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– MODERN CHALLENGES AND DEVELOPING PROSPECTS»,
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Abstracts were published in the alphabetical order of authors' last names.

Distinguished participants!

It gives me a great pleasure to welcome all of you to the Conference, which was organized with the support of Sumy State University! I would like to take this opportunity to express my sincere thanks to editorial board of “Wiadomości Lekarskie” journal which was gave the area for publication most outstanding scientific results of this medical forum.

Dear colleagues! I truly appreciate your scientific dedication and a wish to bring your knowledge to young doctors and medical professionals. I hope that everyone would take the results of this conference to their practice to ensure the quality and safety of healthcare system. The information learned here will be grant participants the knowledge to balance own medical practice and external experience.

Through this conference, I would like to involve all of you in an open and constructive dialogue about key medical problems. The number of actual and innovative publications will help you to become medical professionals. This conference is a good opportunity for us to learn together, to foster cooperation, to interchange ideas, and build capacity to get ready for any upcoming challenges.

My final message is for young medical scientists. Take advantage of this conference for absorbing and learning vast experience of older doctors which will help stimulate your future training and growth as outstanding persons in medical field.

In concluding, I also wish you every health and success!

Andrii Loboda

Director of Medical Institute,

Sumy State University, Sumy, Ukraine

Ladies and gentlemen!

It is not only a pleasure for me but also an honor to stand before you at the opening of the Conference. Although it is far from Warsaw to Sum, at the same time I feel that we are close together because we know each other not the first year and we cooperate with great success. It is thanks to you - our authors and through us through publications in “Wiadomosci Lekarskie” the medical world gets to know your research, your achievements, your interests and your scientific plans. The exchange of views, experience, knowledge and cooperation of doctors from various countries as well as mutual support have never been as important as now.

The experience of recent months has shown how important medicine is, how important a doctor, a nurse, and a paramedic are. But it must be an educated, wise, experienced and dedicated doctor.

Let the young learn, let the older with more experience teach the young. Medical sciences are developing very quickly and thanks to scientific research, technological progress new treatment options are emerging. Thanks to modern fast methods of communication, the use of uniform international standards, and open access to research results, they become available to everyone. This is happening all over the world, and so we are acting similarly.

Your participation in this Conference is a perfect example of the fact that you understand the role of knowledge exchange, that you want to participate in it and that, I hope, you will put into practice what you will learn today, tomorrow, and in the future from your teachers and your colleagues.

I wish you all fruitful proceedings.

Anna Łuczyńska

Director of ALUNA Publishing House,

Konstancin-Jeziorna, Poland

MICROBIOTIC LARGE INTESTINE DISORDERS IN INFANTS WITH COMMUNITY-ACQUIRED PNEUMONIA

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Introduction: In the last decade, changes in the gut microbiota, with various diseases of the respiratory system, have received much attention. According to scientific studies, the pathology of respiratory organs in children is often reflected in the balance of intestinal microflora. In addition, the use of antibacterial therapy in the treatment of community-acquired pneumonia (CA), even at therapeutic doses will lead to increased disturbances by microbiocenosis.

The aim: To study the state of quantitative composition of large intestine microflora in infants with CA.

Materials and methods: We have studied the microflora stability index (ISM), which is the number of the ratio of the total amount of bifid and lactobacilli to the number of total *Escherichia coli*, and normally exceeds 2.0 units. In parallel, the index of dysbiosis (ID), which consists of the ratio between autochthonous and allochthonous microorganisms of intestinal contents and in the norm is $-1,33 \pm 0,14$ units, was calculated.

Results: The study involved 42 infants within the age range from 1 month to 36 months who were treated in the infectious disease ward №1 of the Municipal Non-Profit Enterprise "Children's Clinical Hospital of Saint Zinaida" Sumy City Council with a diagnosis of community-acquired pneumonia. The studies were performed on the first day of admission to the hospital and after the cancellation of antibacterial treatment.

The survey was divided into two groups, based on the age of the infants. The first group - 20 infants from 1 to 12 months, the second group - 22 infants from 12 to 36 months. Studies have shown that infants of the first group of ISM before treatment averaged 4.69 ± 1.88 units, in the dynamics of treatment, this indicator almost did not change. At the same time, in the second group of patients the ISM was sharply reduced by 0.61 ± 0.54 before the start of antibacterial therapy and 0.05 ± 0.05 units - after it.

The results of the ISM count indicate dysbiotic disorders of the colon microbiome in infants of the second group, both before and after treatment with antibiotics. In infants under 12 months of age, the ISM index is higher than 2.0 units, both at the beginning of the disease and after the etiotropic treatment. It can be assumed that this indicator in infants of the first group was dependent on the type of feeding. Breastfeeding infants are known to be dominated by bifidobacteria and lactobacilli among the gut microbiota, and the growth of others is inhibited.

On the other hand, all subjects tested for treatment of CA pneumonia amounted to 1.19 ± 0.25 units, indicating the development of dysbiotic changes of the large intestine in infants of all groups on the background of the disease. The CA indicator continued to decline after the treatment.

Conclusions: Thus, both during the admission of infants to the hospital and after conducting etiotropic therapy, microbiological disturbances of the biocenosis of the colon occur, especially in infants older than 12 months. Therefore, given these studies, it is advisable to recommend to include drugs that normalize intestinal microbiocenosis in the scheme of treatment of the disease.

KEY WORDS: dysbiosis, intestinal microflora, the index of dysbiosis, the microflora stability index

ВПЛИВ РОДИНИ НА ФОРМУВАННЯ СВІДОМОГО СТАВЛЕННЯ ПІДЛІТКІВ ДО ВЛАСНОГО ЗДОРОВ'Я

THE FAMILY'S INFLUENCE ON THE FORMATION OF THE ADOLESCENT'S CONSCIOUS ATTITUDE TO OWN HEALTH

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Вступ: Самооцінка - це ставлення людини до себе. Вона формується на основі власного досвіду - успіхів і невдач, а також залежить від ставлення інших людей. Здатність реально оцінювати себе і позитивно ставитися до себе та своїх життєвих перспектив дуже важлива для здоров'я людини, а особливо підлітків, оскільки ця фаза зростання відноситься до критичних періодів розвитку. У більшості випадків підлітки не знають, що вони мають можливість самі, з власної волі, змінити своє самопочуття, емоції, поведінку, мислення, формувати свою особистість та впливати на стан свого здоров'я. Дотепер процес формування здорового способу життя підростаючого покоління ідентифікувався переважно лише з фізичним вихованням, що суттєво спотворювало наявну ситуацію. Важливим фактором формування, збереження і зміцнення здоров'я, ефективної соціальної адаптації підлітків в оточуючому середовищі є родина.

Мета: Гігієнічна оцінка впливу родини на формування свідомого ставлення підлітків до власного здоров'я.

Матеріали і методи: Було проведено анонімне анкетування 1025 дітей (492 хлопців та 506 дівчат) 15-17 років, учнів дев'ятих класів ЗНЗ України. Данні зібрані за допомогою опитувальника «Методика оцінки впливу близького соціального оточення на суб'єктивне сприйняття власного здоров'я підлітками». Соціально-гігієнічний

опитувальник містив як альтернативні, так і рейтингові питання. Статистичний аналіз був проведений з використанням ліцензованих пакетів Excel, SPSS-17.

Результати: Серед учнів питома вага неповних сімей становила 24,7% (у родинях хлопців дещо вище, ніж в родинях дівчат, відповідно 25,3% і 23,8%, ($p > 0,05$). Як показує опитування, лише 57,8% дітей не мають проблем у спілкуванні з батьком та 53,3% учнів спокійно спілкуються з матерями, хлопці на 10% частіше звертаються до батька, ніж дівчата, а на допомогу матері завжди розраховують і хлопці 84,2% і дівчата 85,4%. 60,88% ($p=1,53$) учнів ніколи не пробували палити, а 6% дітей палять постійно. Дівчата з низькою самооцінкою та хлопці з високою самооцінкою спробували палити і відмовилися. Вживають наркотичні речовини 1,87% ($p=0,42$) опитаних. 74,9% зовсім не мають, чи не бачать ризиків для формування шкідливих звичок, 17,9% дітей вважають поведінку безпечною, але з певними ризиками щодо формування шкідливих звичок і лише 2% опитаних серйозно занепокоєні безпечністю своєї поведінки щодо шкідливих звичок.

Висновки: Підлітковий вік – є найособливішим періодом у психоемоційному та фізіологічному аспекті. Для підлітків характерні експериментування, бажання випробувати свої можливості та деякі звички краще ніколи не опановувати. Найбільшою групою ризику щодо формування шкідливих звичок серед учнів, які завершують навчання у основній школі, слід віднести осіб із крайніми станами самооцінки: хлопців зі зниженою самооцінкою, та дівчат дуже самовпевнених. Наявність визначених чинників ризику є важливою з позицій подальшого прогнозу здоров'я зростаючого покоління.

КЛЮЧОВІ СЛОВА: підлітки, самооцінка, вплив родини, шкідливі звички.

KEY WORDS: Adolescents, Self-Assessment, Family's Influence, Bad Habits

ANALYSIS OF PREVALENCE AND ANTIBIOTIC SUSCEPTIBILITY OF *ESCHERICHIA COLI* DIFFERENT SEROTYPES ISOLATED FROM PATIENTS WITH INTESTINAL INFECTIONS

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Introduction: *Escherichia coli* is a group of bacteria that normally habited in the intestines of humans and warm-blooded animals. Most strains of *E. coli* are not harmful for them, but some strains are pathogenic causing gastrointestinal infections. Nowadays, more than 700 different serotypes of *E. coli* have been identified and divided into different serotypes according to their O-antigens. Pathogenic strains of *E. coli* are divided into six groups (enterotoxigenic, enteropathogenic, enteroinvasive, enterohemorrhagic, enteroaggregative and diffuse-adhering) based on their mechanisms of effect intestinal epithelial cells.

Increasing of antimicrobial resistance among microorganisms, include *E. coli*, cause interest and concern in scientists and practices in each country of the world. It has been reported increasing rates of *E. coli* resistance in both developed and developing countries. Also it is known that isolates of *E. coli* of different serotypes isolated from different clinical or environmental sources and geographic regions can have significant differences in antibiotic sensitivity.

The aim: Was to determine the prevalence and antibiotic sensitivity profiles of different serotypes of *E. coli* from clinical material of patients with intestinal infections in Sumy Region of Ukraine.

Materials and methods: A total of 120 samples were collected for investigation in the period 2017–2019. The work was performed in the Regional Medical Microbiology Laboratory (Sumy, Ukraine) for the presence of different serotypes of *E. coli*. All samples were analyzed by standard microbiological methods and positive isolates were characterized for their antimicrobial resistance by disc diffusion method to 10 antibiotics. Results of this method were evaluated according to Guidelines for Susceptibility Testing of Microorganisms to Antimicrobial Agents.

Results: Of the 120 isolates, 78 were positive for *E. coli*. The highest number of isolates during the study were identify serologically as enteroinvasive *E. coli*: 0144 – 31 isolates (39,74%), 0151 and 0143, that were detected in 10,26% (8 isolates) and 6,41% (5 isolates) respectively. Other serotypes of *E. coli* were enterohemorrhagic *E. coli*: 0111 – 5,13% (4 isolates); 0138 – 2,56% (2 isolates), enteropathogenic *E. coli*: 0127 – 6,41% (5 isolates); 0119 – 5,13% (4 isolates), enterotoxigenic *E. coli* isolates were in 2 – 3% (0 20 and 025). Also septicemic *E. coli* (018 – 10,26% (8 isolates)) and neonatal meningitis causing *E. coli* (075 – 8,97% (7 isolates)) were identify.

Our results are demonstrated, that most of *E. coli* isolates (95.6%) had the highest sensitivity to cefotaxim, ceftriaxon, ceftazidim, cefuroxime and meropenem. But antibiotic sensitivity of different O-serotypes of *E. coli* showed a low sensitivity to ceftazidim (0 111 – 49,6%; 0144 – 12,5%; 0151 – 2 isolates were resistant). One isolate of *E. coli* serotype 020 was resistant to ceftriaxon, other isolate of serotype 025 – to cefotaxim and one more isolate of serotype 0125 – to cefuroxime.

Conclusion: The high sensitivity of 95,6% *E. coli* isolates was shown to β -lactams (cefotaxim, ceftazidim and meropenem). Some isolates (3,7%) were intermediate to these antibiotics. The information obtained from the present study is useful for understanding the of prevalence of *E. coli* and its antibiotic sensitivity can be useful for the local and national monitoring or for designing specific control programs of antibiotic resistance of infection which caused by different serotypes of *E. coli*.

KEY WORDS: *E. coli*, O-serotypes, antibiotic susceptibility

HEALTH PROMOTION OPPORTUNITIES FOR STUDENTS THROUGH THE USE OF MODERN INFORMATION AND COMMUNICATION CHANNELS

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Introduction: Among the 10 key operational public health functions identified by WHO in the European Action Plan for Strengthening Public Health Capacities and Services, emphasis is made on the function of informing, awareness raising, communication and social mobilization for health. This function aims to create opportunities to access, understand and use information to promote health and reduce the risk of disease among the general population and specific target groups. The choice of communication channels should take into account the peculiarities of these groups, and ensure effective health promotion to adapt to those sources of communication that are most trusted by the target group. Particular attention should be paid to the group of university students who are in the process of forming a lifestyle and are the largest consumer of information of modern communication channels.

The aim is to determine the optimal information and communication channels to promote health among students.

Materials and methods: The study was based on sociological, statistical methods and the method of system analysis. A sociological survey was conducted with the help of a specially designed questionnaire on 25 questions and covered 330 students of the Uzhhorod National University.

Results: An analysis of the responses identified three social networks that are most used by respondents: Instagram (90,8%), Telegram (53,1%) and Facebook (40,2%). Health and beauty issues ranked second in priority among students after watching feature films online, 50.3% of respondents said. Only 33.4% of the survey participants indicated the topic "Sport and Fitness". According to students, Instagram (72.2%), Facebook (64.2%) and Telegram (36.7%) should be used to promote health among youth. At the same time, only 43.4% of the students surveyed want reliable information about health and healthy lifestyles from social networks. Half of the study participants (55%) cited the websites of well-known physicians as the desirable source of such information, slightly less (47.1%) referred to official health care sites. It should be noted that most students are interested in information about nutrition (73.7%), physical activity (61.8%), rest and sleep (59.6%) and safe sexual behavior (41.6%).

Conclusions: For young students a high level of Internet usage is characteristic; in particular, they typically browse information and communication channels devoted to health and a healthy lifestyle. Therefore, successful health promotion for the specified target group is possible through the provision of reliable information when using priority social networks (Instagram, Facebook, Telegram), websites of famous doctors and official sites of healthcare institutions. The results of the study allow us to plan and develop effective health promotion measures among the target group of population

KEY WORDS: health promotion, information and communication channels, students

DEPENDENCE OF CLINICAL AND LABORATORY CHANGES IN CHRONIC VIRAL HEPATITIS C ON THE DEGREE OF FIBROSIS

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Introduction: Viral lesions of the liver progress from inflammation to the development of fibrosis and cirrhosis. The degree of liver fibrosis is important for determining therapeutic tactics and follow-up.

The aim: To study the peculiarities of changes in hematological and biochemical parameters from patients with chronic viral hepatitis C (CVHC), their dependence on the degree of fibrosis, establish correlation between them and values of non-invasive methods of calculation of liver fibrosis.

Materials and methods: 287 patients with CVHC were examined, divided into groups according to the degree of fibrosis (F0 (n = 51), F1 (n = 43), F2 (n = 90), F3 (n = 24), F4 (n = 79)) and 55 healthy individuals (comparison group). The degree of fibrosis was calculated by METAVIR (grades the stage of fibrosis on a five-point scale), FIB-4 (Fibrosis-4), APRI (AST to Platelet Ratio Index). Statistical processing was performed in Microsoft Office Excel 2013 and IBM SPSS Statistic 23 software.

Results: Among the patients, the greatest number were persons with moderate (F2) fibrosis, male. With increasing fibrosis, the age of the patients increased ($p < 0.05$). Most had the 1b genotype and minimal activity.

Direct correlations were found between the degree of fibrosis (F) by METAVIR and FIB-4 ($p < 0.05$), FIB-4 and APRI ($p < 0.05$) and the trend toward correlations between F (METAVIR) and APRI. There was a direct correlation between F (METAVIR), APRI, FIB-4 and age, BMI ($p < 0.05$).

A direct proportional correlation was established between the results of all non-invasive methods and edematous ascites syndrome, telangiectasia, enlargement of the spleen; between F (METAVIR), FIB-4 with asthenovegetative syndrome, and between F (METAVIR), APRI and liver enlargement ($p < 0.05$).

Established inversely proportional correlation between the results of all methods for assessing the degree of fibrosis and the level of platelets; between APRI, FIB-4 and leukocyte count; FIB-4 and erythrocyte count ($p < 0.05$). Direct relationships were observed between APRI, FIB-4, and ESR ($p < 0.05$). Data from all three methods correlated directly with total bilirubin; F (METAVIR) was inverse and APRI, FIB-4 was direct with ALT, AST, and GGTP ($p < 0.05$). Also, F (METAVIR) scores had a direct correlation with AIPh and FIB-4 correlated with de Ritis factor ($p < 0.05$).

Conclusion: With the increase of the degree of fibrosis in patients, the detection of edema-ascitic, asthenovegetative syndrome, telangiectasia, enlargement of the spleen and liver became more frequent. The number of platelets, leukocytes and erythrocytes decreased, but the ESR and the bilirubin content increased. A connection was made between ALT, AST and GGTP and F (METAVIR), and a direct connection was made between APRI, FIB-4. F (METAVIR) had a direct correlation with AIPh, and FIB-4 correlated with the de Ritis factor.

KEY WORDS: fibrosis, liver, hepatitis C

LYME DISEASE IN UKRAINE

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Introduction: Lyme disease (A69.2) is an infectious transmissible natural focal disease caused by spirochetes of *B. burgdorferi* s. l. complex characterized by predominant lesions of the skin, musculoskeletal system, heart and nervous system, prone to protracted recurrent development and ability to chronization.

The epidemiological situation of Lyme disease (LD) in Ukraine remains difficult. The increasing number of cases of the disease indicates the mass spread of pathogens and is relevant for the analysis of morbidity rate for this disease.

The aim: To analyse and study the epidemiological features of Lyme borreliosis in Ukraine.

Material and methods: The state statistical reporting form (f. No. 1) in the period from 2017 to 2019; materials of Sumy Regional Laboratory Center of the Ministry of Health of Ukraine; data on medical records of patients treated at SRICH (Sumy Regional Infectious Clinical Hospital) were used.

Results: In 2018 the epidemiological situation with LD in comparison with previous years got worse. The morbidity rate since 2017 (9,36 per 100 thousand of the population) has grown almost one and a half times (in 2018 it was 12,78 per 100 thousand). Exceeding average rates are registered in Cherkasy (41,46), Vinnytsia (32,65), Kyiv (30,08), Sumy (23,04) regions. The peak of tick activity in Ukraine is recorded in May which increased 4,23 times in comparison with 2017. The biggest percentage of the sick persons falls on the able-bodied population causing significant losses to the state.

Incidence of this disease among rural residents increased 3,48 times. Morbidity among city residents in 2017 amounted 95,18% and in 2018 - 82,87% correspondingly. According to gender specifications women prevailed at the ratio 1,68:1 (2017 - 1,57:1). Laboratory diagnostics was performed for 4328 patients, a positive result was obtained in 80,7%. The greater number of people affected by the tick had consulted infectious disease physicians (92, 82%). According to the Public Health Center of the Ministry of Health of Ukraine, infectious morbidity for the 11 months of 2018 amounted to 12,3 per 100 thousand of the population, in 2019 there is a tendency to decrease (10,1 per 100 thousand).

Conclusions: Lyme borreliosis morbidity in Ukraine tends to increase. Its decrease in 2019 is likely connected with diagnostic mistakes caused by the lack of awareness of primary care physicians with this nosology.

KEY WORDS: Lyme borreliosis, morbidity, tick activity

EFFICIENCY OF TREATMENT OF JAW MINERALIZATION DISORDERS IN WOMEN WITH ESTROGEN IMBALANCE

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Introduction: Estrogen imbalance in women affects dental health and leads to the occurrence of osteoporosis of bones and demineralization of hard tooth tissues.

The aim: To improve the effectiveness of treatment and prevention of bone osteoporosis and demineralization of hard tooth tissues in females with estrogen imbalance.

Materials and methods: Clinical and laboratory studies were carried out in female patients aged 45-60 years with confirmed estrogen dysfunction. 3 groups of patients were selected for the study (20 females in each): the control group – the patients receiving no additional treatment, experimental group 1 – the patients receiving general therapy with complex calcium medicines, experimental group 2 – those who received general therapy of complex calcium medicines combined with aminobisphosphonates. Three 4-week courses of treatment with four week intervals between them were administered. To quantify bone density of the jaws by computed tomography method, X-ray attenuation scale, called the Hounsfield scale was used. Bone tissues of the jaws were studied using 3D cone beam computed tomography scanner Planmeca ProMax. Planmeca Romexis[®] software was used for data processing and interpretation. The level of serum acid phosphatase was determined by Bessey-Lowry-Brock method based on enzymatic hydrolysis of p-nitrophenyl phosphate. The analysis of statistical data was performed using the method of the Student parametric criterion according to the principle of variation statistics. Values of $p < 0.05$ were considered statistically significant.

Results: At the beginning of the study, significant bone demineralization and increased level of acidic phosphatase were revealed in all groups of women. Mandibular mineralization index was rather low: 1495 ± 89 HU in the control group, 1488 ± 75 HU in experimental group 1 and 1479 ± 84 HU in experimental group 2 (normal value – 1600-1700 HU, $p < 0.05$). All patients were found to have significantly increased level of acid phosphatase: 6.75 ± 0.29 IU/l, 6.81 ± 0.56 IU/l, 6.79 ± 0.73 IU/l, respectively (normal value – 0-5.5 IU/l, $p < 0.05$). In 6 months of treatment the Hounsfield index and the level of acidic phosphatase in the control group were almost unchanged; in experimental group 1 – 1571 ± 44 HU and 4.93 ± 0.26 IU/l ($p < 0.05$); in experimental group 2 – 1701 ± 48 HU and 2.43 ± 0.18 IU/l ($p < 0.05$). Having analyzed the results, the conclusion was made that complex of calcium

phosphate and vitamin D₃ used for 6 months improved bone tissue mineralization of the jaws by 5.28% and reduced the activity of acid phosphatase by 27.6%. At the same time, complex therapy consisting of calcium phosphate medicines with vitamin D₃ and aminobisphosphonates increased bone mineralization by 13.05% and reduced the activity of acid phosphatase by 64.2%. Increase of bone mineralization by more than 10% is considered to be an excellent result.

Conclusions: Combined therapy consisting of calcium phosphate with vitamin D₃ and aminobisphosphonates increased bone mineralization by 13.05% and reduced the activity of acid phosphatase by 64.2%. This therapeutic complex results in decreased destruction of bone and enhances remineralization of hard tooth tissues. Therefore, it can be recommended for treatment and prevention of osteoporosis in women with estrogen imbalance.

KEY WORDS: osteoporosis, jaw mineralization, estrogen imbalance, Hounsfield index

ГЕМОДИНАМІЧНИЙ ІНСУЛЬТ У ПАЦІЄНТІВ З ЕКСТРАКРАНІАЛЬНИМИ АТЕРОСКЛЕРОТИЧНИМИ СТЕНОЗАМИ СОННИХ АРТЕРІЙ

HEMODYNAMIC STROKE IN PATIENTS WITH EXTRA-CRANIAL CAROTID ARTERY DISEASE

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Вступ: Екстракраніальні атеросклеротичні стенози сонних артерій являються значним фактором ризику розвитку ішемічного інсульту, основний механізм якого атеротромбоз-атероемболія крупних гілок інтракраніальних артерій. Такий інсульт відповідає патогенетичному підтипу атеротромботичного інсульту згідно критеріїв TOAST. Але у частини хворих при нейровізуалізації зона інфаркту не відповідає судинній території великої артерії і розташована у зонах суміжного кровопостачання. Такі ознаки інфаркту мозку підтверджують гемодинамічний механізм його розвитку, який при тяжких екстракраніальних стенозах або оклюзії внутрішніх сонних артерій пов'язаний з недостатньою перфузією в дистальних гілках.

Мета: Оцінити частоту розвитку гемодинамічного і атеротромботичного інсультів у пацієнтів з екстракраніальними атеросклеротичними каротидними стенозами. Матеріали і методи: У дослідження залучені 44 пацієнта з екстракраніальними атеросклеротичними каротидними стенозами, які перенесли ішемічний інсульт, (чоловіки – 35, жінки – 9, середній вік 58,4 років). Усім пацієнтам проводилось нейровізуалізаційне обстеження головного мозку за допомогою комп'ютерної або магнітно-резонансної томографії і ультразвукова доплерографія екстракраніальних артерій за допомогою сканера «MINDRAY DC-40» з функцією дуплексного сканування, ступінь стенозу внутрішньої сонної артерії визначали за методикою ECST. 12 пацієнтам була виконана каротидна ендартеректомія на іпсилатеральному боці, у 7 пацієнтів у зв'язку з оклюзією внутрішньої сонної артерії був накладений екстра-інтракраніальний мікро-анастомоз.

Результати: Судинними факторами ризику у обстежених хворих були: артеріальна гіпертонія – у 39 (88.6%), куріння у 20 (45.4%), індекс маси тіла ≥ 25 у 29 (65.9%), цукровий діабет у 4 (9.1%), гіперхолестеринемія $>5,0$ ммоль/л у 31 (70.4%). За ступенем іпсилатерального каротидного стенозу розподіл пацієнтів здійснювався таким чином: помірний стеноз 50-69% - 23 (52.2%), тяжкий стеноз 70-99% - 9 (20.4%), оклюзія – 12 (27.7%).

У 23 (52.3%) пацієнтів клінічні та нейровізуалізаційні ознаки відповідали ознакам атеротромботичного інсульту з розвитком інфаркту мозку в великих гілках середньої мозкової артерії з ураженням лобно-скроневи́х або скронево-тім'яних часток мозку. У 21 (47.7%) пацієнтів ішемічний інфаркт виявлявся у зонах суміжного кровопостачання інсилатерально стенозу. Механізм інсульту у таких випадках розцінювався як гемодинамічний. Серед них інфаркти в глибокій внутрішній зоні між глибокими і поверхневими гілками середньої мозкової артерії над боковими шлуночками спостерігались у 12 (57.1%), пацієнтів, в передній зоні між середньою і передньою мозковими артеріями у лобно-парасагітальній області – у 9 (42.9%) пацієнтів, у 1 (4.7%) пацієнта ділянки ішемії спостерігались як у передній, так і у задній зоні суміжного кровопостачання між середньою та задньою мозковими артеріями утім'яно-потиличній ділянці. Оцінка тяжкості каротидного стенозу в залежності від підтипу ішемічного інсульту показала, що стеноз 50-69% виявлений у 9 (20.4%) пацієнтів з атеротромботичним інсультом і у 14 (31.8%) з гемодинамічним, тяжкий стеноз 70-99% - у 4 (9.1%) пацієнтів з атеротромботичним і у 5 (11.3%) з гемодинамічним, оклюзія – у 10 (22.7%) та у 2 (4.5%) відповідно.

Висновки: У пацієнтів з екстракраніальними атеросклеротичними каротидними стенозами гемодинамічний інсульт спостерігався в значній частині випадків – 47.7%. Гемодинамічні інфаркти частіше розвивалися в глибокій внутрішній зоні, декілька менше за частотою в передній зоні суміжного кровопостачання. Суттєвої різниці в розвитку атеротромботичного чи гемодинамічного інсульту при помірному і тяжкому стенозі не виявлено, але при оклюзії частіше розвивався атеротромботичний інфаркт мозку. Гемодинамічний інсульт є чутливим маркером, що підтверджує недостатність перфузії в зоні кровопостачання внутрішніх сонних артерій при атеросклеротичному каротидному стенозі та необхідність уваги до запобігання гіпотензії та гіповолемії при веденні таких пацієнтів.

КЛЮЧОВІ СЛОВА: екстракраніальний атеросклеротичний каротидний стеноз, атеротромбоз, гемодинамічний інсульт.

KEY WORDS: extra-cranial carotid artery disease, atherothrombosis, hemodynamic stroke

PUBLIC HEALTH AS SOCIAL SIGNIFICANT PROBLEM OF MODERNITY AND OBJECT OF MANAGEMENT

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Introduction: In the context of the restructuring of the country's territorial structure on the basis of decentralization of power, the restructuring requires the management of social institutions, one of the tasks of which is to ensure public health in general, and at the territorial level in particular.

The aim: To form an effective mechanism of functioning of public health at the territorial community level through the cooperation of social institutions (health care system, education, social protection).

Materials and methods: methods of system analysis and synthesis, bibliographic, data collection and analysis, generalization methods.

Review: In the context of ensuring the effective functioning of the public health care system, the issue of the willingness of local authorities, the community and the social institutions to address this problem is crucial.

The formation of modern public health theory and practice is based on the implementation of the following principles: collective responsibility for health; the role of the state in the protection of citizens' health; coverage of all population groups; taking care of major socio-economic factors that affect health.

We have analyzed the state of public health practice at the territorial level, namely: the interaction of professionals from different sectors of the social institutions (health care system, education, social protection) and heads of the united territorial communities (UTC). It is revealed that one of the obstacles to establishing close relationships in work is the cross-sectoral and interdepartmental barriers, through which the activities of the subjects are disconnected and sometimes insufficiently known to specialists working in related agencies, which is a significant obstacle to the implementation of parity professional communication and cooperation. This is mainly manifested in the absence of a single information base on the needs of people living in the territory of the UTC, and it does not allow the management of social institutions and the UTC management in a timely manner, to make preventive decisions that directly affect the quality of public health care of both adults and children.

The first attempt to form an effective mechanism for the functioning of the system of social institutions has already been proposed in 2011 in our previous publications. The study of modern management practices has shown that some issues of functioning of social institutions need further elaboration.

Conclusions: We propose: *first*, to introduce a self-management element in the field of health care at the level of the UTC residents; *secondly*, to improve the mechanism of training specialists in different branches of the social institutions and managers; *thirdly*, to create an information portal with information on the specific needs of the local population at the UTC level. This will make it possible to provide a list of services that will be provided by social institutions within the UTC, including for children currently in the category of people with special educational needs, as they require compulsory medical support during their stay in educational institutions.

KEY WORDS: public health, communities, specialist training, self-management

INFLUENCE OF THE TYPE OF EDENTULOUS MANDIBLE ATROPHY ON THE DISTRIBUTION OF STRESS-STRAIN STATES AFTER DENTAL PROSTHETICS

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Introduction: In prosthetic treatment of edentulous patients, the functional efficiency of removable dentures is largely related to the anatomical-topographic features of the prosthetic bed. The character of edentulous mandible atrophy is important for choosing prosthetic tactics, in particular for determining the method of fixing a removable denture – by functional suction in "classic" designs of complete removable dentures or by supporting on dental implants. However, the distribution of stress-strain states under overdentures, taking into account the character of atrophy of mandible alveolar ridge, has not been learnt yet.

The aim of this research was to compare stress-strain states in biomechanical systems "complete denture – mandible" and "overdenture – intraosseous implants – mandible" under conditions of different types of edentulous mandible atrophy.

Materials and methods: The distribution of stresses in cortical bone and displacements of the dentures on the prosthetic bed was examined, using ANSYS 12.1 finite element analysis. The virtual models of edentulous mandible with different types of atrophy by Keller were learned. It was simulated a chewing load of 100 N in the area of molars and premolars on both sides.

Results: In biomechanical systems "complete denture – mandible" the maximum stresses in the bone tissue of the prosthetic bed were observed for the third type of edentulous mandible atrophy, the smallest ones – for the second type (9.0 MPa vs 7.0 MPa). In simulation models "denture – intraosseous implants – mandible" there was a significant

increase in stresses in the alveolar bone. The biggest stresses were in the marginal bone for the first and third types by Keller (93.0 MPa and 68.5 MPa).

In turn, the movements of bases of complete dentures were insignificant (for the first type – 0.07 mm; for the second type – 0.02 mm; for the third type – 0.05 mm; for the fourth type – 0.07 mm). The use of intraosseous implants and overdentures increased in movements by several times (for the first type – 3.4 mm; for the second type – 2.0 mm; for the third type – 4.9mm; for the fourth type – 2.0 mm). For complete dentures displacement fields were uniform, for overdentures supported on implants they were not. Under expressed alveolar process in the first and third types of edentulous mandible atrophy, it was an increase in the displacements of the distal sections of the dentures on both sides. It is well-known, that such a distribution of stress-strain states causes atrophy of prosthetic bed tissues.

Conclusions: The distribution of stress-strain states are different for different types of mandible atrophy both for complete dentures and for overdentures supported on implants. Use dental implants helps to increase functional efficiency, at the same time increases the chewing load on the alveolar part, thus causing a significant increase in stress-strain states. As a result of dental implantation, the maximum stresses are in the marginal bone where implants are fixed. Saved alveolar process in the first and third types of edentulous mandible causes significant denture displacement that accelerates the atrophy of the tissues of the prosthetic bed. The results are important for understanding clinical situation and choosing of prosthetic tactics in edentulous patients.

KEY WORDS: edentulous mandible, dental prosthetics, finite element analysis

MATHEMATICAL MODELING OF EPIDEMIC PROCESS OF HEPATITIS C IN UKRAINE

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Introduction and aim: The prevalence of young people in hepatitis C (HC) structure, significant level of latent HCV-infections and absence of specific prophylaxis may complicate the epidemic situation of HC in Ukraine in the coming years. Here we use a mathematical model to reveal the most significant factors of HC transmission in Ukraine.

Materials and methods: This study is based on the correlation and regression analysis involves identifying the relationship between dependent variables y (annual number of acute and chronic HC as well as HCV-contaminations events in 25 regions of Ukraine) and independent variables x (that influence variables y). Number of HCV-contamination events was calculated by multiplying the absolute risk of infection of a number of populations. In total, 16 x -factors were included in the analysis: number of persons who received etiotropic treatment; number of persons with disorders due to drug use, including opioids; number of patients with sexually transmitted infections; number of visits to dentists and persons who received dentures; number of surgical operations, blood transfusions, endoscopic examinations, laboratory blood tests, hemodialysis and so on. Multiple correlation coefficients (R), coefficients of determination (R^2) and regression coefficients (b_0, b_1, b_2) were determined. The significance of the R^2 was determined using F -statistics and significance F . The significance of regression coefficients was estimated by the range of 95% confidence intervals (CI), t -criterion, p -value, and standard errors (m).

Results: As a result of analysis of the correlation between dependent (y) and independent (x) variables and sequential modification of the regression models by eliminating insignificant factors and inclusion of significant ones, two indicators are revealed that best describe the HC epidemic process (EP) in Ukraine and the following equations are obtained:

1. For description EP of acute HC

$$y = 0.000021x - 11.353,$$

where y is an annual number of people with acute HC; x - annual number of visits to dentists.

Model is characterized by the $R = 0.892$, $R^2 = 0.796$, F -statistic: 89.9 on 1 and 23 degrees of freedom, significance F : 0.000000021; regression coefficients: $b_1 = 0.000021$ ($m = \pm 3.982$; $t = 2.85$, $t_{\text{critical}} = 1.71$; $p = 0.009$; 95% CI: -19.59; -3.116); $b_0 = -11,353$ ($m = \pm 2.3 \times 10^6$; $t = 9.48$, $t_{\text{critical}} = 1.71$; $p = 0.000000021$; 95% CI: 0.000017; 0.000026).

Modeling of chronic HC EP did not reveal any statistically significant coefficients that may be explained by the incomplete registration of chronic hepatitis cases.

2. For characteristic the number of HCV-infections events (transmission realization)

$$y = 0.0058x_1 + 4.563x_2 - 36552.721,$$

where y is a number of HCV-infections events; x_1 - number of laboratory blood tests; x_2 - number of sexually transmitted diseases.

In this model $R = 0.92$; $R^2 = 0.842$, F -statistic: 58.62 on 2 and 22 degrees of freedom, significance F : 0.0000000153; regression coefficients: $b_1 = 0.0058$ ($m = \pm 0.00082$; $t = 7.1$, $t_{\text{critical}} = 1.71$; $p = 0.0000004$; 95% CI: 0.0041; 0.0075); $b_2 = 4.563$ ($m = \pm 1.526$; $t = 2.99$, $t_{\text{critical}} = 1.71$; $p = 0.0067$; 95% CI: 1.4; 7.73); $b_0 = -36552.721$ ($m = \pm 10649.1$; $t = 3.43$, $t_{\text{critical}} = 1.71$; $p = 0.0024$; 95% CI: -58637.63; -14467.81).

Conclusions: At least 84% of HCV-infection events in Ukraine are due to sexual contacts and laboratory sampling of blood. Acute HC accounts for approximately 0.033% of the total number of infected people. Almost 80 % of acute HC are associated with dental procedures.

KEY WORDS: Hepatitis C, epidemic process, dental procedures, laboratory sampling of blood, sexual contacts

INCREASE IN INTERLEUKIN-6 RESPONSE IN INFANTS WITH ACUTE OBSTRUCTIVE BRONCHITIS AGAINST THYMOMEGALY

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Introduction: The problem of acute obstructive bronchitis (AOB) in infants remains relevant in pediatric practice. The thymus, as one of the central organs of the immune system, is involved in the pathogenesis of bronchopulmonary disease by secreting proinflammatory interleukin-6 (IL-6). However, the role of this cytokine has not been well understood in the regulation of inflammatory process in infants with AOB against thymomegaly (TM).

The aim: To study the level of IL-6 in the serum of infants with AOB against TM.

Materials and methods: The research was conducted based on the Municipal Non-Profit Enterprise "Children's Clinical Hospital of Saint Zinaida" Sumy City Council in 2019. 24 infants with AOB were examined. The infants were divided into two groups: Group I - AOB patients without TM (14 children); Group II - patients with AOB with TM (10 children). The control group consisted of 12 healthy infants, representative of age and gender.

The concentration of IL-6 in the serum was determined by solid-phase enzyme-linked immunosorbent assay using test systems. Statistical processing of the obtained results was performed using the software package "Statistics 6.0".

Results: It was found that in patients of group I in the acute period of the disease the content of IL-6 in the serum increased 3 times compared to the control group - $(17,62 \pm 0,39)$ pg/ml ($P < 0,001$). After treatment, AOB secretion of IL-6 in patients of group I was significantly reduced to $(7,13 \pm 0,23)$ pg/ml ($P < 0,001$).

When assessing the concentration of IL-6 in the serum of children of group II, a more pronounced increase (7 times - $(28,39 \pm 0,76)$ pg/ml ($P < 0,001$) compared with the indicators of healthy infants) was revealed. In the period of convalescence in infants with AOB, the level of IL-6 significantly decreased to $(12,48 \pm 0,47)$ pg/ml ($P < 0,001$) on the background of TM.

Conclusions: In the acute period of the disease in infants with AOB without concomitant TM, a significant increase in the content of the proinflammatory cytokine IL-6 is determined. This reflects an adequate response from the immune defense to the action of the infectious agent in the nonspecific resistance phase.

The revealed dynamic changes of cytokine status of infants with AOB on the background of TM indicate the changes in the criteria of thymus-dependent immunological insufficiency, in which indicators of the T-cell level of immunity are violated and as a consequence, there is a dysfunction of humoral immunity factors.

KEY WORDS: interleukin-6, acute obstructive bronchitis, thymomegaly

DYNAMICS OF THE QUALITY OF LIFE OF PATIENTS WITH NEUROPATHIC DIABETIC FOOT SYNDROME AFTER PLASMATHERAPY

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Introduction: Long-standing diabetic foot ulcers lead to reduced quality of life and poor psychosocial adaptation. Treatment of foot ulcers is aimed at acceleration of wounds healing, but insufficient blood circulation, lack of oxygen and the presence of neuropathy often interfere with wound healing. This can be overcome by introducing new alternative treatments, such as autologous plasmatherapy, rich in growth factors.

The aim is to evaluate quality of life dynamics in patients with neuropathic diabetic foot ulcers after plasmatherapy.

Materials and methods: The study included 26 patients with diabetes mellitus type 2. Including criteria: the sensory-motor neuropathic diabetic foot syndrome of 2 stage by Wagner after complete cleansing of the wound surface to stimulate the proliferative phase. Patients were divided into two groups: in the 1st (13 patients) patients received standard treatment (hypoglycemic therapy, vasoactive drugs, debridement of the wound surface), in the 2nd group (13 persons) standard treatment was supplemented with autologous plasmatherapy, rich in growth factors. The regime intradermal injections: ones per week total of 3 times, injections were carried out on the periphery of the wound defect, with wound bottom infiltration.

Assessment of the neuropathy was performed using the Neurological Deficit Scale - NDS, where a score of 0 indicated no neuropathy, a score of 1 moderate neuropathy, and a score of 2 severe neuropathies.

EuroQoL-5D-5L questioner was used system to evaluate the dynamics of life quality. It consisted of the description part of five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. For a quantitative assessment of the dynamics, each answer matched 1 point. Points from 1 to 5 were divided into two categories, where 1, 2, and 3 score where corresponded to points above the average level quality of life; and 4 and 5 were below average. Evaluation of the results was carried out after 3 procedures of plasmatherapy (3 weeks).

Results: At baseline the neurological status was similar in both groups; the average score on the NDS in the 1st group was 13.84, in the 2nd group - 13.92. In 3 weeks' evaluation showed a significant improvement in status in patients of the 2nd group due to the recovery of pain, tactile and temperature sensitivity, the average score was 7.54 vs 10.31 in the 1st group.

Positive dynamics of the quality of life was achieved in both groups after 3 weeks of treatment, but there was a significant difference between the dynamics of the total score in the categories. In 2nd group the average score in the category "mobility" decreased by 40.87% vs 28.37% in the 1st group; in the "self-care" decreased by 45.28% vs 24.79% in the 1st group; in the "usual activities" decreased by 40.87% vs 15.63% in the 1st group; in the "pain / discomfort" decreased by 86.63% vs 23.26% in the 1st group; in the "anxiety/ depression" decreased by 62.60% vs 19.34% in the 1st group.

Conclusions: The study demonstrates effectiveness of the plasmotherapy in the treatment of neuropathic diabetic ulcers: decreasing in the sensory deficit by 26.9% in 3 weeks was associated with improvement in the life quality of patients in the 2nd group by an average of 62.46%, compared with the control group.

KEY WORDS: plasmotherapy, diabetes mellitus, quality of life, diabetic foot syndrome, neuropathy

FROM THE GENERAL TO THE PARTICULAR: LIMITANTOLOGY AS A METHODOLOGICAL FOUNDATION FOR HEALTH CARE REFORMATION

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Introduction: Nowadays, the cross-sectoral nature of public health is recognized in developed countries at the state level. These strategies have formed the current paradigm of health care, and at the same time the factors and conditions that result to its crisis. That's why reforming the national healthcare sector is one of the most pressing problems of our time.

The aim: Revision of the existing healthcare paradigm based on the modern methodology of cognitive activity aimed at defining borderline states and the corresponding transients.

Materials and methods: To achieve aim of this study, there were used such methods as: system approach, historical and biblio-semantic, sociological, medical-statistical, conceptual modeling, organizational experiment, method of expert assessments.

Results: It is found that the forming of transient processes and their corresponding borderline states, is a general philosophical phenomenon, which belongs to the laws of existence of matter in all its manifestations, at different times and at different levels of existence. At the level of determining the medical laws of the formation of human health there are transient processes connected with the adaptation (accommodation) of the individual to the conditions of existence, and transient processes of sanogenesis - from health to illness and vice versa, reflecting the dynamics of prenosological states of somatic and mental character.

Today, the statement of a fundamentally new healthcare paradigm based on the concept of borderline medicine is fully theoretically substantiated and experimentally validated. The purpose of borderline medicine as part of limitantology is to study the general patterns of formation of prenosological conditions and transients of their transformations to prevent somatic and mental diseases, by diagnosing their primary signs and risks of occurrence. Limitantology is a general philosophical concept, which aims at establishing qualitative and quantitative indicators of the existence of matter, concerning to determining its transient processes and their corresponding boundary states.

The traditional model of health care is based on a non-alternative categories of "health" and "illness", as if the transition between these states is abrupt, without any previous changes in the body. The new paradigm establishes that the development of clinical forms of diseases is preceded by certain prenosological functional disorders, which can be measured, estimated and systematized. This new paradigm of medicine makes provision for the deposition of key points from the concepts of "norm" and "pathology" to the concept of "prenosology".

Acceptance of the concept of medicine of borderline conditions by the medical community is capable of influencing the revision of today's health care paradigm. It's associated with identifying primary prevention as the dominant direction in maintaining individual and population health.

Conclusions: The implementation of the principles of limitantology in the field of health care is carried out by its innovative direction - medicine of borderline conditions, which studies the general laws of formation of prenosological states. The proposed new paradigm of health care is based on the theory of medicine of borderline conditions, and it states that the development of clinical forms of somatic and mental illnesses is preceded by certain functional disorders, which have prenosological nature.

KEY WORDS: limitantology, medicine of borderline conditions, the paradigm of healthcare

PERSONALIZED SELECTION OF SUBSTITUTION THERAPY MEDICINES FOR TREATING PATIENTS WITH DRY EYE SYNDROME

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Introduction: According to the definition, adopted at the 2017 International Dry Eye Workshop II in 2017, dry eye syndrome is characterized by a loss of homeostasis of the tear film, and accompanied by ocular symptoms, in which tear film instability plays an etiological role. Ukraine is no exception. Data on the spread of this disease shows that 10-30% of laboring population suffer from dry eye syndrome as well as about 75% of the patients who visit an ophthalmologist, claim to have at least some symptoms of it. Given the possibility of detecting a layer or layers of lacrimal film that has caused the development of dry eye syndrome, a promising area of research is the scientific justification and the development of recommendations for the individual choice of substitution therapy medications for the patient.

The aim: To substantiate the ethiopathogenic choice of substitution therapy medications for the dry eye syndrome patients' treatment.

Materials and methods: First, the information of active ingredients nomenclature and the mechanisms of substitution therapy medications action according to the prescribing information and labeling was analyzed. The next stage of the work was the pathogenetic ranking depending on the substitution therapy medications impact on a specific link violation of lacrimal film renewal process.

Results: There are thirty-four substitution therapy medications registered in Ukraine. Their action under dry eye syndrome is determined by the presence of such active ingredients as hyaluronic acid in the form of sodium hyaluronate (either in a clear form or in combination with propylene glycol and guar), carbopol, methyl cellulose derivatives, polyquad, povidone, polyvinyl alcohol, dexpanthenol with taurine, trehalose, vitamin complex with amino acids, ectoin, Omega-3.

Generalizing the analyzed information received in the course of the conducted research, we have sorted the dry eye syndrome substitution therapy medications by their influence of corresponding tear film layer. It has been found that the process of renovation of all three layers is affected by five substitution therapy medications. The aqueous and mucin layers are affected by twenty-seven agents. One medication has an effect on the aqueous with lipid layers and only aqueous layer.

Conclusions: It has been found that the process of restoration of all three layers is affected by five substitution therapy, and the aqueous and mucin layer are affected by twenty-seven agents. One agent has an effect on the aqueous with lipid layers and one – only aqueous.

KEY WORDS: dry eye syndrome, substitution therapy medications

ABSORPTION OF AN ACTIVE PHARMACEUTICAL INGREDIENT FROM AN ORAL MEDICINAL PRODUCT WITH IMMEDIATE RELEASE IN THE STOMACH - POTENTIAL TROUBLEMAKER

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Introduction: Oral immediate release medicinal drugs are the most common pharmaceutical preparations nowadays. This study is focused on essential feature of the mentioned category of drugs being that release and dissolution of an active pharmaceutical ingredient (API) from a pharmaceutical preparation (PP) starts immediately after the latter enters the stomach. Mother Nature's intention was that food (and, therefore, API) be absorbed in the small intestine. In view of this, absorption of API in the stomach may have negative consequences for patients.

The aim: The goal of this study was to demonstrate that possible absorption of APIs with high permeability through the membranes of the gastrointestinal tract (GIT) in the stomach may create two sources of problems for patients: an abnormally high concentration of APIs in the blood entering the liver during the first pass; the penetration of API through the walls of the stomach into the peritoneal fluid with subsequent penetration into patient's organs of the abdominal cavity "from the rear".

Materials and methods: Spectrophotometry in the ultraviolet region of the spectrum (UV) and high performance liquid chromatography (HPLC) were used as analytical methods for measuring the concentration of APIs. Both methods are in the variant of comparing the responses of test and reference solutions. Reference solutions were prepared on the basis of reference chemical substances (nimesulide (NM), diclofenac sodium (DI)). The study of release and dissolution of NM nimesulide were carried out using samples of the preparation "Granules for the preparation of an oral suspension of nimesulide in packets of 2 g, 100 mg of nimesulide per packet" from four manufacturers A, B, C and D. All samples were purchased in Kyiv pharmacies. The study of the passage of a diclofenac model substance through the walls of the stomach were carried out using freshly extracted stomachs of laboratory rats that were humanely killed as a result of an experiment that was not relevant to this study.

Results: First, the wall of the rat's stomach is permeable to DI and DI from the stomach can penetrate into the perineal fluid (an aliquot (about 5 ml of the DI suspension was acidified with hydrochloric acid (imitation of gastric juice)) was introduced into the stomach cleared from food debris through the esophagus; the stomach was immersed into the receiving medium - phosphate buffers with pH 7.4 - 8.0 (imitation of peritoneal fluid). The rate of DI transfer from the stomach to the receiving medium was 5-20 µg per minute. In this case, the DI is an example of an API that, according to the Biopharmaceutical Classification System (BCS), has high permeability through the membranes of the gastrointestinal tract. Secondly, the study results demonstrate that samples A, B, C, and D belong to two different groups of drugs based on their rate of NM dissolution in

water or a 0.1 M hydrochloric acid solution: samples A, B, C - slow release; sample D - fast release (the NM dissolution rate is almost twice as high as the first group's rate). The latter results indicate that there may be oral preparations with immediate release on the market, which show significant differences in API dissolution rates in the stomach.

Conclusions: It is known from the literature that DI is absorbed and enters the systemic blood circulation from the stomach of a rat. However, our results demonstrate that, in parallel to this process, there may be a process of penetration of DI through the wall of the stomach into the peritoneal fluid, followed by penetration into the abdominal organs. This, along with the evidence that there are similar products on the market with potentially different rates of dissolution in the stomach, suggests that there may be significant differences in the profiles of efficacy and safety. Therefore, the authors believe that, for oral preparations with API with high permeability, it is necessary to introduce or tighten the control of API dissolution in acidic environments that are characteristic for the stomach.

KEY WORDS: Stomach, Absorption, API, Efficiency, Safety

РОЛЬ ТЕСТОСТЕРОНУ ТА КОРТИЗОЛУ У РАНЬОМУ ВИНИКНЕННІ АЛКОГОЛЬНОЇ ЗАЛЕЖНОСТІ В ОСІБ З ПЕРИНАТАЛЬНОЮ ПАТОЛОГІЄЮ В АНАМНЕЗІ

THE IMPORTANCE OF TESTOSTERON AND CORTISOL IN THE EARLY ONSET OF ALCOHOL DEPENDENCE IN PERSONS WITH PERINATAL PATOLOGY IN THE ANAMNESIS

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Вступ: Рівень гормонів (зокрема, статевих) і підлітковий вік тісно пов'язані з виникненням цікавості до алкоголю. У даному віці особа переживає стрес внаслідок гормональної перебудови, та страждає від різноманітних зовнішніх стресорних впливів. Очікується, що рівні тестостерону (Тс) та кортизолу (Корт.) як гормону, асоційованого зі стресом, можуть бути пов'язані з ризиком виникнення алкогольної залежності (АЗ) у період пубертату. Крім того, надзвичайно розповсюджена різноманітна перинатальна патологія, яка пов'язана з ризиком виникнення адиктивних розладів, а досліджень, присвячених поєднаному впливу даних факторів, надзвичайно мало. Таким чином, вирішенню проблеми якомога більш раннього виявлення (бажано на доклінічних етапах) АЗ, її лікування та превенції може допомогти вивчення її гормонального аспекту.

Мета: Розробити нові способи ранньої діагностики та профілактики АЗ на основі дослідження гормональних показників на етапах її формування.

Матеріали і методи: Досліджено вміст Тс та Корт. у 155 підлітків чоловічої статі віком 15-19 років з перинатальною патологією в анамнезі за допомогою імуноферментного аналізу. Вони були розподілені на 5 груп (I – абстиненти, II – епізодичне вживання алкоголю (не частіше 1 р/міс), III – регулярне вживання алкоголю (2-14 разів на місяць), IV – з ознаками психічної залежності, V – з ознаками фізичної залежності). Групи розглядалися як континуум розвитку АЗ.

Результати: Абстиненти характеризувались найнижчим вмістом Тс – (8,57±3,12) нмоль/л і Корт. (411,19±128,14). Потім відбувалось статистично значуще підвищення рівнів досліджених гормонів у II та III групах (Тс на 46,91% (12,59±4,39) та на 158,46% (22,15±5,83) відповідно; Корт. – на 32,25% (543,78±159,47) та на 26,89% (521,75±130,87) в II групі в III групі відповідно; $p < 0,05$). Даним групам властива цікавість до алкоголю та регулярне його вживанням. В подальшому знижувались рівні Тс на 27,86% та на 16,79% в IV (15,98±4,96) та в V (18,43±5,74) групах відповідно (відносно найвищих показників III групи) ($p < 0,05$). Аналогічно знижувався і Корт. в IV і в V групі на 23,62% (415,32±160,56) та на 19,96% (435,21±126,70) відповідно (відносно найвищих рівнів II групи) ($p < 0,05$). Ці групи характеризуються наявністю окремих ознак АЗ. Слід зазначити, що зміни рівнів гормонів відбувались у межах нормативних показників.

Висновки: Виявлено, що рівень вмісту Тс на нижній межі норми та середній показник Корт. властивий абстинентам та особам, які лише епізодично вживають алкоголь. Раннє формування АЗ у пубертаті відбувається на тлі підвищення Тс та Корт. у межах середнього нормативного рівня, що є фактором ризику для осіб з перинатальною патологією в анамнезі та свідчить про вразливість даного контингенту осіб. Подальше зниження рівнів гормонів може вказувати на створення нової суб'єктивно комфортної, але деструктивної системи функціонування організму, яка включає в себе алкоголь.

КЛЮЧОВІ СЛОВА: алкогольна залежність, гормони, підлітковий вік;

KEY WORDS: alcohol dependence, hormones, adolescence

ЧОМУ УКРАЇНИ НЕОБХІДНО ІНВЕСТУВАТИ В ПРОФІЛАКТИКУ І РЕАБІЛІТАЦІЮ

WHY UKRAINE NEEDS TO INVEST IN PREVENTION AND REHABILITATION

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Вступ: Видатки бюджету України на охорону здоров'я щорічно зростають – так, на 2020 рік передбачено 113,3 млрд. грн. У 2019 році виділялось 95,1 млрд. грн., що було більше на 10%, ніж у 2018 році (85,6 млрд. грн.). Кошти щорічно надходять також від місцевих бюджетів, міністерств і відомств, грантів та цільових кредитів і оцінюються в суму, аналогічну державним видаткам. Проте грошей для лікування хронічно не вистачає. Відомо, що гривня, вкладена в профілактику, дає економію від 10 до 100 гривень на лікування та соціальне забезпечення хворих. Але для закладів, що займаються профілактикою, виділяється менше 2 млрд. грн., а із 500 (у 2010 році) санаторно-курортних закладів на сьогодні залишилось 169.

Мета: Економічне обґрунтування необхідності інвестування в профілактику захворювань і реабілітацію захворілих громадян.

Матеріали і методи: В роботі використані методи демографічного аналізу, порівняльний, медико-статистичний, організаційного моделювання.

Результати: Розмір валового внутрішнього продукту (ВВП) на особу в Україні за 2018 рік становив 230,66 грн. в день, при цьому наявні в країні 330 тисяч лікарняних ліжок виконали навантаження в 97,808 млн. ліжко-днів. Таким чином, тільки через лікування населення в стаціонарах втрати ВВП країни становили біля 22,6 млрд. грн. Втрати ВВП країни через амбулаторне лікування хворих були в рази більшими і склали понад 100 млрд. грн. Видатки на оплату тимчасової непрацездатності склали 7,75 млрд. грн. Виплати по стійкій втраті працездатності (інвалідності) 1,349 млн. осіб становили 31,68 млрд. грн. Слід врахувати і видатки населення – так, за 2018 рік із 89 млрд. грн. аптечних продаж в Україні населення оплатило біля 80 млрд. грн. із власних коштів. В аналогічну суму оцінюються і інші витрати населення, пов'язані з лікуванням. Таким чином, за 2018 рік прямі видатки держави з бюджетів всіх рівнів та втрати економіки і населення через хвороби склали біля 500 млрд. грн. Також необхідно врахувати втрату років життя – українці живуть на 11 років менше, ніж жителі країн ЄС. За ці роки життя 42 млн. жителів могли б створити ВВП на суму до 38,9 трильйонів грн., або до 3,5 трлн. грн. в рік.

Висновки: Без посилення профілактики та реабілітації втрати України через хвороби невідворотні. Дієві профілактика та реабілітація захворювань зменшать витрати країни та населення на лікування, збільшать тривалість та якість життя людей, знизять інвалідність, покращать демографічні показники та рівень здоров'я, що призведе до зміцнення економіки і обороноздатності держави.

КЛЮЧОВІ СЛОВА: економіка, профілактика, лікування, реабілітація, тривалість життя.

KEY WORDS: economics, prevention, treatment, rehabilitation, life expectancy

METHODOLOGY OF ORGANIZATION OF BIOLOGY TEACHER'S WORK AGAINST DRUG ADDICTION AMONG THE STUDENTS OF HIGHER EDUCATIONAL ESTABLISHMENTS OF ACCREDITATION LEVEL I-II

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Introduction: The official statistics of drug addicts in Ukraine is as high as 500,000 drug addicts. However, it includes only those who volunteered for medical records. Of the total number of drug addicts in Ukraine: 20% are schoolchildren, 60% are youth aged 16-30 years, 20% are adults. The mean age of drug involvement in Ukraine is 15-17 years, with a dramatic increase in the percentage of drug use among the children aged 9-13.

The aim: To develop a program for combating drug addiction among the students of higher educational establishments of accreditation level I-II and to test its effectiveness by experiment.

Materials and methods: For the purpose of counteraction to the spread of drug addiction among the teenagers, we have developed a program for the course 'Adolescent Health as a Basic Premise for the Future'. This program aims to study the risk groups, identify and implement the protective methods by influencing the factors that encourage the adolescents to use drugs. The program targets the audience that has not faced the problems with substance abuse yet but has already used drugs sporadically. The goals of the program are achieved by influencing the causes of youth drug abuse. Based on the results of the questionnaire survey, the main contributing factors were identified: family, parental authority, negative influence of the immediate environment (friends, peers), personal characteristics, the need for recognition. 'Adolescent Health as a Basic Premise for the Future' program consists of two-month preventive course designed for the students of higher educational establishments of accreditation level I-II, which has 8 classes

scheduled for the first month, and 8 classes more – for the second one. The principal directions of the program envisage the parents involvement in the counteraction to growth of drug addiction among the youth, change of priorities of the teenager activities, influence on self-evaluation and self-awareness of the teenager of his/her role in the society.

Results: During the pedagogical experiment, 123 respondents (adolescents aged from 14 to 17) studying at Konotop Medical College, Zhytomyr Institute for Nursing and Kryvyi Rih Medical College took part in polling. Among the respondents, there were both males (32%) and females (68%).

In order to determine the effectiveness of the program 'Adolescent Health as a Basic Premise for the Future', the experiment was carried out in three higher educational establishments of accreditation level I-II in various regions (Sumy, Zhytomyr, Dnipropetrovska), in each of which there were two groups of approximately similar size, where the teenagers had the same level of social integration, mindset and personal qualities.

The developed program is targeted not only at raising awareness of the hazard from drugs, their adverse influence on health and possible consequences, but identification of the protection factors, focusing on the parental contribution to prevention of the spread of drug addiction, development of habits of the adolescent self-awareness of his/her role in the society, formation of a socially adapted personality, who will be able to resist drug use in the future as well.

Conclusions: The pedagogical experiment enabled to develop the recommendations for the preventive work among the teenagers.

KEY WORDS: drug addiction, students, adolescent health, prevention of drug addiction, higher educational establishments

GENDER PECULIARITY OF LIFE QUALITY EVALUATION IN PATIENTS WITH EARLY STAGES OF CHRONIC VENOUS DISEASE

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Introduction: Chronic venous disease (CVD) is one of the most common problems of today, including: the failure of venous valves, venous symptoms, telangiectasia, reticular veins, varicose veins, edema, changes in the skin, trophic ulcers, causing great social and economic damage significantly impairing the quality of life (QoL) of patients.

The aim: Evaluate the quality of life in patients with early stages of chronic venous disease by gender.

Materials and methods: The study randomly included 60 patients with telangiectasia and venulectasia and/or reticular veins, belonging to the early stages of CVD. Included 24 male (40%) and 36 female (60%). The Chronic Venous Insufficiency Questionnaire (CIVIQ) was selected to assess quality of life, with 20 items reflecting 4 components of quality of life: physical, psychological, social, and pain. The feasibility of using CIVIQ is due to its maximum specificity for patients with CVD, as it most fully evaluates the symptoms of venous insufficiency, reflects well the problem of prolonged stay of the patient in a static position (standing, sitting, etc.). The patient had to choose one answer to the question in the form of a score of 1 to 5 (the highest score indicated the most serious violations), reflecting the level of restriction of his physical, psychological, social activity and intensity of pain. A total score of 20 showed the best QoL score, and a score of 100 was the worst. The evaluation was conducted on three consecutive scales: symptom rating scale (1 to 5 points); rating scale by categories (physical category - 4 to 20 points, psychological category - 9 to 45 points, social category - 3 to 15 points, pain category - 4 to 20 points); a general scale of quality of life assessment (20 to 100 points).

Results: Women reported worst QoL than men (80%) and this was also responsible for each of the CIVIQ's domains. Psychological dimensions with a greater influence on QoL in female (80, 5%) vs pain domains (75 %) in male.

Conclusions: Compared to male patients female patients have more associated with the worst QoL perception. The early stages of CVD are not merely an aesthetic problem and must be treated to improve the QoL.

KEY WORDS: Chronic Venous Insufficiency Questionnaire, chronic venous disease, gender

CURRENT ASPECTS OF OVARIAN ENDOMETRIOSIS TREATMENT IN WOMEN OF REPRODUCTIVE AGE

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Introduction: The study presents the evaluation of the results of the use of GnRH (gonadotropin-releasing hormone) antagonists in the complex treatment of ovarian endometriosis and the effect of the proposed complex on the ovarian reserve in women of reproductive age.

The aim to improve the results of treatment of patients with endometriosis by using a combination method of therapy.

Materials and methods: Transvaginal ultrasound: determination of the number of antral follicles before and after treatment was performed, level FSH, prolactin, thyrotropic hormone, anti-Mullerian hormone, inhibin B were determined by enzyme immunoassay.

Patient(s) – 136 women of reproductive age, operated on by laparoscopic because ovarian endometriosis, were examined: Group I (n = 24) did not receive any hormonal treatment in the perioperative period; Group II (n = 32) – received GnRH antagonists within 3 months after surgery; Group III patients (n = 80) received intramuscularly triptorelin 3.75

mg within 2 months before surgery and three months after surgery for laparoscopic ovarian cyst removal.

Results: The average size of the cysts in group I was 4.34 ± 0.24 cm; in group II - 4.91 ± 0.18 cm; in group III - 4.71 ± 0.16 cm. It should be noted that in patients with bilateral ovarian endometrioma, unilateral cyst larger than 6 cm, the CA-125 level exceeds 35 nmol / l and even up to 60 nmol / l. These patients are sure to have been consulted and examined by an oncologist. The main indications for laparoscopic treatment of patients with ovarian endometriosis were: unilateral endometrioma - in 76 (56%) and bilateral - in 60 (44%), their combination. With infertility occurred - in 76 (56%) patients.

Analysis of ovarian reserve indices, namely number of antral follicles, AMG, and inhibin B levels in all examined patients with ovarian endometriomas were significantly lower than those of the control group before the start of treatment: in the ovarian endometrial group group 1.26 times ($p < 0.01$), inhibin B - 1.5 times ($p < 0.01$), the number of antral follicles - 1.2 times ($p < 0.01$).

After treatment in group III, the best indicators were found due to preoperative use of GnRH antagonists, which reduce the blood supply to the cyst capsule, the proliferative activity of the endometriosis, the intensity and duration of coagulation hemostasis of the wound surface of the cyst. In 23 (46.9%) of 49 patients who had reproductive plans, pregnancy occurred without first menstruation after a course of GnRH antagonists, 12 (24.5%) women became pregnant during the first three menstrual cycles.

Conclusions: The combination of laparoscopic treatment with gonadotropin-releasing hormone agonists in patients with endometriosis with infertility allowed to restore reproductive function in 71.4% of women, which indicates the effectiveness of the treatment method used. In addition, it helps to achieve lasting remission and addresses the socio-social problems of women's health and maternity.

KEY WORDS: infertility, ovarian endometrioma, agonists of gonadotropin-releasing hormone, ovarian reserve

METHODS OF PREVENTIVE INTERVENTION IN WOMEN WITH MULTIPLE PREGNANCIES IN NON-ASYMPTOMATIC CIRCULATION

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Introduction: The results of the comparative evaluating the effectiveness of using the different methods of treatment of miscarriage in multiple pregnancies with regard to the condition of the cervix are presented in the article. The use of unloading obstetric pessary in combination with the vaginal form of micronized progesterone is proved to be associated with an increase in the duration of the latent period from establishing the diagnosis of asymptomatic shortening of the cervix to the onset of spontaneous labor by an average of 14.9 % due to the probabilistic effects.

The aim: The purpose of the study is a comparative evaluating the effectiveness of using the different methods of treatment of miscarriage in multiple pregnancies taking into account the condition of the cervix.

Material and methods: 86 pregnant women with diarrheal twins were monitored. On the basis of studying the preorbital background, somatic and reproductive history, features of the gestational period, leading antenatal risk factors for the development of complications in multiple pregnancies were identified. With the help of transvaginal cervicometry the prognostic ultrasound criteria of the condition of the cervix and its obstructive capacity in case of premature birth are investigated.

Results: In the event of uncomplicated pregnancy multiple birth is characterized by a gradual shortening of the cervix in dynamics from 43.2 ± 3.9 mm to 38.2 ± 4.0 mm by 20 weeks, from 37.7 ± 4.1 mm to 30.2 ± 3.9 mm to 30 weeks, to 21.1 ± 3.1 mm to 37 weeks. In the period of 25–27 weeks, the appearance of a V-shaped opening of the uterine cervix in half of the women was observed, which remained until the end of gestation. Shortening of the cervix was the most significant in patients with the risk of abortion who received only tocolytic therapy. In the 2nd trimester revealed a V- or U-shaped opening of the cervical canal.

In pregnant women at risk who had an obstetric pessary, a decrease in the length of the cervix was found, which was similar to the rate of its shortening in uncomplicated multiple pregnancies. The condition of the cervix in the presence of a pessary before delivery probably did not differ from the condition of the cervix with the normal course of multiple pregnancies.

Conclusions: Pregnant women with uncomplicated multiple pregnancies revealed a decrease in the length of the cervix with an increase in gestation. At the end of pregnancy, the internal jaws acquired a predominantly Y-shape. In pregnant women with the risk of pregnancy termination who received tocolytic therapy, the cervix was the shortest. In late gestation, V- and U-shaped internal jaws were observed. Changes in the cervix after the placement of obstetric pessaries are similar to changes in uncomplicated pregnancy.

KEY WORDS: preterm birth, multiple pregnancies, sonographically shortened cervix, unloading obstetric pessary, micronized progesterone

REASONING FOR PHAGOPROPHYLAXIS OF FOOD TOXICOSIS OF BACTERIAL ETIOLOGY

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Introduction. A direct threat to human health and well-being — bacteria and products of their activity. They are the cause of the huge economic losses caused by the decline in human efficiency and spoilage of food products. In an era of widespread and practically uncontrolled use of the various (not always safe for humans) ways to fight bacterial contamination, the question of phages using to control bacterial contamination of food becomes especially important. Bacteria have many adaptive mechanisms, able to adapt relatively quickly to the effects of bacteriocides and bacteriostats of various origins, but it is still not possible to overcome natural rivals. Bacteriophages (phages) or ‘bacteria eater’ – natural bacteria killers. Despite different (lytic and lysogenic) cycles of development, encounter of the bacterium with the phage inevitably ends with the death of the bacterial cell.

The aim: To prove the use of bacteriophage cultures for food processing.

Materials and methods: Analysis of research materials outlined in the public domain, on the possibility of using phages to control bacterial contamination of food stuffs by pathogens of food toxicosis.

Review: Several methods are used to improve food safety. First of all – thermal processing of products (pasteurization, sterilization) – destroys a large number of micro-organisms, but does not keep food fresh. Chemical agents have a detrimental effect on microorganisms, but are not environmentally safe, affect the quality of food and promote rapid wear and corrosion of equipment. Irradiation is also effective but negatively perceived by consumers and requires proper labeling. The main disadvantage of these methods is the elimination of not only potential pathogens of food toxicosis, but also humans “beneficial” microflora. In addition, there are cases of transmission of pathogens through pre-processed products.

Currently, bacteriophage biocontrol is increasingly perceived as a natural and “green” technology. It is effective for the specific destruction of bacterial pathogens in various foods without reducing their quality and nutritional value. Recently, a significant amount of research has focused on promoting the use of phages for processing fresh meat, vegetables and fruits. The number of available products containing bacteriophages allowed for use in food is steadily increasing.

Conclusions: There are, undoubtedly, some problems with the development and use of phage preparations aimed at improving food safety. But it is obvious that bacteriophage biocontrol remains an economically, environmentally and biologically very attractive method of eliminating pathogenic bacteria from food.

KEY WORDS: Bacteriophage, food toxicosis, prevention

SOCIAL JUSTICE IN TERMS OF DIFFERENTIATION OF ELECTRICITY PRICES

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Introduction: Nowadays competitive relationships in society are characterized by increasing socio-economic inequality and the spread of poverty. Therefore, the topic of social justice is quite relevant these days. Such scientists as Socrates, Plato, Marcus Aurelius, T. Hobbs, V. Korzh, and K. Popper worked on issues of social justice. Thus, social justice is considered to be decency in the distribution of wealth, goods and income among members of society, as well as equality of citizens under the law, equal use of the benefits that the state can offer to citizens.

The aim: The energy sector is one of the most polluting industries. We believe that current methodology for calculating electricity tariffs should be modified by taking into account environmental and social components. The principle of social injustice in the energy field is detected in the following case: while some regions generate electricity for others, live in contaminated territory and suffer additional environmental and economic losses (such as deterioration of health, additional costs for treating diseases or preventing them); others live in green areas and consume electricity produced in regions described before. Therefore, the hypothesis of our differentiation is that the tariff in the places of its production should be lower than in the places of its consumption.

Materials and methods: Research was conducted by the Department of Public Health of Sumy State University on the basis of fundamental principles of economic theory, modern concept of stable development, ecological management and energy security

Review: Taking into account the fact that the largest part of carbon dioxide emissions is released by thermal power stations and thermal power plants (according to the Kyoto Protocol which was signed in December 1997, Ukraine was expected to reduce its carbon dioxide emissions by 20% from their level defined in 1996), it goes without saying that the production of electricity is environmentally burdensome for the residents of the regions where the highest thermal capacity is concentrated. For example, in Chernihiv region there is no power plant, but the population has uninterrupted power supply, whereas the population of Zaporizhzhya region, where Zaporizhzhya thermal power station is located, consume electricity at the same tariff as the population of Chernihiv region. Therefore, current pricing system does not encourage the company to take environmental actions, therefore, a new approach is needed to reduce specific fuel costs and losses in the networks gradually, and to reduce emissions of harmful substances released into the environment.

Conclusions: All things considered we propose to introduce regional differentiation of electricity prices for consumers, taking into consideration the eco-destructive impact of energy objects. The misconception is that it is better to pollute the environment in order to pay less for services. That is not the case. This recalculation is not aimed at stimulating or discouraging electricity producers, but it is aimed at establishing the principle of ecological and economic justice for consumers by region. Electricity producers are stimulated by the Wholesale Electricity Market to reduce emissions of harmful substances into the environment through a tariff on sales to WEM. As the main consumers of electricity are the enterprises and the population, in case of such conversion for the consumed electricity, managers will think about energy saving policy (environmentally oriented one) in order to reduce their electricity consumption (the cost of environmental tax).

KEY WORDS: social justice, power plants, deterioration of health, electricity

COMPARISON CHARACTERISTIC OF ACNE VULGARIS IN MEDICAL STUDENTS WITH II-III AND V - VI PHOTOTYPES BY THE FITZPATRICK SCALE

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Introduction: Acne is one of the common chronic dermatoses, which can affect patients of all races and ethnicities. The peculiarity of this disease is the presence of acne lesions on open skin, and its impact on the social adaptation of patients. According to modern authors, 80 - 90% of adolescents had episodes of acne of varying severity, after 25 years the presence of acne elements decreases to 25 - 43%. Most patients with mild or moderate acne do not visit a dermatologist for medical prescription. An important point is the lack of awareness among patients about the possible effects of acne, such as the formation of postacne pigmentation and scars.

The aim is to study the prevalence of acne among the students with V and VI phototypes by the Fitzpatrick scale.

Materials and methods: Total of 378 students with II - III phototypes and V - VI phototypes by Fitzpatrick scale were included in the study. Medical students were divided by phototypes: 324 with II - III phototypes, 54 with V - VI phototypes by Fitzpatrick scale. The average age of the students with V - VI phototypes was 22.4 years; (M - 21 years); female/male ratio - 17/ 37 (31.5 / 68.5 %). Students with II - III phototypes averaged age was 20.87 years; female/male ratio was 236/88 (72,8/ 27,2 %). The study was conducted with the use of an anonymous specialized questionnaire, that contained 12 questions about the presence and localization of lesions, family history, and information on visiting a doctor and treatment (Questionnaire content distributed to medical students, Shadi Zari, Asraa Turkistani, 2017).

Results: According to the questionnaire results the lack of acne elements was indicated in 22 (40,7 %) students with V - VI phototypes: 14 students evaluated their condition as mild acne, 6 - moderate, 2 - severe. In students with II - III phototypes 240 (71%) of the students had acne lesions: mild acne - 204, moderate - 36 students. Positive family history for acne vulgaris (parents/ siblings) was found in 31.3 % and in 36.6 % students with II - III phototypes, in students with V - VI phototypes - 18,5% and 46,2%, respectively. Post-inflammatory scars were noted in 28 (51,2%), pigmentation - 16 (29,6%) students with V - VI phototypes. In group with II - III phototypes post-inflammatory scarring admitted in 63 (19,4 %) students, pigmentation in - 54 (16,6 %).

Conclusion: The data obtained demonstrate that students with V and VI phototypes by Fitzpatrick scale are 30% less prone to acne formation compared to students with II and III phototypes, with predominantly mild degree of severity.

KEY WORDS: acne vulgaris, epidemiology, acne, Fitzpatrick phototypes scale

MICROBIOTA OF THE COLON STATE IN CHILDREN OF THE FIRST YEAR OF LIFE WITH ACUTE OBSTRUCTIVE BRONCHITIS

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Introduction: Respiratory diseases occupy one of the leading places among diseases in children due to the high prevalence in the general structure of bronchopulmonary pathologies, often accompanied by a severe course and complications. The large intestine microbiota is known to play an important role in maintaining immune status in children with bronchopulmonary status.

The aim: To investigate quantitative and qualitative status of intestinal microbiocenosis in children of the first year of life with acute obstructive bronchitis (AOB).

Materials and methods: The clinical study was conducted with the participation of 27 children of the first year of life with AOB. The control group consisted of 16 healthy children. To determine the state of gut microbiocenosis, microbiological studies of the faeces were performed to determine the species composition and population level of the microflora.

Results: At the time of hospitalization, almost all children with AOB had clinical manifestations of bowel dysbiosis in the form of dyspeptic syndrome.

The level of bifidobacteria in patients under 1 year with AOB in the acute disease period was significantly lower than in control children and comprised $(3.95 \pm 0.32 \text{ lgCFU/g})$. The *Lactobacillus* content was also significantly decreased $(4.38 \pm 0.18 \text{ lgCFU/g})$. At the same time in all patients of this group there was a decrease in the total number of *E. Coli*.

Meanwhile, in patients with AOB, the titers of opportunistic microorganisms increased and amounted (3.95 ± 0.18 lgCFU/g). In addition, the level of pathogenic staphylococci and fungi of the genus *Candida* was significantly increased compared to the control group.

Conclusions: In most children of the first year of life with AOB, clinical manifestations of bowel microbiocenosis disorders were noted as dyspeptic syndrome. In the acute period, the number of *bifidobacteria* and *lactobacilli*, *Escherichia* with normal enzymatic activity and an increase in the number of yeast, staphylococci and other representatives of the pathogenic flora were found. Microecological disorders of the large intestine in patients with acute obstructive bronchitis may be the basis for inclusion in the complex of therapeutic measures of the drug based on bifidobacteria and lactobacilli.

KEY WORDS: acute obstructive bronchitis (AOB), intestinal microbiocenosis, microflora, children

TOPICAL IDEAS OF V. V. FAVRE IN THE FIELD OF PUBLIC HEALTH (ON THE 100TH ANNIVERSARY OF PROFESSOR'S DEATH)

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Introduction: V. V. Favre (1874–1920) is a legendary significant person in practical public health care, well-respected during the period of the Russian Empire, the Soviet era and till the present day. In 1905, 115 years ago, he headed the Kharkiv City Sanitary Department. At that time, the introduction of progressive ideas began, some of which have not lost their actuality to this day, and implementation of others could significantly improve the sanitary conditions of modern cities.

The aim of the study is to identify the ideas and achievements of the outstanding sanitary physician that have not lost their social significance, as well as to show to modern municipal authorities the prospects of other progressive practices implementing in the time of V. V. Favre.

Materials and methods: The research is based on specific methodological approaches used for systematic analysis of the historical process and the medical personnel as an integral part of historical and medical knowledge. A biographical approach helps to find and characterize the innovative healthcare ideas through biography. The main materials are a wide range of sources on intellectual history authored by V. V. Favre, as well as research, among which I. Robak's work on the organization of health care in Kharkov and personalia articles dedicated to V. V. Favre.

Results: The number of municipal sanitary doctors increased, a sanitation bureau started functioning and sanitary measures became systematic under the direct supervision of V. V. Favre. At his initiative, the organization of sanitary curatorships was developed. V. V. Favre focused mainly on prevention of infectious diseases in the city, establishing close contact between the city sanitary service and hospitals, local outpatient clinics and the institute of school physicians. Effective measures were taken to expand and regulate overnight shelters, to organize canteens and public bathing facilities, to fight against drinking and prostitution. None of this has lost its relevance over a hundred years.

According to the authors, city municipal authorities should pay attention to Favre's practice of formation of special funds by the local authorities, whose assets were spent exclusively on particular health purposes (such as the anti-epidemic fund of the Kharkiv City Council) and to ensure the impossibility of their unauthorized use; the creation of a special sanitary police subordinate to municipalities in order to suppress violations of sanitary legislation; the formation of public bodies by the local authorities, such as sanitary curatorships for studying sanitary problems, to implement the sanitary-educational work among the population, and to attract the sponsorship funds for the sanitary improvement of the city.

Conclusions: Thus, the achievement of V. V. Favre is the practical approval of the system of city sanitation and supervision in Kharkiv, which is still valid. The revival of sanitation, sanitary police, and special trust funds is future-oriented.

KEY WORDS: sanitation, hygiene, Kharkov, history, proposals.

РЕГУЛЮВАННЯ РІВНЯ ПРОСТАГЛАНДИНІВ E2 ТА F2A У ПАЦІЄНТІВ ІЗ ГАСТРОЕЗОФАГЕАЛЬНОЮ РЕФЛЮКСНОЮ ХВОРОБОЮ, ПОВ'ЯЗАНОЮ З НЕДИФЕРЕНЦІЙОВАНОЮ ХВОРОБОЮ СПОЛУЧНОЇ ТКАНИНИ

REGULATION OF PROSTAGLANDIN E2 AND F2A LEVELS IN PATIENTS WITH GASTROESOPHAGEAL REFLUX DISEASE ASSOCIATED WITH UNDIFFERENTIATED CONNECTIVE TISSUE DISEASE

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Вступ: На фоні недиференційованої дисплазії сполучної тканини (НДСТ) у хворих із гастроєзофагеальною рефлюксною хворобою (ГЕРХ) частіше розвивається недостатність кардії, порушення функції нижнього стравохідного сфінктера (НСС), виражений запальний процес слизової нижньої третини стравоходу, посилюються процеси дегенерації гладком'язевих елементів, накопичується позаклітинний матрикс у його стінках та наростає фіброз. При цьому знижується резистентність слизової оболонки стравоходу (СОС), особливо передепітеліального бар'єру, який забезпечується секретом слинних та власних залоз підслизової оболонки стравоходу та включає муцини, немуцинові протеїни, бікарбонати, простагландини (PG) класу E2 та F2a. На основі проведеного огляду літератури, у хворих з ГЕРХ, що розвинулася на тлі НДСТ рівень PG та їх можлива роль у патогенезі такої поєднаної патології не вивчалася.

Мета: Вивчити зміни рівня PGE2 та F2a в сироватці крові пацієнтів із ГЕРХ, яка розвинулася на фоні НДСТ і їх зв'язок з кількістю, тривалістю та частотою езофагогастроуденальних рефлюксів.

Матеріали та методи: було обстежено 120 пацієнтів із ГЕРХ. У 75 із них ГЕРХ перебігала на фоні синдрому НДСТ (II група дослідження), а у 45 обстежених (I група дослідження) – ГЕРХ без ознак дисплазії. Оцінку фенотипових та вісцеральних ознак синдрому НДСТ здійснювали згідно критеріїв, рекомендованих M. Moska et al., A. Doria et al., критеріїв Т. І. Кадуриної та співав. Визначення показників PGE2 та F2a у сироватці крові проводили методом імуноферментного аналізу (ІФА).

Результати: Аналіз показників добового моніторингу рН у нижній третині стравоходу свідчить, що рефлюкси з рН<4 реєструвалися у 26,6% пацієнтів I групи та у 60% пацієнтів II групи. У хворих із ГЕРХ кількість рефлюксів за добу становила 57±8 епізодів, сумарною тривалістю 67±3 хвилини, що склало 4,6±0,2% від загального терміну моніторингу. У пацієнтів із ГЕРХ на тлі НДСТ кількість кислих рефлюксів становила 79±6 епізодів, сумарною тривалістю 87±8 хвилин, що склало 5,48±0,4% від загального терміну моніторингу. Середній показник De Meester рівнявся 23,01±2,24 у пацієнтів I групи та 31,08±2,4 – II групи (p<0,05). Також встановлено зростання відсотку часу з рН<4 в нижній третині стравоходу у положенні стоячи та лежачи 12,3%±0,05 та 7,4±0,1% у хворих II групи, в той час як у пацієнтів I групи – 10,2±0,4% та 5,8%±0,1, відповідно. Такі зміни свідчать про більш важкий перебіг ГЕРХ. Отримані дані щодо рівня простагландинів в крові свідчать про підвищення рівня PGE2 у 1,3 рази у хворих на ГЕРХ та у 2,46 разів при її поєднанні із НДСТ, а згідно досліджень X. Vaia та співавторів (2019), він розслабляє тонус циркулярних м'язів НСС. Паралельно із цим, ми спостерігали зниження PGE2 на 35,30% та 23,3% відповідно, а таке зменшення послаблює тонус м'язів НСС.

Висновки: Зміни рівня простагландинів E2 та F2a, здатних впливати на тонус гладких м'язів стравохідного сфінктера, підсилювати чи знижувати толерантність його слизової оболонки до пошкоджуючих факторів та впливати на обмін сполучної тканини, можуть розглядатися як одна з патологічних ланок розвитку поєднаної патології.

КЛЮЧОВІ СЛОВА: гастроєзофагеальна рефлюксна хвороба, недиференційоване захворювання сполучної тканини, простагландин E2, простагландин F2a.

KEY WORDS: gastroesophageal reflux disease; undifferentiated connective tissue disease; prostaglandin E2; prostaglandin F2a.

DISTINCTIVE FEATURES OF THE SECOND TRIMESTER OF PREGNANCY AND HORMONE PROFILE IN WOMEN WITH POLYCYSTIC OVARY SYNDROME

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Introduction: Androgen excess is a common endocrine disorder, affecting women of reproductive age. The potential causes of androgen excess in women include polycystic ovary syndrome (PCOS). An altered sex steroid milieu is an example of in utero disruption that adversely programs the developing foetus. The present report offers the results of the analysis of the second trimester of pregnancy in women with PCOS in Lviv Region (Ukraine).

The aim: The study aims to explore an array of complications of the second trimester of pregnancy and assess the hormonal status in women with polycystic ovary syndrome during this period.

Materials and methods: A cohort of 42 female patients with PCOS and 50 healthy women (control group patients) in the second trimester of pregnancy were examined. The levels of prolactin, placental lactogen, estradiol, estriol, progesterone, dehydroepiandrosterone, total testosterone, free testosterone, sex steroid binding globulin, free androgen index and cortisol in the blood serum were assessed by electrochemiluminescence immunoassay (ECLIA) using Roche Diagnostics automated analysers (Switzerland). Ultrasound examination of pregnant women was performed on the ultrasound apparatus Aloka SSD-2000.

Results: The second trimester of pregnancy in women with PCOS is complicated by noncarrying of pregnancy (74,5%), gestational diabetes (21,4%), placental pathology (19,0%), polyhydramnion (14,3%), preeclampsia (4,8%), and cervical insufficiency (2,4%). The hormonal profile features elevated levels of androgens ($p < 0,05$), prolactin ($p < 0,0001$) and cortisol ($p < 0,05$), and reduced levels of progesterone ($p < 0,05$), placental lactogen ($p < 0,05$) and estrogen fractions ($p < 0,05$) as compared to the control group patients. The revealed complications of the second trimester of pregnancy in women with PCOS along with the concomitant hormonal changes and correlations can be grounds for improving the treatment and prevention and for recommending the enhancement of health to women with PCOS before the pregnancy. This group of patients with PCOS continues to be followed up, and the data will be presented in the next paper.

Conclusions: The second trimester of pregnancy in women with PCOS is complicated by noncarrying of pregnancy, gestational diabetes, placental pathology, preeclampsia and polyhydramnion. Women with PCOS should be assigned to a risk group for gestational diabetes, which manifests in them starting from as early as the second trimester of pregnancy. The endocrine status of women with PCOS in the second trimester of pregnancy features the reduced levels of progesterone, placental lactogen, estradiol, estriol, sex steroid binding globulin and by increased concentrations of prolactin, testosterone, free androgen index and cortisol. An increased prolactin level combined with a reduced concentration of progesterone is linked to noncarrying of pregnancy in the second trimester of pregnancy in women with PCOS ($r = 0,47$; $p < 0,05$); testosterone levels in the pregnant women with PCOS were correlated with pregnancy loss ($r = 0,84$; $p < 0,05$) and preeclampsia ($r = 0,77$; $p < 0,05$).

KEY WORDS: polycystic ovary syndrome, pregnancy, noncarrying of pregnancy, hormone

ВИРОЩУВАННЯ СВИНЕЙ БЕЗ АНТИБІОТИКІВ

BREEDING PIGS WITHOUT ANTIBIOTICS

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Вступ: Наразі великою проблемою ведення сучасного свинарства є використання великої кількості антимікробних засобів на кожному етапі виробництва. Науковцями доведено, що навіть період кореляції не дає повного виведення з організму тварини антибіотиків. Їх залишки можна визначити у м'ясі. Нажаль доступні методи визначення антимікробних засобів мають обмежену чутливість. Тому навіть у пробах м'яса, які згідно лабораторних токсикологічних тестів «вільні» від антимікробних засобів, можуть міститися залишки препаратів, але в менших дозах. Результатом вживання в їжу такого м'яса у людини розвивається не чутливість до тих груп антимікробних препаратів, які використовують у тваринництві.

Мета: Метою нашої роботи було дослідити ефективність впливу кислот на ооцисти кокцидій.

Матеріали та методи: Об'єктом дослідження були ооцисти кокцидій *Isospora suis* отриманих від поросят 10 денного віку. Кислоти ортофосфорну 40 г/кг та мурашину 60 г/кг додавали у воду та доводили до рН 3,0–4,5. Інкубували розчин кислот з ооцистами 30 хв. та 60 хв. при t 25° С. Захворювання поросят на еймеріоз встановлювали за результатами лабораторних досліджень екскрементів за методом Фюллеборна. Також суміш кислот випоювали поросят протягом двох тижнів із розрахунку 1 мл/л води.

Результати: Проведення дослідження *in vitro* дало змогу визначити ефективну концентрацію кислот. Стан ооцист кокцидій визначали за морфологічними ознаками під мікроскопом (SX 2610 збільшення $\times 1000$) зміну форми, розміру, кольору, локалізації зародкового шару. Експериментально встановлено, що при експозиції 60 хв. рН 3,5 мурашина кислота руйнувала 88 %, ортофосфорна – 95 % ооцист кокцидій.

Висока життєздатність цист та ооцист найпростіших (*Eimeria*) пов'язана з особливістю будови їх оболонки. Стінка ооцисти на 90 % складається з протеїнів і подібна до кутикули пташиних яєць. Основний механізм дії кислот визначається в руйнуванні зав'язків в оболонці ооцист та денатурації протеїнів.

Випоювання суміші кислот поросят протягом двох тижнів із розрахунку 1 мл/л води складало екстенсефективність 90 %. Позитивним фактом є те, що у кокцидій не з'являється резистентність до даних речовин. Розчин кислот має безпечний рівень рН, а не викликає подразнення слизових оболонок шлунково-кишкового тракту та не накопичуються у внутрішніх органах та м'ясі.

Висновки: Дослідженнями доведено, що мурашина та ортофосфорна кислоти *in vitro* при рН 3,5 та експозиції 60 хв. руйнують 88–95 % ооцист кокцидій. Застосування кислот для випоювання поросят складало екстенсефективність 90 %. Єдиною умовою використання даного способу дезінвазії є контроль рН води при застосуванні.

КЛЮЧОВІ СЛОВА: Кокцидії, мурашина кислота, ортофосфорна кислота, поросята, антибіотики.

KEY WORDS: Coccidia, formic acid, orthophosphoric acid, pigs, antibiotics.

РЕЗУЛЬТАТИ МЕДИКО-СОЦІОЛОГІЧНОГО ДОСЛІДЖЕННЯ ЩОДО ВИЗНАЧЕННЯ ПРОБЛЕМНИХ ПИТАНЬ В ОРГАНІЗАЦІЇ МЕДИЧНОЇ ДОПОМОГИ СЕРЕД ПАЦІЄНТІВ ІЗ ЦД ТИПУ 2

THE RESULTS OF MEDICAL AND SOCIAL RESEARCH CONCERNING THE PROBLEMS IN MEDICAL CARE FOR THE PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Вступ: В структурі хронічних неінфекційних захворювань (ХНЗ) цукровий діабет (ЦД) посідає друге місце. Найбільш поширеною формою діабету є 2 тип, який складає 90-95 % від усіх випадків в світі. За попередніми прогнозами Всесвітньої організації охорони здоров'я до 2030 року число хворих зростає до 552 мільйонів людей, що створює передумови вважати ЦД глобальною пандемією. Досягнення і підтримка контролю рівня глюкози в крові є головною метою лікування ЦД 2 типу, що спрямовано на зниження ризиків виникнення довгострокових ускладнень та залежить від способу життя самого пацієнта – дотримання дієтичних рекомендацій та правильна фізична активність, що є засобами первинної та вторинної профілактики ХНЗ.

Мета: визначення проблемних питань в організації медичної допомоги споживачам медичних послуг міських закладів охорони здоров'я первинного рівня у м. Суми. **Матеріали та методи:** Дослідження проводилося кафедрою громадського здоров'я Сумського державного університету протягом жовтня-грудня 2018 року. Форма дослідження – опитування за допомогою закритої анкети. Поглиблено вивчено 192 анкет пацієнтів із ЦД, типу 2 віком від 18 років.

Результати: Серед опитаних більшість хворіє на ЦД, тип 2 від 6 до 10 років – 33,3±6,8%; від 1 до 5 років – 31,3±6,69%; 11-15 років – 18,8±5,63%; 16-20 років – 16,7±5,39%. Кожен другий респондент має індивідуальний глюкометр. Проте більшість проводять контроль глюкози в крові в закладах охорони здоров'я – 54,17±3,61% пацієнтів, 45,83±3,60% опитаних відмітили, що в основному контролюють рівень глікемії самостійно. Серед всіх опитаних контролюють рівень глікемії кожного дня лише 8,33±1,99% пацієнтів; у більшості випадків частота вимірювання глюкози в крові складала 1 раз на місяць – 47,92±3,61%; 1 раз на тиждень – 22,92±3,03%; 2-3 рази на тиждень – 16,67±2,69%; 1 раз на 2-3 місяці – 2,08±1,03%; 1 раз на 5-6 місяців – 2,08±1,03% респондентів. Після розрахунку індексу маси тіла встановлено, що 66,67±3,40% пацієнтів мають ожиріння, з яких ожиріння I ст. – 47,92±3,61% опитаних, ожиріння II ст. – у 14,58±2,55% опитаних та 4,17±1,44% пацієнтів мають ожиріння III ст. На питання про шкідливі звички 15,10±2,58% респондентів відповіли, що являються курцями. Слід відмітити, лише 16,67±2,69% респондентів дотримуються призначеної дієти та режиму харчування. Всі респонденти мають підвищений рівень артеріального тиску. Проте лише 22,92±3,03% відповіли, що контролюють свій артеріальний тиск кожного дня. Під час опитування лише 10,42±2,20% пацієнтів мали глікемію натще в межах 4,4 – 6,7 ммоль/л та 18,23±2,79% постпрандіальну глікемію в межах 4,4 – 8,0 ммоль/л, тобто добрий рівень компенсації.

Висновки: Отже, дослідження показало, що пацієнти мають недостатній рівень контролю глікемії та незадовільний рівень компенсації захворювання. Кожен респондент має два та більше фактори ризику, що впливають на перебіг захворювання та здоров'я в цілому. На нашу думку, актуальним є впровадження сучасних методів профілактики основних ХНЗ та посилення державної соціальної політики, умов для забезпечення відповідальності пацієнтів за стан свого здоров'я та лікування, їх залучення до процесу самоконтролю.

КЛЮЧОВІ СЛОВА: організація медичної допомоги, профілактика неінфекційних захворювань, самоконтроль.

KEY WORDS: medical care organization, prevention of non-infectious diseases, self-control

ПРОБЛЕМИ НАДАННЯ СПЕЦІАЛІЗОВАНОЇ ГЕМАТОЛОГІЧНОЇ ДОПОМОГИ НАСЕЛЕННЮ СІЛЬСЬКОГОСПОДАРСЬКОЇ ОБЛАСТІ

DIFFICULTIES OF PROVIDING SPECIALTY HAEMATOLOGICAL MEDICAL CARE FOR RURAL AREA POPULATION

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Мета роботи: Дослідити проблеми в наданні населенню сільськогосподарської області спеціалізованої гематологічної допомоги.

Матеріали та методи: Матеріали дослідження - дані галузевої статистичної звітності за період 2014-2018 рр., результати анкетування 193 пацієнтів стаціонарних відділень спеціалізованої медичної допомоги та 200 населення Сумської області з хворобами крові та кровотворних органів; методи дослідження - медико-статистичний, соціологічний, структурно-логічного аналізу.

Результати: В ході дослідження встановлено, що на рівні спеціалізованої медичної допомоги штатні посади, які повністю укомплектовані фізичними особами, введені в 3034 (21,1%) адміністративних територій. 50,0% лікарів-гематологів є особами пенсійного, а 25,0% - передпенсійного віку. При цьому спеціалізовані гематологічні ліжка в 303 спеціалізованої медичної допомоги не функціонують. Хворі госпіталізуються для отримання стаціонарної допомоги на госпітальні ліжка загального профілю.

Із загальної кількості амбулаторних хворих 84,2% обстежуються відповідно до стандарту, а 76,8% отримують лікувальні заходи в повному обсязі. Із загальної кількості вперше захворівши на хвороби крові та кровотворних органів протягом року оглянуто лікарями-гематологами штатними 32,7%, а лікарями-гематологами позаштатними 38,5%. Опитані хворі на хвороби крові та кровотворних органів у 64,5% випадках оцінили спеціалізовану амбулаторно-поліклінічну гематологічну допомогу як недоступну або малодоступну територіально, 34,5% - економічно, а 48,0% вказали на низьку її якість.

Із загальної кількості госпіталізованих до спеціалізованих 303 хворих на хвороби крові та кровотворних органів 21,8% обстежуються не відповідно до стандарту, а 31,6% отримують лікувальну допомогу не в повному обсязі. Опитані пацієнти стаціонарних відділень 303 спеціалізованої медичної допомоги на хвороби крові та кровотворних органів у 24,5% випадках оцінили спеціалізовану стаціонарну допомогу як недоступну або малодоступну територіально, 29,5% - економічно, а 35,0% вказали на низьку її якість.

Висновки: за результатами дослідження встановлено проблеми надання спеціалізованої гематологічної допомоги на рівні сільськогосподарської області які носять управлінський, організаційний та економічний характер. В умовах реформування системи охорони здоров'я та запровадження гарантованого обсягу безоплатної медичної допомоги їх аналіз дозволяє прийняти на рівні області та її адміністративних територій управлінські рішення з їх максимального усунення.

КЛЮЧОВІ СЛОВА: сільськогосподарська область, хворі, хвороби крові та кровотворних органів, спеціалізована допомога, проблеми.

KEY WORDS: rural area, patients, diseases of blood and blood-forming organs, specialty care, difficulties (problems).

МЕДИКО-СОЦІАЛЬНІ ЧИННИКИ ДИНАМІКИ ТА ЕФЕКТИВНОСТІ РИНКУ ПРАЦІ УКРАЇНИ

MEDICAL AND SOCIAL FACTORS OF UKRAINIAN LABOR MARKET DYNAMICS AND EFFICIENCY

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Вступ: Інклюзивне економічне зростання як євроінтеграційний імператив передбачає забезпечення високої якості медичного обслуговування та покращення стану здоров'я робочої сили, сталої позитивної динаміки і продуктивності ринку праці. Важливим чинником цих процесів є соціальна відповідальність на усіх інституційних рівнях.

Мета: визначити взаємозв'язок процесів захворюваності працезацінного населення, динаміки ринку праці та настанов соціальної відповідальності.

Матеріали і методи: Матеріал дослідження статистична база Державної служби статистики України за 2010-2019 роки. Методи: системний підхід та системний аналіз, бібліосемантичний, медико-статистичний аналіз, математичне моделювання, структурно-логічний аналіз.

Результати: На основі аналізу експертних і соціологічних даних виявлено недостатню соціальну відповідальність щодо громадського здоров'я в Україні на кожному з інституційних рівнів. Зокрема, на рівні домогосподарств встановлено низьку ефективність запобігання розвитку багатьох деструктивних індивідуальних звичок, які вливають на працездатність населення. На рівні господарської практики організації виявлено невисоку зацікавленість українських підприємств у збереженні здоров'я працівників та в здійсненні інвестицій в розвиток інфраструктури медико-соціального призначення. На рівні управління медичною галуззю зафіксовано погіршення якості медичних послуг, зокрема, в стаціонарах. Зазначене об'єктивно сприяє захворюваності працезацінного населення.

Виявлено суттєвий статистично значущий безпосередній зв'язок обсягу та рівня захворюваності за усіма класами хвороб МКХ10 із кількістю та продуктивністю робочої сили, заявленої на ринку праці України, а також із якістю життя населення. Попри невелику питому вагу захворювань, безпосередньо сполучених з больовим синдромом, їх кореляційний зв'язок з показниками забезпеченості закладами інфраструктури охорони здоров'я, конкурентоспроможності робочої сили, а також споживчих витрат на охорону здоров'я найвищий серед усіх класів хвороб МКХ-10. Доведено, що динаміка поширеності та хронізації захворюваності безпосередньо корелює з динамікою усіх ключових індикаторів безпеки ринку праці України, посилюючи його нестабільність та поточну депресивність. Показано, що подальшими викликами для ринку праці є його системна дестабілізація та посилення з певним лагом трудової міграції у країни ЄС, що загострює проблему трудоворесурсної забезпеченості економіки країни.

Висновки: З огляду на хвилюву динаміку демографічних зрушень у віковій структурі населення України, а також лагову природу формування хронічного типу хвороб та біопсихосоціокультурну модель захворюваності, можна прогнозувати у найближчий часовий період в Україні сплеск захворюваності працезацінного населення. Виходячи з цього, обґрунтовано напрями соціального інвестування бізнесу, які безпосередньо впливають на якість медичного обслуговування працівників, підвищують конкурентоспроможність робочої сили та скорочують втрати робочого часу через хвороби.

КЛЮЧОВІ СЛОВА: соціальна відповідальність, захворюваність, ринок праці, робоча сила

KEY WORDS: social responsibility, morbidity, labor market, labor force

ANTIBIOTIC RESISTANCE OF *STAPHYLOCOCCUS AUREUS* STRAINS, WHICH ARE EXUDED FROM INFECTED VECTORS

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Introduction: *Staphylococcus aureus* (*S. aureus*) is a representative of the resident human microflora. However, in case of the immune system's weakening or human contact with more virulent strains, it can cause dangerous infectious affections. In a number of cases, the treatment of an infection caused by *S. aureus* becomes a serious problem, which is associated with the appearance and spread of strains that are resistant to antibiotic drugs (ABD).

The aim: Identifying the sensitivity of *S. aureus* strains, which are exuded from infected vectors, to antibiotics over 2015–2019 years.

Materials and methods: The study was conducted in the centralized diagnostic bacteriological laboratory of the Municipal Institution Sumy City Clinical Hospital №4. The strains of *S. aureus* were exuded from the samples taken from fauces of children aged between 4 and 7 years, which were preliminarily diagnosed with chronic tonsillitis in the acute stage. Each of the 499 strains was tested for sensitivity to 15 antibiotics (the first selection: AX – amoxicillin, Va – vancomycin, OX – oxacillin; the second selection: GM – gentamicin, CHL – levomycetin, CZ – cefazolin, CTX – cefotaxime, CRO – ceftriaxone, CIP – ciprofloxacin; the reserve: DX – doxycycline, E – erythromycin, MER – meronem, OFX – ofloxacin; combined: PTX – potentox, FM – furomag) by using the standard disco-diffusional method. For each of the antibiotics, the diameter of growth reduction area was traced. According to the fixed criteria, the strains were classified as sensitive (S), moderately sensitive (M) and resistant (R) to a particular antibiotic. The extent, to which the differences in the ratio of the R, M, and S strains for different ABDs are non-random, was determined by using the Pearson residue method. A linear model was used, and the levels of significance were calculated to define the prevailing trends.

Results: For the majority of the tested antibiotics, the S strains are predominant: their percentage exceeds 50%. The only exception is CHL, whose S strains percentage is just 17%. More than 20% of the strains are resistant to AX, CIP, CHL and FM, while less than 20% are resistant to the rest. As to GM, however, one cannot promptly claim it, considering the confidence interval. Over the years, the percentage of R and M has increased for E, OFX and MER, while the percentage of S has decreased. As for Va, OX, AX and CIP, the S percentage has increased, the R percentage has decreased, whereas the M percentage has scarcely changed. For the rest of the studied ABD, the trends are absent or unclearly expressed. For E, MER, OFX and DX, there is a tendency for a steady increase in the level of stability. The resistance to CZ has also been increasing, but much slower. For Va, OX, AX, PTX, CIP, and FM, there is a tendency of resistance decrease. It can be therefore assumed that in recent years staphylococci have been contacted with E, MER, OFX more often than before, which leads to a continuous increase in resistance to the three antibiotics. The use of Va, OX, AX and CIP is consequently likely to be declining. There are no fixed trends for CZ, CRO, CTX, GM, DX, CHL, which could be observed during the whole time of study. However, there have been some changes in certain periods of time, such as a rapid increase in resistance to DX, CRO, CHL in a particular point in time.

Conclusions: A large percentage of resistant strains is identified for those antibiotics, which are most commonly used. This can be justified by the fact that they are, in most cases, distributed in form of pills, which are sold with no prescription and are used in disproportionate amounts, with no medical control or time limit observance.

KEY WORDS: antibiotics, antibiotic resistance, *Staphylococcus aureus*

АРТЕРІАЛЬНА ГІПЕРТЕНЗІЯ ТА GLY460TRP-ПОЛІМОРФІЗМ ГЕНА АЛЬФА-АДДУЦИНУ 1

ARTERIAL HYPERTENSION AND GLY460TRP-POLYMORPHISM OF ALPHA-ADDUCIN 1 GENE (ADD1)

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Вступ: Артеріальна гіпертензія (АГ) – захворювання, розвиток якого залежить від складної взаємодії факторів зовнішнього середовища та генетичних маркерів. Останнім часом багато досліджень спрямовано на пошук так званих генів-кандидатів, які можуть прямо або опосередковано впливати на розвиток АГ. Слід зазначити, що дані про зв'язок Gly460Trp поліморфізму гену альфа-аддуцину 1 (ADD1) з розвитком АГ на сьогодні залишаються суперечливими та демонструють міжпопуляційні відмінності асоціації поліморфних варіантів гену з ризиком розвитку АГ.

Метою дослідження було вивчення поширеності Gly460Trp поліморфізму гену ADD1 у хворих з АГ II стадії в українській популяції.

Матеріали і методи: Обстежено 232 особи української популяції, серед них 120 хворих (46 чоловіків та 74 жінки; середній вік [±SD] 53.33±14.55 років) на АГ II стадії та 112 практично здорових осіб (73 чоловіка та 39 жінок; середній вік 57.89±10.05 років). Усім пацієнтам проведено генотипування за Gly460Trp-поліморфним локусом гену ADD1, де застосовувалася полімеразна ланцюгова реакція з аналізом довжини рестрикційних фрагментів (PCR-RFLP). Статистична обробка отриманих результатів проводилася з використанням програмного забезпечення SPSS (SPSS, version 25.0, Chicago, IL, USA).

Результати: Серед 120 хворих на АГ 91 (75.8 %) були гомозиготами за G алелем, 26 (21.7 %) – гетерозиготами та 3 (2.5 %) – гомозиготами за T алелем. Частота G-алеля у хворих на АГ склала 0,87, T-алеля – 0.13. Тоді як серед практично здорових осіб 98 (87,5 %) були гомозиготами за G-алелем, 13 (11.6 %) – гетерозиготами та 1 (0.9 %) особа – гомозиготою за T-алелем. Частота G та T алелів склала 0.93 та 0.07 відповідно. Використання χ^2 -критерію Пірсона не виявило різниці у розподілі генотипів за Gly460Trp-поліморфізмом гена ADD1 у контрольній групі та у хворих на АГ ($P = 0.07$), натомість встановлені статистично достовірні відмінності у частотному співвідношенні алелів ($P = 0.033$). Методом бінарної логістичної регресії було визначено ризик розвитку АГ залежно від генотипу за Gly460Trp -поліморфним локусом гена ADD1. Згідно домінантної моделі успадкування ризик розвитку АГ у носіїв мінорного T-алеля (GT+TT) більший (ORC = 2.231; 95% CI = 1.109-4.487), ніж у гомозигот за основним алелем (GG) ($P_c = 0.024$). Також у рамках наддомінантної та адитивної моделей успадкування встановлено, що у носіїв GT-генотипу ризик розвитку АГ вищий, ніж у GG -гомозигот (ORC = 2.106; 95% CI = 1.022 - 4.341; $P_c = 0.043$ — для наддомінантної моделі; ORC = 2.154; 95% CI = 1.044-4.444; $P_c = 0.038$ — для адитивної моделі).

Висновки: Виявлено достовірно більше накопичення G алеля G460T поліморфного маркера гена ADD1 серед хворих на АГ II стадії українській популяції, що підвищує ризик виникнення АГ.

КЛЮЧОВІ СЛОВА: артеріальна гіпертензія, генний поліморфізм, альфа-аддуцин.

KEY WORDS: arterial hypertension, gene polymorphism, alpha-adducin