héros de contes sauvages et charmants. L'entrée principale est entourée de statues de léopards, ainsi que de l'emblème de la maison royale de Kpasse, qui symbolise le pouvoir.
La forêt est dominée par d'immenses arbres centenaires, accompagnés de sculptures sculptées représentant des divinités vaudous. On pense qu'un grand arbre est l'endroit où le roi Kpasse, le fondateur de Ouide, s'est transformé en arbre pour échapper à ses ennemis.

Dans la forêt sacrée de Kpasse se trouve Tolegba, le dieu de la fertilité.

4. PARC NATIONAL DE LA PENDJARI

Penjari Park fait partie de la plus grande réserve animalière d'Afrique de l'Ouest. Parc national de Penjari Nommé d'après la rivière Penjari, le parc national est célèbre pour sa faune et abrite certaines des dernières populations de gros gibier telles que les éléphants, les lions d'Afrique de l'Ouest, les hippopotames, les buffles et diverses antilopes d'Afrique de l'Ouest. Le parc est également connu pour son abondance d'oiseaux.
En mars 2009, ce lieu a été ajouté à la liste du patrimoine mondial de l'UNESCO.

5. la porte du non retour

Situé dans la belle ville de Ouidah, La Porte du non retour est l'un des sites touristiques de classe mondiale du Bénin, une arche commémorative en béton et en bronze. L'arche, située sur la plage, a été érigée en 1995 à l'initiative de l'UNESCO et marque la déportation de millions de captifs réduits en esclavage dans les colonies d'outre-Atlantique à la suite de la traite négrière. Construit à l'initiative de l'UNESCO, il est le principal porte-drapeau de l'histoire coloniale du Dahomey.

6. CHUTES DE TANonGU ET KOTA

Les cascades de Tanongu et Kota sont à 11 kilomètres du parc national de Penjari. La cascade de Tanugu est un joyau de la nature. D'une hauteur d'environ 20 mètres, c'est la plus grande chute d'eau du Bénin.

7. La médecine au Bénin

Au Bénin, il existe deux types de médecine: la médecine traditionnelle et la médecine moderne.

7.1. la médecine traditionnelle

Etroitement liée au vodun et au fa, la géomancie béninoise, les origines de cette médecine remontent à la fin du 19ème siècle avant la colonisation et elle est encore utilisée par la majorité de la population béninoise.

La médecine traditionnelle béninoise est la pratique de la médecine traditionnelle africaine caractérisée par des pratiques magiques, religieuses ou expérientielles, y compris les cultes liés au vaudou, ce qui la distingue de la médecine moderne.

Le traitement de la médecine traditionnelle béninoise est basé sur des substances animales, végétales ou minérales.

Les matériaux à base de plantes sont des connaissances locales populaires sur les utilisations médicinales de ces plantes, dont les enseignements ont été transmis de génération en génération.

En plus des matières d'origine végétale et animale, les médecines traditionnelles contiennent des ingrédients naturels d'origine minérale tels que le calcium, le sel et l'eau. Les bijoux en perles et coquillages, les objets en métal ou en terre cuite, les poupées en bois sont également utilisés par certains professionnels, comme les maîtres vaudous. De la même manière, grâce au règne animal, les éléments d'origine animale sont un autre ingrédient important dans la préparation de nombreux remèdes populaires. Des étals vendant des peaux d'animaux, des os, des animaux séchés ou vivants (reptiles, batraciens, tortionnaires, oiseaux, insectes, etc.) se retrouvent sur tous les marchés du Bénin.

7.2. La médecine moderne

La médecine moderne est également très importante au Bénin. Dans le cadre de la formation des médecins, le Bénin dispose de deux grandes universités pour la formation des médecins, infirmiers, pharmaciens et autres professionnels de santé. Le Bénin possède également de grands hôpitaux, dont les plus célèbres sont ceux où exercent les étudiants en médecine.

Des équipements de qualité à la pointe de la technologie sont utilisés par des professionnels avec le plus grand soin pour garantir des résultats médicaux .