Modern scientific research and their practical application

Published by:
Kupriyenko SV on Project SWorld

With the support of:
Odessa National Maritime University
Ukrainian National Academy of Railway Transport
Institute for Entrepreneurship and morehozyaystva
Lugansk State Medical University
Kharkiv Medical Academy of Postgraduate Education

Volume J21306
November 2013

SWorld /Scientific World/ is a modern on-line project, acting in the name of science to achieve the high goal “international integration of research” (conferences, workshops, electronic journals, publishing support for academics)
This volume contains research papers of scientists in the field of Medicine, veterinary medicine and pharmaceuticals.

Editorial board:

Alexandr G. Shibaev – Doctor of Technical Sciences, Prof.
Alexandr V. Yatsenko – associate professor, rector of the Institute for Entrepreneurship and morehozvaystva
Sergiy M. Goncharuk – Doctor of Technical Sciences, prof., Member of the Russian Academy of Transport and the International Informatization Academy, Honored Worker of Transport of Russia
Denis V. Lomotko – Doctor of Technical Sciences, Vice-Rector of the Ukrainian State Academy of Railway Transport, Corr. Transport Academy of Ukraine
Inna A. Lapkina – Doctor of Economic Sciences, Professor.
V. Ivanov - Doctor of Law, Professor;
Victoriya A. Shapovalova - Doctor of Pharmacy, professor;
Alexandr I. Tikhonova - Doctor of Pharmacy, professor;
Alexandr P. Gudzenko - Doctor of Pharmacy, professor;
Valeriy V. Shapovalov - Doctor of Pharmacy, professor;
Dmatriy S. Volokh - Doctor of Pharmacy, professor;
Victor P. Georgievskiy - Doctor of Pharmacy, professor, corresponding member Ukraine NAS;
Alexandr I. Grizodub - Doctor of Chemistry, professor;
Valentine V. Shapovalov - Candidate of Pharmaceutical Sciences;
Sergiy I. Rylov – Ph.D. in Economics, Professor.
Elena V. Kirillova – PhD, associate professor
Petrov I - PhD, associate professor.
Julia L. Kantarovich – Ph.D. in art history science
I. Mogilevskaya - candidate of pedagogical sciences professor;
Demidova V - Ph.D in Pedagogical Sciences
Stovpets A. - Ph.D in Philosophy Sciences, associate professor
Stovpets V. - Ph.D in Philology Sciences, associate professor
Alexandra D. Markova

Published by:
Kupriyenko SV
on Project SWorld
P.O. Box 38, Odessa, 65001 Ukraine
Telephone: +380667901205
e-mail: orgcom@sworld.com.ua
site: www.sworld.com.ua

The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Copyright © Authors, 2013

Paper Numbering: Papers are published as they are submitted and meet publication criteria. A unique, consistent, permanent citation identifier (CID) number is assigned to each article at the time of the first publication.

Downloaded from SWorld. Terms of Use http://www.sworld.com.ua/index.php/ru/e-journal/about-journal/terms-of-use
| Article Number | Title                                                                 | Authors                                                                                       | Institution(s)                                                                 |
|----------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| J21306-002     | EPIZOOTOLOGICHESKY’S RESULTS OF MONITORING AND ANALYSIS OF EFFICIENCY OF MEASURES OF SPECIFIC PREVENTION OF SALMONELLEZNOGO OF ABORTION OF MARES IN THE REPUBLIC OF SAKHA (YAKUTIA) | Butkovsky V.F.                                                                               | FGBOU VPO “Yakut State Agricultural Academy"                                   |
| J21306-003     | THE CONTENT SOME HEAVY METALS IN TESTICLES OF HEREFORD BULL-CALVES    | Narozhnykh K.N., Korotkova G.N.                                                               | Novosibirsk State Agrarian University, Novosibirsk, Dobroljubova 160, 630039       |
| J21306-004     | A NEW METHOD OF REHABILITATION OF PATIENTS WITH DISCIRCULATORY ENCEPHALOPATHY | Rovenskaya N.G., Kulishova T.V.                                                               | MU sanatorium «Centrosous of the Russian Federation», AGMU Russia Belokurikha, Barnaul |
| J21306-005     | AN ISOLATION OF SALMONELLA FROM FISH AND FROZEN FISH READY-TO-COOK FOODS. | Timchenko O.V.                                                                               | State agrarian academy of Poltava                                                   |
| J21306-007     | EFFECT OF THE MAIN NON-BIOLOGICAL DISEASE MODIFYING ANTIRHEUMATIC DRUGS ON RADIOGRAPHIC PROGRESSION IN PATIENTS WITH RHEUMATOID ARTHRITIS | Iaremenko O.B., Mykytenko G.M.                                                              | O.O. Bogomolets National medical university                                           |
| J21306-008     | NONFORMED FISTULAS OF THIN BOWEL AS THE CAUSE OF ENTERAL SYNDROME.    | Belozerov I.V., Andreev G.I., Logachov VK, Kudryavtseva A.A. Rozhikova E.J.                      | Department of Surgical Diseases, operative surgery and topographic anatomy, V.N. Karazin Kharkiv National University |
| J21306-009     | CLASSIC METHODS OF HUMAN’S AND ANIMALS’ EPIDERMOMYCOSIS DIAGNOSTICS (survey article) | Ahmadi M.S., Kukhar E.V.                                                                       | Kazakh agrotechnical university after name of S. Seyfullin Astana, Kazakhstan          |
| J21306-010     | DYNAMICS OF STRESS REACTIVITY OPERATOR TRADES IN WORKERS ON THE BACKGROUND OF GENERAL MAGNETOTHERAPY | Baranova L.N.                                                                                | Departmental Hospital Surgut at the station of "Russian Railways" 668414 Surgut, ul. Mechnikova, 3 |
| J21306-012     | ASSESSMENT OF THE STATE OF HEALTH OF WORKERS OF TUNNELS WITH AN EXPERIENCE | Kurenkova G.V.                                                                               | Irkutsk State Medical University                                                      |
| J21306-013     | THE EFFECTIVENESS OF PROPRANOLOL IN TREATMENT OF HAEMANGIOMAS IN CHILDREN OF DIFFERENT AGES | Dementieva N.A.                                                                              | Regional Children Hospital of Dnepropetrovsk 49100 Ukraine, Dnepropetrovsk, Kosmicheskaya str, |
| J21306-014     | FORENSIC AND EVIDENCE PHARMACY: MONITORING PROBLEMS OF ALCOHOL DEPENDENCE IN THE WESTERN REGION OF THE COUNTRY | Schapovalov V.V. (Jr.), Chuvera O.V.                                                        | Kharkiv Medical Academy of Postgraduate Education Department of Healthcare of the Kharkiv Regional State Administration Kharkiv, pl. Freedom, 5, 61022 |

Downloaded from SWorld. Terms of Use http://www.sworld.com.ua/index.php/ru/e-journal/about-journal/terms-of-use
<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>J21306-015</td>
<td>MODERN STATE SUPPORT DRUG PATIENTS IN RURAL AREAS: ANALYSIS OF COMPLAINTS OF CITIZENS ON PRINCIPLES OF MEDICAL AND PHARMACEUTICAL LAW</td>
<td>Shapovalov V.V., Shapovalova V.O., Hmelevsky M.O.</td>
<td>Kharkiv Medical Academy of Postgraduate Education Department of Healthcare of Kharkiv Regional State Administration Kharkiv, pl. Freedom, 5, 61022</td>
</tr>
<tr>
<td>J21306-016</td>
<td>MEDICAL AND PHARMACEUTICAL LAW: THE FORMULARY SYSTEM IN UKRAINE</td>
<td>Ryschenko O.O., Shapovalova V.O., Shapovalov V.V.</td>
<td>Kharkiv Medical Academy of Postgraduate Education Department of Healthcare of the Kharkiv Regional State Administration Kharkiv, pl. Freedom, 5, 61022</td>
</tr>
<tr>
<td>J21306-017</td>
<td>MEDICAL AND PHARMACEUTICAL LAW: THEORETICAL STUDY OF STATE POLICY ON EQUAL RIGHTS AND OPPORTUNITIES FOR WOMEN IN UKRAINE</td>
<td>Radionova V.A., Shapovalova V.A., Shapovalov V.V., Smokvina T.O.</td>
<td>Kharkiv Medical Academy of Postgraduate Education Department of Healthcare of the Kharkiv Regional State Administration Ukraine, Kharkov, pl. Freedom, 5, 61022</td>
</tr>
<tr>
<td>J21306-018</td>
<td>MEDICAL AND PHARMACEUTICAL LAW: LEGAL PROCEDURES CIRCULATION EXTTEMPORANEOUS COMPOUNDING IN PHARMACIES UKRAINE</td>
<td>Vasina Y.V., Shapovalov V.V., Shapovalova V.O.</td>
<td>Kharkiv Medical Academy of Postgraduate Education Department of Healthcare of the Kharkiv Regional State Administration Kharkiv, pl. Freedom, 5, 61022</td>
</tr>
<tr>
<td>J21306-020</td>
<td>BIOCHEMICAL BLOOD MEASURES OF CHICKEN-BROILER DUE TO FEEDING PESTICIDE GAMMA-HCH</td>
<td>Pochtarenko P.P.</td>
<td>National University of Life and Environmental Sciences of Ukraine Kiev, Heroyiv Oborony st., 15 03041</td>
</tr>
<tr>
<td>J21306-021</td>
<td>APPLICATION OF COMBINED OINTMENTS IN TREATING WOUNDS</td>
<td>Grigoryan A.Yu., Bezhin A.I., Pankrusheva T.A., Kozareva E.V., Gorohova A.S.</td>
<td>Kursk State Medical University, Russian Federation, Kursk, st. Karl Marx 3, 305033</td>
</tr>
<tr>
<td>J21306-022</td>
<td>EFFECT OF THE SOLUTION OF POLTAVA BISHOFIT ON THE MICROORGANISMS OF MILK OF CLINICALLY HEALTHY SOWS AND SOWS THAT HAVE SUBCLINICAL MASTITIS.</td>
<td>Kit A. A.</td>
<td>State Agrarian Academy of Poltava</td>
</tr>
</tbody>
</table>
PARTICIPATION OF NEURAL CREST CELLS IN THE
RESTRUCTURING OF CONOTRUNCUS OF THE MOUSE’S EMBRYO
HEART. MORPHOLOGICAL OBSERVATION

SI «Medical academia of Dnepropetrovsk of MPH from Ukraine»,
Dnipropetrovsk.

In this work presents quantitative and qualitative characteristic of neural crest cells population of conotruncus of the mouse’s embryo heart. For the quantitative estimate of this population was used the original method for the calculation of quantitative density and absolute volume of condense mesenchyme. We used the immunohistochemical method for detecting neural crest cells population for the qualitative evaluation.

Key words: conotruncus, neural crest cells, condense mesenchyme

It’s known nowadays that cardiac neural crest cells originate as part of the postotic caudal rhombencephalic neural crest stream. Ectomesenchymal cells in this stream migrate to the circumpharyngeal ridge and then into the caudal pharyngeal arches where they condense to form first a sheath and then the smooth muscle tunics of the persisting pharyngeal arch arteries. A subset of the cells continues migrating into the cardiac outflow tract where they will condense to form the aorticopulmonary septum [1]. Cell signaling, extracellular matrix and cell-cell contacts are all critical for the initial migration, pauses, continued migration and condensation of these cells [2].

There were scanned the population of neural crest cells (NCC) in the proof of condensed mesenchyme (CM) of endocardial components of conotruncus during of our research. There were used 215 embryo mice (C57BL/6) hearts obtained by PP “Biomodelservice”, Kiev and the prenatal period lasted from 10-th to 14,5-th embryonic days (ED) or 16-22 stages by K. Theiler [3]. We used the complex of
histological, histochemical, immunohistochemical and morphometric methods [4]. There were created 3-dimensional models of aorticopulmonary complex and septum, pharyngeal arches, swelling of the truncus and ridges of the conus. We carried out biometrical and statistical analysis [5].

Antibodies to triplets of neurofilaments (NF) and to the glial fibrillary acidic protein (GFAP) of NCC were chosen to detect the population of neural crest cells. Immunohistochemistry reaction was conducted using visualization system LSAB (Labeled Streptavidin Biotin) (Lab Vision). This research conducted and interpreted on the base of Diagnostic center of Dnepropetrovsk under the supervision of professor, d. med. s. I. S. Shponka.

The cardiac NCC population associated with CM according to series researches of modern blight and foreign scientists [1, 2, 6, 7]. So, we decided to give the quantitative evaluation of the CM population of conotruncus. There were used the original method (Pat. number 55038 “Way to evaluate the morphofunctional state of embryonic mesenchymal structures”) for the calculation of quantitative density and absolute volume of CM.

So, at 10 ED (16 Theiler stage) quantitative density of CM of the conus was on 91.1% less than same index from the truncus (fig. 1). The GFAP+ population was detecting among mesenchymal cells and theirs pericellular space. Expression of the marker of triplets of NF was negative (fig. 2). Through the half an embryonic day the index of quantitative density of CM conus was authentically raised on 60.3%. To the GFAP+ population of the conotruncus joined myocytes of the myocardial cuff special intercellular space with the weakly positive reaction. Expression of the marker NF observed between the cells of spinal ganglion. At the 11 ED (18 Theiler stage) the absolute volume of conus CM was at 64.3% less than the same index from the truncus (p<0.05) (fig. 1). The index of quantitative density of CM conus was authentically raised on 87.5% and the same index of the truncus – on 54.2%. It was observed the significant positive reaction on glycosamynoglicans in the middle of ridges under the histochemical reactions by Stidman (fig. 3). The same picture observed under the GFAP expression. Severity of reaction among the GFAP+
population was detecting in cranio-caudal direction. NF + population was identified among the cells of the spinal ganglion and 1-3 pairs of pharyngeal arches on this term. After the half an ED it was recorded a significant increase in absolute volume of truncus CM on 42,3% and on 51,1% in the index of quantitative density (p<0,05). Congestion with the CM cells was different with more pronounced reaction on the GFAP marker. Also this expression was detecting among the components of the pericelular space of the endocardiocytes of the truncus. NF+ population was defining composed of in 4 and 6 pairs of pharyngeal arches (fig. 3). During the 12 ED (20 Theiler stage) the absolute volume of truncus CM was veraciously fell on 57,8%, herewith quantitative density was not authentically changes. GFAP+ population of the conus was more identificated, then on the previous term. It was focusing among the components of the subendocardial space of ridges of the conus. Expression of the marker NF was detecting among the migrating cells from the 4 pair of pharyngeal arches to the aortic channel. But inter the truncus CM cells this reaction was negative. Through the half a day among the GFAP+ population cells conus CM fraction had more expressions (fig. 4). At that it was characteristic for cells of septation complex. Among the conotruncus components reaction on NF marker remained negative. Migrating cells between 4 and 6 pairs of pharyngeal arches and aortic and pulmonary channels has more expressions of this marker (fig. 4). The indexes of quantitative density and of absolute volume of CM of the conus veraciously were decreasing during the 13’th and 14-th ED (fig. 1).

So, some cells had some degree by the expression of proteins of triplets of neurofilaments. But they weren’t detecting in conotruncus components, although they were visualization on the ways of migration to it. In our opinion, the NCC conotruncus population shall take the some degree of the differentiation, joining in aorticopulmonary septation complex. This mind is so discussing by many foreign scientists [2, 6, 7]. So, in this instance the changing of the epitope of proteins of neurofilaments aren’t appropriate immunohistochemical reaction conditions with the paratope same antibodies. GFAP+ population of the conotruncus was detecting from 10-th to 12,5-th ED.
Figure 1. Dynamics of quantitative indexes of the condensed mesenchyme of the conotruncus of embryo mouse heart.

A - quantitative density;
B - absolute volume.

Note:
* - significant difference from the previous stage, p<0.05.
Figure 2. Gastrological slices of the conotruncus, 10-11 embryonal days. A-C - immunohistochemical reaction with marker GFAP to coloring by the hematoxilin Maera; D – NF; B – inversion image of the reaction. A - ×40; B-D - ×100.
There were observing some degree of acid glial fibrillar protein expression among the intercellular space of the conotruncus mesenchyme and on the previous
terms. After then borders of this detecting expanded towards myocytes of the myocardial cuff. Then photos of slices with the NCC marking were reminding the histochemical reaction by Stidmen. That is the expression of this marker was identifying in pericellular space of endo- and myocardial cells of structural components of conotruncus. It makes think of nonspecific reaction of this marker.

So, it was concluded:

1. Until 10-th to 12,5-th embryonal days of absolute volume of population of condense mesenchyme of the truncus authentically increased on 86,6%, when the same index of ridges from the conus – on 96,3% (p<0,05).

2. Population of the neural crest cells colonizes of swellings from the truncus at firstly. It increases on 93,91% (p<0,05). After then it directed by ridges of the conus and increases veraciously on 99,8% during the study period.

3. Way of the truncus’s population of the neural crest cells has an excentrical pattern, whereas the conus’s population – an concentrical one.

References:


J21306-002

UDC 619:618: 818

Butkovsky V.F.

EPIZOOTOLOGICHESKY'S RESULTS OF MONITORING AND ANALYSIS OF EFFICIENCY OF MEASURES OF SPECIFIC PREVENTION OF SALMONELLEZNOGO OF ABORTION OF MARES IN THE REPUBLIC OF SAKHA (YAKUTIA)

FGBOU VPO "Yakut State Agricultural Academy"

Yakutsk, 677000, Krasilnikova 15

In article materials of the analysis of an epizootic situation and efficiency of measures of specific prevention of salmonellezny abortion of mares are given in the Republic of Sakha (Yakutia).

Key words: prevention, abortions, mares, salmonellosis, rhinopneumonia, vaccination, condition, prospects, infection, etiology.

Introduction

In the Republic of Sakha (Yakutia) horse breeding is traditional and profitable branch of animal husbandry. Along with the meat and dairy direction of the Yakut horses cultivation of thoroughbred race stallions and mares is perspective.

Now in all zones of the republic different types of individual, subsidiary, farmer and state horse-breeding farms in which the tendency of gradual growth
of the local and imported horses acquired in regions of Russia, the states of the CIS and a number of the European countries is planned are organized. Taking into account all gender and age groups the quantity of horses makes about 170000 animals.

Further development of horse breeding in the republic is interfered by various infectious and invasive diseases, and also mass abortions of mares of a various etiology. Thus abortirovanny fruits and other pathological material pollutes pastures and reservoirs that promotes emergence of enzootiiya of salmonellezny abortion of mares, leptospirosis, clamidiosis, a rhinopneumonia and other infectious diseases of horses [1,2,3].

**Purpose and research problems**

Carried out in horse-breeding zones of Yakutia organizational and economic and special events are insufficiently effective that formed the basis for the solution of the following tasks:

1. To study an epizootic situation of the Republic of Sakha (Yakutia) on a number of infectious diseases of horses.

2. To develop and the analysis of efficiency of measures of specific prevention of salmonellezny abortion of mares

**Materials and technique**

Studying of an epizootic situation on salmonellezny abortion of mares and other infectious diseases of horses carried out by the analysis of statistical data and epizootologichesky inspection of a number of unsuccessful horse-breeding farms of the Republic of Sakha (Yakutia).

When carrying out epizootologichesky monitoring of salmonellezny abortion of mares were guided by a technique of use of the basic principles of epizootologichesky diagnostics [4]. Allocation and studying of kulturalno-morphological, virulentny and immunogene properties of causative agents of salmonellosis carried out by the standard bacteriological techniques.
Manufacturing techniques of the inactivated series of a vaccine against salmonellosis abortion of mares in experimental conditions fulfilled on laboratory animals, under production conditions – on skilled and control groups of horses in Suburban economy, Namsky, Mountain and Tattinsky areas.

For skilled and control horses clinical supervision was conducted, selective serological, biochemical and hematological research of tests of blood in different terms of vaccination was carried out. In case of abortions carried out the bacteriological analysis of tests of a pathological material. Approbation of a vaccine carried out according to requirements to production and control strains of microorganisms.

**Results of research**

1. **Epizootic situation of the Republic of Sakha (Yakutia) on infectious diseases of horses**

   According to results of epizootological inspection and the analysis of statistical data, salmonellosis abortion of mares in Yakutia laboratory was established for the first time in 1933 in farms of the Megino-Kangalassky area.


   The similar epizootic situation is observed in other horse-breeding zones of the republic.

   It should be noted that the data given above reflect a true epizootic situation on salmonellosis of horses as in connection with the free tabunny maintenance of mares the accounting of abortirovavshy animals, search and collecting abortirovanny fruits represents considerable complexity not enough.
The tendency belongs to features of epizootic process at salmonellezny abortion of mares in Yakutia landshaftno – a geographical and climatic priurochennost on an incidence.

Patients with salmonellosis animals are to essential epidemiological factors as from horses by us were allocated pathogenic for people species of salmonelllas.


In recent years the quantity of unsuccessful points on leptospirosis of horses in Abyysky, Amginsky, Mountain, Namsky, Tattinsky, Ust-Aldan, Churapchinsky and other areas of the republic increased. Thus now in a number of horse-breeding areas of the republic the difficult epizootic situation on infectious diseases of horses that demands improvement of held preventive events is noted.

2. Development and the analysis of efficiency of measures of specific prevention of salmonellezny abortion of mares in Yakutia

Considering a difficult epizootic situation on salmonellezny abortion of the mares, insufficient efficiency of means of the general and specific prevention applied in the republic we on the basis of the Yakut state agricultural academy made and approved in laboratory and working conditions pilot batches of the inactivated vaccine against salmonellezny abortion of mares.

At the first stage the most immunogene epizootic strains of activators of salmonellezny abortion of mares No. 2, BN-12 were studied and selected.

In the researches for vaccine production we used S.abortus equi No. 2 strains, and also S. dublun and S. typhimurium.

The first series of a vaccine inactivated tiomersany, the second heating, and immunized white mice and guinea pigs without addition in preparations of depositing substances and an immunomodulator.
The received results of experimental infection of laboratory animals with titrovanny doses of salmonellas in 21 days after immunization testified to bigger efficiency of a tiomersanovy vaccine.

At the following stage batches of a polyvalent vaccine on the basis of 20% of gel of hydate of an oxide of aluminum and an immunomodulator were made. In experiences on laboratory animals and group of zhereby mares harmlessness and the expressed immunogenicity of the received polyvalent inactivated vaccine against salmonellezny abortion of mares was established.

Considering the received positive results, the specified vaccine at the corresponding control approved in unsuccessful farms of Mountain, Namsky, Ust-Aldansky and Tattinsky areas of the republic with coverage of 1406 skilled and 637 control clinically healthy zhereby mares.

On the basis of the carried-out issldeovaniye we developed manufacturing techniques of the inactivated vaccine against salmonellezny abortion of mares with use of high-immunogene epizootic strains salmonell, aluminum and immunomodulator hydroxides. In experimental and working conditions the vaccine was areaktogenny and possessed rather expressed immunogene properties. Depending on an epizootic situation, terms of immunization, a condition of fatness and the general resistance of an organism of zhereby mares the business exit of foals in the vaccinated slip-ups increased by 14-34,6% at low birth rate of young growth in control and as a whole corresponded to the specific weight of salmonellezny abortion of mares in Yakutia.

On the basis of similar technology in the GNU YANIISH the Russian Academy of Agrarian Sciences was received the inactivated vaccine from BN-12 strain (Butkovsky, Neustroyev) against salmonellezny abortion of mares which also possesses a certain immunological efficiency. Efficiency of vaccination thus made 10-22% [5].

Developers of a preparation specify that this vaccine didn't receive broad application because of the high cost of a used immunomodulator [6].

**Conclusion**
Comparative these studying given above polyvalent (FGBOU VPO of YAGSH) and the monovalent inactivated vaccine (GNU YANIISH Russian Academy of Agrarian Sciences) testify to their certain efficiency in the conditions of Yakutia. 

Due to the trouble of the Republic of Sakha (Yakutia) on a number of infectious diseases of the horses, being accompanied abortions, we consider perspective development on improvement of the studied vaccines, designing and application of the associated preparations that will allow to improve considerably an epizootic situation of Yakutia and to raise level of preventive actions.

References:


5. Ordakhov, I.A. Spetsificheskaya prevention of salmonellezny abortion of horses in the conditions of Yakutia / Avtoref. edging. veterinary sciences.-Yakutsk, 2002 - 16c.
The content of Pb, Cd and Cu in testicles is studied in Hereford bulls, aged 18 months. Selectivity of chemicals accumulation is identified in testicles. Heavy metals level testicles may be ranged as follows: Cu>Pb>Cd in the ratio 45,1 : 3,8 : 1.

Key words: bulls, testicles, copper, lead, cadmium.

Environmental contamination by heavy metals became a serious threat for all the living on the planet including man [1]. In the present conditions the problem of biomonitoring and bioindication of environment and elements of trophic chains is especially important and it aims to decrease the accumulation of heavy metals in the organism of animals and people [2]. There are some data on the concentration of heavy metals in organs of pigs [3] and cattle [4], however, by now, the norms of heavy metals content in testes and other cattle organs and tissues have not been established with ontogenesis stage, breed and housing area accounted.

Objects and methods of the examination

The examination was conducted on the basis of the laboratory of Siberian Research Livestock Breeding Institute under Rosselkhozakademia. Hereford calf-bulls, aged 18 months were the objects of the examination. The subject of the
examination were their testes. The calf-bulls had been grown up on the farm "Tayezhnoye", Novosibirsk region. Ten testis samples were taken to examine. The elements structure of the samples were determined according to GOSTs 9State Standards) with the atomic-absorption spectrometer «Shimadzu AA-7000» (Japan).

The data obtained were PC processed with the method of descriptive statistics using Microsoft Excel software.

The examination data

Considerable difference in the accumulation of the chemical elements in testes (tab.) is identified. There are the data about interspecies distinctions for the accumulation of heavy metals in the testes of different animal species, in particular in rats, the content of lead is 2 times as much as the Hereford cattle of our examinations. [5].

Testes accumulate copper the most and cadmium - the least. The decreasing range of the elements concentration can be presented as follows: Cu>Pb>Cd.

Relatively low ratio of the marginal variants is characteristic for lead. Cadmium has the highest phenotypic variability, lead and copper has its mean level.

Table

<table>
<thead>
<tr>
<th>Chemical element</th>
<th>X±Sx</th>
<th>σ</th>
<th>C_v</th>
<th>Lim</th>
<th>Marginal variants ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cd</td>
<td>0.0082±0.0018</td>
<td>0.0057</td>
<td>69.5</td>
<td>0.003-0.023</td>
<td>1:7.7</td>
</tr>
<tr>
<td>Pb</td>
<td>0.0315±0.0046</td>
<td>0.0147</td>
<td>46.6</td>
<td>0.012-0.055</td>
<td>1:4.6</td>
</tr>
<tr>
<td>Cu</td>
<td>0.37±0.0559</td>
<td>0.1767</td>
<td>47.8</td>
<td>0.1-0.7</td>
<td>1:7</td>
</tr>
</tbody>
</table>

Negative correlation is revealed between the content of cadmium and lead in calf-bulls testes (r= -0.30). The correlation may indicate the competition of the metals for their binding to sulphydryl groups [6]. In addition, the direct correlation between Cu и Pb (r=0.36) was found. This relationship may relate to copper toxicodynamics in the organism.
Conclusions

1. The selectivity in accumulating Cu, Pb and Cd was identified in Hereford calf-bulls’ testes. The level of testes cadmium is characterized by high phenotypic variability.

2. There is negative relationship between the concentration of lead and cadmium in testes and mean positive one – between lead and copper.

References


A NEW METHOD OF REHABILITATION OF PATIENTS WITH DISCIRCULATORY ENCEPHALOPATHY

MU sanatorium «Centrosous of the Russian Federation», AGMU
Russia Belokurikha, Barnaul

Introduction: TSVB occupy a significant place in the structure of morbidity and mortality, causing enormous economic damage to society. The problem of rehabilitation of patient’s dyscirculatory encephalopathy is one of the most vital in the modern clinical neurology and physiotherapy. In recent years in our country, the effectiveness of neyroadaptivnoy electrostimulation in the treatment of diseases, due to its positive impact on the sanogenesis [1, 2, 3, 4].

Objective: To increase the effectiveness of comprehensive rehabilitation patients DE I-II stage with the inclusion neyroadaptivnoy electrostimulation in the sanatorium.
**Materials and Methods:** The study included 144 patients resort middle age with a diagnosis of encephalopathy stage I-II. The age of patients in the study groups was 45 - 60 years (51.3 ± 3.4 years). Study approved at the meeting of the Ethics Committee (Minutes № 10 of 22.10.2008 years). Inclusion criteria were the clinical signs of ED I-II stage of phase compensation. Exclusion criteria: DE - III stage, DE - I-II stage in combination with hypertension - III stages, acute ischemic stroke, traumatic brain injury, neuroinfection a history of severe comorbidities, patients with pacemakers. All patients with ED I-II stage in the compensation phase were divided into three randomized groups: the main group, the comparison group and the comparison group I II. Randomization was carried out comparison groups by gender, age, duration of disease, comorbidity. All groups received rehabilitation complex, which included: diet therapy, herbal medicine, physical therapy, manual massage the neck area, the nitrogen-siliceous elaboradonovye bath containing radon 7.3 mg/dm3. Study group (45 people) in addition to the complex rehabilitation includes neyroadaptivnaya electrostimulation.

Comparison group I (47) received an identical set of magnetic therapy for rehabilitation and collar area. Comparison group II (N = 52) received the base complex rehabilitation and electrical stimulation method neyroadaptivnuyu placebo. Electroneurostimulation technique [5] is the impact of bipolar electric pulses with positive and negative impulse comfortable energy level, the frequency of F-60 Hz. Impact area includes the area of the 2nd cervical vertebra 5 minutes paravertebral with 2 sides, a zone of direct projection of the carotid arteries for 5 minutes on 2 sides and the constant mode paravertebral cervical-occipital region with 2 sides for 5 minutes, the constant scanning mode. The total duration of treatment 30 minutes, the treatment of 10 procedures daily. Apparatus "DiaDENS" Registration Certificate of the Federal Service on Surveillance in Healthcare and Social Development of the Russian Federation of 04.03.2005 № FS-2005/004 year, serial number AEA 961, certificate № ROSS R4. ME27.V00492, manufacturer of the device LLC "RC ART", Ekaterinburg, Russia.
As the performance criteria used: the dynamics of clinical data, the dynamics of neuropsychological tests: "memory for numbers," "Memory for images", focus on the "table Schulte," scale "MMSE" mental and emotional status (test Spielberger-Hanin, multi-personality questionnaire "tar"), the dynamics of the quality of life on the test «Short Form-36 (SF-36) Health Status Survey», the study of cerebral blood flow using rheoencephalography, which was conducted using the "Rao - Spectrum-12". Statistical analysis was performed using the methods of parametric statistics. Statistical analysis of the data was carried out on a personal computer using the «Statistica 6.0» with the definition of mean values (M), the mean error (m), the criterion validity of Student-Fisher (t), the significance level (p), the criterion of homogeneity $\chi^2$. Differences were considered significant at $p < 0.05$ or $\chi^2 > 3.8$. In studying the effect of the complex rehabilitation to include neyroadaptivnoy electrostimulation in the intervention group decreased the frequency of headaches in 64% of patients ($p < 0.05$); comparison group I have 23,4% ($p < 0.05$), in the control group II in 11,5% ($p < 0.05$), the noise in my head down to the core group, 24,5% ($p < 0.05$), in group I compared with 14,9% ($p < 0.05$), in comparison group II at 9,6% ($p < 0.05$). Dizziness in the intervention group decreased from 31,1% ($p < 0.05$), normal sleep at 46,7% ($p < 0.05$), improved memory and attention occurred in 44,5% ($p < 0.05$). In the comparison group I dizziness decreased by 17,1% ($p < 0.05$), sleep disorders in 23,4% ($p < 0.05$), memory and attention improved from 21,2% ($p < 0.05$). In the comparison group II dizziness decreased in 11,4% ($p < 0.05$), sleep disorders in 17,3% ($p < 0.05$), decreased memory and attention in 13,4% ($p < 0.05$).

However, the performance of the main group were significantly higher than those groups of comparison. After a course of rehabilitation the average time taken to find the numbers on the "table Schulte" significantly decreased in the study group to 24,2% ($p < 0.05$), in group I compared to 14,5% ($p < 0.05$) in the comparison group II at 11,7% ($p < 0.05$). The accuracy in the comparison groups was lower than in the study group. Cognitive impairment is a key manifestation of the DOE, are the most important diagnostic criterion and the best marker for the assessment of disease [6, 7, 8]. For the study of cognitive disorders, we used the short scale-Mental State
"MMSE." Analysis of the test showed a decrease in cognitive impairment in the study group to 18.7% (p <0.05), in group I compared the scores at 11.9% (p <0.05), in group II compared to 10.0% (p <0.05), the accuracy in the comparison groups was less than the main group. Analysis of indicators of anxiety level on the test Spielberger-Hanin showed that the number of patients of the group with a high level of anxiety decreased by 35.5% (p <0.05), moderate increase of 49.0% (p <0.05), patients with low levels of anxiety improved by 13.5% (p <0.05). In comparison groups I and II on the test performance has improved, but the reliability of the main group was observed above. To assess the effectiveness of the immediate use of complex rehabilitation of the integral index of health [9]. In the study group rose by 30.1% (p <0.05), in group I compared to 19.9% (p <0.05), in group II compared to 13.2% (p <0.05), but the accuracy in the study group than in the comparison group. In terms of quality of life in patients of the group after rehabilitation saw an increase in performance, "general health" - by 37.6% (p <0.05), «physical function" on 31.8% (p <0.05), "social role" in 46.0% (p <0.05), «emotional" and "physical role" has improved by 50.3% (p <0.05) and 45.2% (p <0.05), "physical pain" decreased by 36.9% (p <0.05), «mental health" and "vitality" to 33.6% (p <0.05) and 35.0% (p <0.05), the reliability was higher than in the comparison groups.

Rheoencephalography results shown in the main group of patients returned to normal pulse volume (RI) in the carotid by 34.5% (p <0.05), in the vertebral arteries by 29.8% (p <0.05). In the comparison group I, respectively 13.9% (p <0.05) and 14.8% (p <0.05), in group II compared to 11.9% (p <0.05) and at 12, 6% (p <0.05). Diastolic index patients of the main group in the carotid decreased by 22.8% (p <0.05), in the basin of the vertebral arteries 21.8% (p <0.05), indicating that the removal of the peripheral vascular spasm of cerebral vessels. In the comparison group I index fell by 14.0% (p <0.05) and 12.0% (p <0.05), in group II compared to 10.0% (p <0.05) and 9.3% (p <0.05), respectively. Restoration of venous drainage (AD) in the study group was in the pool of the carotid arteries to 29.6% (p <0.05), in the basin of the vertebral arteries by 31.5% (p <0.05). In the comparison group I venous drainage improved by 19.1% (p <0.05) and 17.8% (p <0.05), respectively, in group II.
compared to 11.8% (p < 0.05) and by 13.0% (p < 0.05). Indicators of the main group were significantly higher than in the comparison groups. At 6 months after rehabilitation at the sanatorium stage in the study group met with subjective symptoms significantly less reliable than in the comparison groups. Quality of life in the comparison groups were also significantly lower in the main group.

**Conclusion:** Thus, the inclusion of complex rehabilitation neyroadaptivnoy electroneurostimulation ED patients stage I-II has a positive effect on the dynamics of subjective symptoms, improves short-term memory, attention and cognitive abilities of patients, reduces the cognitive deficits have a positive impact on the psycho-emotional state, reducing anxiety, depression, reducing irritability and fatigue, improves quality of life and an integral indicator of the health of patients.

References:


5. Patent for the invention № 2010124189 «Way of treatment of
In this article examine the results of bacteriologic examination of fish and frozen fish, ready-to-cook foods with the aim selection, of salmonella and establishment of theirs serovariant. It was set that distinguished salmonella more often in groups D1 (50 %) - Salmonella enteritidis В, Salmonella dublin and in groups В (25 %) - Salmonella paratyphi B, Salmonella derby and also there are rare groups (25%) H, R .

Key words : salmonella, rare groups, isolation, nourishing environment, cultivation, serums of salmonella.
Entry. Considerable part among dangerous zooanthropozoviz, as toksikoinfekcii is made by sal'moneli caused certain serum variants.

The problems of sal'moneleznoy infection, except for in the specialized and scientific literature, remember lately and in mass medias.

By the source of sal'moneleznoy infection for a man, zoons, bird and finfishess, and also other mammals and shellfishes, there are food products and accordingly feed. Except for it, a production, storage and trading in the products of feed, takes place for people and zoons, that on the different stages of motion of them to the user [3,4].

Fish and fish products can be the source of sal'moneleznikh diseases of people even with lethal cases [2].

First a salmonellosis was described by the German researcher Glesser (1907). About ability of sal'monel to cause for people a disease with the signs of poisoning reported A. Gertner (1888) and C.Kaenshe (1896), describing the flash of enteritises for people in Germany after the use of meat of the forcibly hammered cow. From him the first researcher selected a bacterium which was named by «Bacillus of enteritidis», and second – «Breslau Bacillus». Information in relation to the study of properties of this exciter described in labours of S.Eberth (1880), Kauffman, V.A. Kilesso, P. Pritulin (1975), A.M. Head (1998), L.K. Volinecy (2003), V.A. Ushkalov (1998, 2001), V.P. Berdnik (1975, 1998), O.V. Titarenko (2005) and other.

In the frozen products sal'moneli can keep it by zhittezdat-nist' months, even if their amount diminishes. They maintain 5-6 multiple freezing and unfreezing [1]. The antigen formulas of sal'monel were described by Kauffman-Vit-Shem. In 1934r. Kauffman and-White developed the chart of authentication of sal'monel, in basis of which lies them antigen formula [6]. It is for today existed near 2500 different serum variants [7].

Among the classification signs of sal'monel except for an antigen structure the biochemical signs of microorganisms are important [3, 5]. For sal'monel peculiar variabel'nist' of biochemical descriptions within the limits of all family [5].

Results of researches. For the purpose of tests had an isolation bacteriological
cultivations of salmonel and determination of them serum variant. Research Ob"ektami served 47 tests of fish and fish ready-to-cook foods frozen. Bacteriological tests conducted after the generally accepted methods, serum typification - by diagnostic sal'moneleznikh of liquid and dry wheys.

Nourishing environments used a producer Himedia India, tested after rostovimi properties. For proceeding in the damaged cages of microorganisms an experimental product was sown in a previous environment by enriching peptone-buffer clear soup (1:9 and 1:4) was cultivated at 370°C 18-20 hours, farther a suspension was carried in the second environments by enriching - clear soup of selenite of Leyfsona and Rapapporta Vasiliadisa, cultivated 24-48 h. at 370°С and accordingly 420°C. Peresivali on differentially diagnostic geloses of vismut-sul'fitniy, Sal'monela-Shigela, Endo and Edelya Kampel'makhera — 370°C, 24-48h.

On clear soups observed discolorations, so clear soup of selenite became pink saturated, and Rapapporta - discoloured in a light blue color. From differentially diagnostic geloses took away suspicious colonies: from Endo are transparent bezkolerni colonies and light pink shallow colonies, through 48-72 h. preferentially there was mucous billow appears; from a gelose Sal'monela-Shigela — transparent bezkolerni and to the color of environment shallow colonies; on a vismut-sul'fitnomu gelose are black and brown colonies with metallic brilliance, an environment round colonies grew dark, and also marked colonies round which the color of environment slightly grew dark and metallic silver brilliance is present; on Edelya Kampel'makhera are light pink colonies, an environment is pink. On one geloses growth of sal'monel was marked, and on other parallel no, here transference of zavisi from one clear soup, namely: on a vismut-sul'fitnomu gelose growth of sal'monel was, and on a parallell zasiyanomu gelose sal'monela-shigela vidsutniy.

Suspicious colonies sowed on zkosheniym yaso-peptone gelose (370°C- 24 h.) and dyed after Gramme. The gram-negative looked after in strokes shallow thick short sticks with zaokruglimi edges. After days after confirmation of monoculture a microscopy, conducted the previous reaction of agglutination with polivalentnimi O-ABCDE sal'moneleznimi wheys and rare groups. Along from it sowed on
environments with carbonhydrates and polyols, determination of selection the sulphuretted hydrogen and ketole, and also on other.

At determination of biochemical properties of the selected cultures of sal'monel marked a typical picture, that not zbrodzhuvali a lactose, saccharose, and Salicinum, fermentuvali Sorbitum, Mannitum, maltose and glucose, with formation of acid and gas (but without gas), selected the sulphuretted hydrogen, absence of ketole and synthesis of fenilalaninu, oksidazonegativni, katalazopozitivni, presence of lizindekarboksilazi (but weak fermentation of lizinu),does not slit an urea, utilized Citras, milk was not rolled up.

Yes, in six (22,22%) tests selected 8 cultures of sal'monel, here set the positive reaction of agglutination in ++++ but +++ from O-ABCDE and rare groups by wheys. In the reaction of agglutination from O-monoreceptornimi by wheys a positive result was given by the followings antigens: vi, 1, 4, 5, 6, 9, 12, 14, 25, 40. From N-sirovotkami of a 1 phase - l, v, f, g, m, and, p; 2 phases - 1,2, 1,7 (tab.1).

4 cultures doslidzhuvali the method of imunnofermentnogo analysis on miniVidas, that gave a positive result as well as by the method of the bacteriological sowing. Analizuyuchi biochemical properties and serum formulas of the selected cultures of sal'monel in obedience to the chart of Kauffman-White, serum variants set: S. paratyphi of B, S. derby, S.enteritidis, S.dublin, S. buzu, S. millesi. There were tests which contained a few variants of sal'monel, so, groups B and D, group D and H.

Table 1.

<table>
<thead>
<tr>
<th>Biochemical and serum reactio</th>
<th>Nё tests from which, selected cultures of Salmonella of spp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biillow appears</td>
<td>4</td>
</tr>
<tr>
<td>Lactose</td>
<td>-</td>
</tr>
<tr>
<td>Saccharose</td>
<td>-</td>
</tr>
<tr>
<td>Dextrose</td>
<td>-</td>
</tr>
<tr>
<td>Salicinum</td>
<td>-</td>
</tr>
</tbody>
</table>

Results of biochemical and serum researches of sal'monel, n=47
<table>
<thead>
<tr>
<th>Sorbitol</th>
<th>ag</th>
<th>a</th>
<th>ag</th>
<th>ag</th>
<th>a</th>
<th>a</th>
<th>ag</th>
<th>a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mannitum</td>
<td>ag</td>
<td>a</td>
<td>ag</td>
<td>a</td>
<td>k</td>
<td>ag</td>
<td>ag</td>
<td>ag</td>
</tr>
<tr>
<td>Arabinose</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>-+</td>
<td>a</td>
<td>-+</td>
<td>-</td>
</tr>
<tr>
<td>Dulcit</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>-+</td>
<td>a</td>
<td>-+</td>
<td>a</td>
</tr>
<tr>
<td>Maltose</td>
<td>ag</td>
<td>a</td>
<td>ag</td>
<td>ag</td>
<td>-+</td>
<td>ag</td>
<td>a</td>
<td>ag</td>
</tr>
<tr>
<td>Sulphuretted</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Ketole</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fenildezaminaza</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>oxidase</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Urea</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Citras</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>lizindekarboksilaza</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-+</td>
</tr>
<tr>
<td>Milk</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reaction of agglutination: O-antigeni</td>
<td>1, 9, 12</td>
<td>1, 4, 12</td>
<td>1, 4, 5, 12</td>
<td>1, 9, 12</td>
<td>6, 14, 25</td>
<td>1, 9, 12</td>
<td>1, 9, 12</td>
<td>40</td>
</tr>
<tr>
<td>N-antigens of I phase</td>
<td>g, m</td>
<td>f, g</td>
<td>b</td>
<td>g, m</td>
<td>i</td>
<td>g, p</td>
<td>g, p</td>
<td>l, v</td>
</tr>
<tr>
<td>N-antigens of II phase</td>
<td>1,7</td>
<td>-</td>
<td>12</td>
<td>1,7</td>
<td>1,7</td>
<td>-</td>
<td>-</td>
<td>1,2</td>
</tr>
<tr>
<td>miniVidas</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Taken to serogrup</td>
<td>D₁</td>
<td>B</td>
<td>B</td>
<td>D₁</td>
<td>H</td>
<td>D₁</td>
<td>D₁</td>
<td>R</td>
</tr>
<tr>
<td>Attributed to the serovars</td>
<td>S.enteriti-dis</td>
<td>S. derby</td>
<td>S.paratyphi B</td>
<td>S.enteriti-tidis</td>
<td>S. buzu</td>
<td>S. dublin</td>
<td>S. dublin</td>
<td>S. milles</td>
</tr>
</tbody>
</table>

Conclusion.

1. From the tests of fish and fish ready-to-cook foods of frozen in 12.76% selected the bacterium of family Salmonella.

2. From the selected eight cultures of salmonel 50% is on a serogroup D₁ and for 25% - serogrup B and rare (H, R).

3. Among a group D₁ selected S. enteritidis and S. dublin, from a group B -
S. paratyphi B, S. derby.

4. A selection is marked from one to the standard of product a few serum types of group B and D₁, and groups of D₁ and H.

References:

J21306-006

UDC 616.712.2-001-089-036.82-085.8

Zabielin I.N., Golovakha M.L.

MEDICAL REHABILITATION OF ATHLETES AFTER SURGERY
ACUTE INJURIES OF THE ACROMIOCLAVICULAR JOINT

Zaporizhzhya Regional Hospital.

Zaporizhzhia, st. Orekhovskoye shosse 10, 69600
This work presents the treatment of athletes in accordance with the proposed algorithm of medical rehabilitation after surgical treatment of acute injuries of the acromioclavicular joint.

Keywords: acromioclavicular joint dislocation, scale Constant, rehabilitation.

In the structure of damaged musculoskeletal human dislocation rate acromial end of the clavicle is from 7.0 to 26.1% of all such lesions at other sites, and over 10% of all cases of acute trauma shoulder girdle in athletes [1]. According to the frequency they occupy third place after traumatic dislocation of the shoulder and forearm [2,5]. In most cases, this injury are of working age. Yet until now, no single treatment strategy and outcome measures of the disease. Offered more than a hundred different ways to fix acromial end of the clavicle, which indicates the presence of certain disadvantages of each of them, in addition, a substantial number of observations about 16,5-35,2%, a full functional recovery does not occur, indicating the relevance of the development of new methods of treatment and rehabilitation. [3]

Most patients with this injury - a person younger: athletes, people whose work involves heavy lifting above the shoulders. Thus, for a more fulfilling social adaptation of patients require higher demands on the quality of care and medical rehabilitation, which is of great social and economic importance. [4]

The choice of irrational treatment, inadequate use of rehabilitation therapies lead to dysfunction of course, the development of post-traumatic osteoarthritis deformans and chronic pain.

AIM: To improve the treatment of patients with damage to the acromioclavicular joint by clinical practice, the algorithm of medical rehabilitation after surgical treatment of sprains acromial end of the clavicle.

Materials and Methods

Over the 2008 - 2012 period on the basis of department of orthopedics, and sports injuries arthrology Zaporizhzhya Regional Hospital were treated 20 athletes with fresh ligament injuries of the acromioclavicular joint. Injuries as in contact sports (wrestling, judo, aikido, etc.), and when playing types (football, basketball,
All patients were men with a mean age of 22.5 ± 1.7 years (range 18 to 32 years). Possible after the injury had an average of 6.6 ± 0.7 days (from 2 to 12 days).

To repair damage to the acromioclavicular joint has been used minimally invasive technique with the use of "ACC-Takejag" c nonabsorbable high strength material (Patent of Ukraine № 62957 device for fixation of soft tissue to bone and bone to bone, "ACC- Takejag" № u201101376; appl. 07.02 .2011, publ. 26.09.2011, Bull. № 18).

The comprehensive nature of postoperative management of athletes with injuries of the acromioclavicular joint are developed based on modern principles and objectives of rehabilitation [4]. Gave priority to the active tactics. We divided the rehabilitation process into 3 periods: I - immobilization, II - functional and III - training.

The first period began with the immobilization imposing triangular bandage fixation in the operating room and continued until its withdrawal.

Along with the active movements of the joints healthy limb, administered as highly energetic passive and active movement of the arm on the affected side with a view of increasing intensity and pain. Pay attention to the special exercises for the hands on the side of injury: flexion and extension of fingers on the 30 - 40 movements with repeated 8 - 10 or more times a day, back and wrist palmar flexion of wrist joint for 20 - 30 strokes with repeated 8 - 10 times , circular motion brush, rotary movement of the forearm for 40 - 50 movements 8 - 10 times a day. Patients performed isometric muscle tension upper arm, shoulder and forearm.

With a smooth postoperative course (no redness and hyperthermia in the wound, pain, normalization of body temperature), the patients could be discharged from the hospital for 3 - 4 days. They are recommended for 12 - 14 days on an outpatient basis to stop external immobilization triangular bandage. Begun in hospital rehabilitation treatment actively continued physical therapy under medical supervision.

Postimmobilization or period of active functional recovery in patients began at 12-14 days after surgery, with the termination of immobilization, it is usually performed on an outpatient basis. At this time, the morphological cycle of
regeneration of tissues damaged acromioclavicular joint was close to completion. However, anatomical reconstruction did not comply fully functional. The objectives of this period were: an increase in range of motion in the joints of the upper limb, the restoration of motor activity by increasing range of motion. To this end, in addition to general developmental techniques, widely used a special set of exercises: active-passive movements of the shoulder, elbow and wrist joints of the hands on the side of injury.

The special exercises are:

1. Starting position - trunk bent forward, arms down. Wing movements with small amplitude straight arms forward, backward, right, left. Circular movements with gradually increasing amplitude (4-6 times);

2. Small torso toward the damaged upper arm. Hand is on his back and slowly (to the pain) is bent at the elbow (4 - 6 times). Then a small trunk bent forward, arms down, fingers intertwined. Elbow flexion with shoulder abduction to brush strokes chin, forehead and then (6 - 8 times);

3. Small trunk bent forward. Free swinging his arms to the side and hold it for a short time at the endpoints s amplitude of motion (4-6 times).

Exercise therapy combined with manual massage cervical area, both upper limbs. Massage healthy extremity determined by the presence of reflex connections. The desired outcome of the functional rehabilitation period considered the possibility of achieving the patients in active abduction arms to the horizontal level and a solid hold it in this position. Functional period lasted from 3 to 4 weeks, inclusive.

Third or training period in patients with onset usually after 4-5 weeks after the operation, when it was a quality functional recovery. At the same muscle strength is not consistent with the initial level. The objectives of the training period include: the completion of recovery range of motion in the joints and muscle tone of the upper extremity on the affected side, the full adaptation of patients to everyday and athletic loads.

Evaluation of the results was carried out in a period of 2 weeks, 4 weeks, 2 months, and 1 year. Constant score by analyzing the control radiographs.
Results and Discussion

Stable internal fixation of the clavicle and the lack of significant pain syndrome after surgery (at the end of one's top 2-day pain intensity on VAS ranged from 0 to 3.5 points) allowed to use physical therapy on the first day after surgery.

High strength recovery ligament acromioclavicular joint with the system "ACC-Takelag" has greatly reduced the requirements for static indicators of external fixation. Used to immobilize the triangular bandage. Thus, the first period can be called immobilization very arbitrary, because of the large opportunities in the implementation of motoring, its duration is 2 weeks. Patients coming to the functional period of physical rehabilitation, had practically a full range of passive movements of the joints of the upper limb, the absence or small signs that wasting of the muscles.

During the training period, the leading factor is the widespread use of occupational therapy. Patients, professionals do less paid attention to the restoration of muscle strength hands on the side of the injury. On the contrary, a person whose profession is directly related to the use of physical force, have been sympathetic to the process of toning muscles. Daily using a first complication in the form of small hand weights of 2-3 kg, and after 7-10 days of increasing their weight 5-10 kg, performed exercises for the shoulder girdle, closely follows the previous functional recovery.

Based on the foregoing, we can propose the following algorithm for medical rehabilitation of athletes after surgery dislocation acromial end of the clavicle (table 1).

Table 1

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>immobilization</td>
<td>functional</td>
<td>training</td>
</tr>
<tr>
<td>1 - 2 weeks</td>
<td>3 - 4 weeks</td>
<td>5 - 8 weeks</td>
</tr>
<tr>
<td>tasks</td>
<td>• edema reduction;</td>
<td>• Increase range</td>
</tr>
</tbody>
</table>

Downloaded from SWorld. Terms of Use http://www.sworld.com.ua/index.php/ru/e-journal/about-journal/terms-of-use
The application of minimally invasive stabilization of acromial end of the clavicle, based on the modern concept of ligament reconstruction of the acromioclavicular joint, a positive result was achieved in all cases. Movement of the shoulder joint in all patients were recovered in full. Recurrence of dislocation during the observation period were recorded. All patients were satisfied with the functional and aesthetic result. Assessment of the shoulder joint function Constant score and control radiography was performed for all athletes before surgery, 2 weeks, 4 weeks, 2 months. and 1 year after surgery (table 2).

**Table 2**

**Grade Options the shoulder joint on a scale of Constant a study group of athletes**

<table>
<thead>
<tr>
<th>Indicators on the scale of Constant</th>
<th>Period of observation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>before surgery</td>
</tr>
<tr>
<td>pain</td>
<td>7,3 ± 1,0</td>
</tr>
</tbody>
</table>

Conclusions

1. The proposed algorithm for medical rehabilitation of athletes after operative treatment of dislocation of the acromioclavicular joint allowing you to restore full range of motion in the shoulder joint and achieve positive results in all patients.

2. Restore damaged acromioclavicular joint with the system "ACC-Takelag" has reduced the length of stay in the hospital up to 2 - 4 days, to reduce the duration of immobilization triangular bandage to 2 weeks and, early mobilization of motion in the shoulder joint after 2 weeks after surgery.

3. Evaluation of treatment on a scale of Constant was: 2 weeks. - 60,1 ± 2,5 points after 4 weeks - 77,7 ± 2,4 points 2 months - 88,2 ± 2,9 points 1 year - 95,8 ± 2,9 points, which confirms the efficiency of the method.

References:


Iaremenko O.B., Mykytenko G.M.

EFFECT OF THE MAIN NON-BIOLOGICAL DISEASE MODIFYING ANTIRHEUMATIC DRUGS ON RADIOGRAPHIC PROGRESSION IN PATIENTS WITH RHEUMATOID ARTHRITIS

O.O. Bogomolets National medical university

In this clinical study, the influence effect of the main disease modifying antirheumatic drugs (DMARDs) on radiographic progression in patients with rheumatoid arthritis (RA) was determined. The relationship between clinical efficacy and dynamics of radiological changes of RA when using different DMARDs was studied.

Key words: rheumatoid arthritis, disease modifying antirheumatic drugs, radiographic progression.

Rheumatoid arthritis (RA) – is the disabling disease of the musculoskeletal system which affects about 1% of the world population. The main DMARDs for the treatment of RA are methotrexate (MTX), leflunomide (LF), sulfasalazine (SS) and hydroxychloroquine. However, achievements of good clinical results are not always accompanied by slowing of joint destruction. So, according to some authors [1, 2], despite positive clinical dynamics of RA after treatment with SS, there was further radiographic progression of the disease. Results of the international study COBRA [3, 4] also show the difference (discrepancy) in clinical and radiological improvement of RA. The purpose of DMARDs therapy of RA is to slow-down the radiographic progression of RA because it determines the functional capacity of the musculoskeletal system. [5]
**Objective:** to determine the degree of radiographic progression of RA in different variants of DMARDs therapy; to determine the relationship between clinical efficacy and radiological improvement of RA during DMARDs therapy.

**Materials and methods**

The work is based on a survey of 174 RA patients (82.7% female) at mean age 52.0 ± 0.91 years, with mean disease duration 51.3 ± 4.82 months, who received one of the variants of DMARDs therapy for no less than 2 years. RA was diagnosed according to American Rheumatology Association criteria (ARA, 1987). Early RA (up to 2 years) was observed in 88 individuals (50.6%), including very early RA (up to 3 months) — in 26 (14.9%), late RA (over 2 years) – in 86 people (49.4%). 62.6% of patients were seropositive for rheumatoid factor (RF), 75.9% - for antibodies to cyclic citrullinated peptide (anti-CCP). 80 patients (46.0%) had extra-articular manifestations of RA.

RF titer was determined by latex agglutination (Humatex, Germany); the titer of anti-CCP - by enzyme immunoassay (ELISA; IBL-Hamburg, Germany).

Four groups of patients were formed by matching method depending on the assigned DMARDs therapy. Patients of the first group (n=93) received MTX in dose 7.5-20 mg/week (average 11.6 ± 0.29 mg /week). 80% of these patients were treated with folic acid in average dose of 9.45 ± 098 mg/week. Taking into account significant difference the effectiveness of MTX in different doses according to some researchers data [6], the analysis of the clinical and radiological improvement was performed separately in the subgroups of patients treated with low (<15mg/week) and average dose of MTX (≥ 15mg/week) (table 1). The second group included 25 patients who took LF in the loading dose of 100 mg / day for 3 consecutive days, the maintenance dose - 10-20 mg/day (mean — 19.2 ± 0.28 mg/day). The third group - 27 patients received CC 2 g/day. The fourth group - 29 patients received a combination of DMARDs (CBT): MTX+LF (n=2), MTX+SS (n=6), MTX+chloroquine/hydroxychloroquine (Chl/HChl) (n=11), LF + SS (n=1), LF + Chl/HChl (n=4), SS + Chl/HChl (n=5). Glucocorticoids (GC) were administered according to
the conventional indications in initial doses of 2.5 to 40 mg/day with subsequent dose tapering.

General characteristics of the groups of patients, in whom the effectiveness of the 2-year treatment with different DMARDs was analyzed, is shown in Table 1. As can be seen from the table, there was no significant difference between the groups of patients in any of the parameters (all p > 0.05).

Table 1

| Clinical and demographic characteristics of patients with RA who received DMARDs for two years |
|---|---|---|---|---|---|
| Data | Groups of patients depending on assigned DMARDs | MTX <15 mg/w (n=41) | MTX ≥15 mg/w (n=52) | LF (n=25) | SS (n=27) | CBT (n=29) |
| Women, % | 82.9 | 82.7 | 88.0 | 85.2 | 82.7 |
| Men, % | 17.1 | 17.3 | 12.0 | 14.8 | 17.3 |
| Age in years (M ± m) | 55.3±1.21 | 50.9±1.21 | 49.3±1.44 | 50.7±1.52 | 50.4±1.51 |
| RA duration, months (M ± m) | 47.8±7.75 | 49.5±7.64 | 53.4±6.32 | 52.7±8.02 | 50.4±6.82 |
| Seropositive for RF,% | 65.8 | 57.7 | 64.0 | 63.0 | 69.0 |
| Seropositive for anti-CCP,% | 75.6 | 71.1 | 76.0 | 74.1 | 79.3 |
| DAS28 (M ± m) | 6.45±0.19 | 6.39±0.15 | 6.22±0.18 | 6.12±0.18 | 6.15±0.19 |
| DMARDs was first prescribed,% | 58.5 | 63.5 | 52.0 | 51.8 | 51.7 |
| GC orally% | 80.5 | 80.8 | 76.0 | 70.4 | 75.8 |
| The average initial dose of GC mg / day (M ± m) | 14.6±1.01 | 14.4±0.98 | 14.6±0.95 | 14.9±1.36 | 15.5±1.10 |
The effectiveness of treatment was evaluated after 2 years by DAS28 dynamics (ESR was included in the formula), and by X-ray changes by the modified Sharp-van der Heijde score; the difference between the initial and final values of parameters (Δ DAS28, Δ radiological count) was calculated. According to the EULAR criteria [7], 'good' response to the treatment was considered as a decline in DAS28 > 1.2, while the current value should not exceed 3.2. "Non-responders" were considered patients who had improved DAS28 ≤ 0.6 or within > 0.6 - ≤ 1.2 provided its current values > 5.1. All other variants of the positive dynamics DAS28 regarded as "moderate" response. The remission criterion was DAS28 reduced to the values ≤ 2.4. Radiographs were scored for erosion and joint space narrowing (JSN), and these scores were summed to obtain a total radiographic score. Erosions were scored bilaterally and were based on a score range of 0–5 for 16 joints in each hand/wrist, and 0–10 for six joints in each foot. JSN was scored in 15 joints in each hand/wrist and six joints in each foot, based on a score of 0–4 for each joint. Therefore, at each time the erosion score ranged from 0 to 280, JSN score from 0 to 168, and total score from 0 to 448.

The statistically significant differences between mean values were analysed using Student t-test (t), the relationship between pairs of independent features - using Pearson correlation (r), the comparison of the frequency of values - with χ2-test, including Yates’ correction and Fisher's exact test. SPSS 16.0 software was used for calculations.

Results
The results showed that the effectiveness of the treatment with low doses of MTX was significantly lower than with average doses. Thus, achievement DAS28 remission was observed in 12.4% of patients receiving average doses MTX, and only 3.63% of the alternative group (p <0.05); dynamics of radiographic parameters (Δ total count) after 2 years of treatment with MTX was twice more prominent when using of low doses: 21.2 ± 2.68 vs 9.51 ± 1.37 (p <0.001). Therefore, the group of pts treated with low doses of MTX was excluded from further analysis of the comparative effectiveness of different DMARDs.
Prior to the study, there was no difference in radiological changes between the groups (number of erosions and degree of joint spaces narrowing) (Table 2). After 2 years of treatment number of erosions increased in MTX, SS and CBT groups (p < 0.05), while in LF group there was only the tendency (p > 0.05). Increase of erosions number in MTX and SS groups was 2.1 and 3.2 times higher compared with LF (p < 0.05), and 1.5 and 2.3 times higher respectively compared with CBT (p > 0.05). The increase rate of the number of erosions in LF and CBT groups were comparable. Thus, 2 years treatment with LF or CBT led to a more significant effect in joint destruction delaying compared to MTX or SS. Another evidence of that was the number of patients without progression of erosive process: in MTX group -51.9% patients, LF - 68.0%, CBT - 68.9%, SS - 40.7% (p <0.05 compared with LF and CBT). Achievement of radiographic remission (no increase in number of erosions and the degree of joint space narrowing simultaneously) was observed more frequently in the LF group (40.0%) compared with MTX (25.0%), SS (33.3%) and CBT groups (31.0%) (p> 0.05). Annual gain analysis of the erosions number showed: rapid disease progression (appearance of 4 or more erosions per year) occurred significantly more often in MTX group (9.61%) and SS (18.5%) than in LF group (0%, p <0.05-0.01 compared to MTX and SS) and CBT (3.44%, P <0.05 compared with SS).

Table 2

<table>
<thead>
<tr>
<th>Radiological parameters</th>
<th>MTX (n=52)</th>
<th>LF (n=25)</th>
<th>SS (n=27)</th>
<th>CBT (n=29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erosion score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (M±σ)</td>
<td>3.93±1.47</td>
<td>6.34±1.50</td>
<td>4.52±1.49</td>
<td>4.64±1.47</td>
</tr>
<tr>
<td></td>
<td>4.33±1.41</td>
<td>7.78±1.84</td>
<td>3.66±1.11</td>
<td>5.24±1.69</td>
</tr>
<tr>
<td>Change (Δ)</td>
<td>2.35±0.48</td>
<td>1.12±0.16#*</td>
<td>3.44±0.85</td>
<td>1.58±0.67</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>% of patients without progression of erosion score</td>
<td>-</td>
<td>51.9</td>
<td>-</td>
<td>68.0#</td>
</tr>
<tr>
<td>JSN score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (M±σ)</td>
<td>26.5±2.50</td>
<td>33.7±2.691</td>
<td>31.2±3.59</td>
<td>35.3±3.441</td>
</tr>
<tr>
<td>Change (Δ)</td>
<td>7.15±1.08</td>
<td>4.08±0.96</td>
<td>-</td>
<td>7.59±1.72</td>
</tr>
<tr>
<td>% of patients without progression of JSN score</td>
<td>-</td>
<td>30.8</td>
<td>40.0</td>
<td>-</td>
</tr>
<tr>
<td>Total score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (M±σ)</td>
<td>30.5±3.50</td>
<td>40.0±3.601</td>
<td>35.7±4.62</td>
<td>39.3±4.541</td>
</tr>
<tr>
<td>Change (Δ)</td>
<td>9.51±1.37</td>
<td>5.20±1.0#*</td>
<td>-</td>
<td>11.0±2.26</td>
</tr>
<tr>
<td>% of patients without progression of total score</td>
<td>-</td>
<td>25.0</td>
<td>-</td>
<td>40.0</td>
</tr>
<tr>
<td>Rapid disease progression (≥4 erosions per year)</td>
<td>9.61</td>
<td>0*##</td>
<td>18.5</td>
<td>3.44#</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01 vs SS group; * p<0.01 vs MTX group;

1 p<0.05, 2 p<0.01, 3 p<0.001 in comparison with parameters before treatment.
Thus, treatment with LF and CBT, and with less extent with MTX, led to significant slowing-down of the radiographic progression of RA. The least impact on the radiological improvement had SS (Fig.1).

![Radiological changes of erosive process in RA patients with different DMARDs treatment.](image)

Fig.1. Radiological changes of erosive process in RA patients with different DMARDs treatment.

* - \(p<0.05\) vs MTX group; # - \(p<0.05\), ## - \(p<0.01\) vs SS group.

After 2 years of treatment, clinical activity of RA decreased in all groups of patients. The degree of clinical improvement was the greatest in patients receiving LF and CBT (significantly compared to SS): dynamics of DAS28 was 2.08 ± 0.20 for MTX, 2.67 ± 0.24 for LF, 2.69 ± 0.24 for CBT, 1.62 ± 0.16 for SS (\(p<0.001\) compared with LF and CBT). Clinical efficacy of MTX was slightly higher than SS, but this difference was not statistically significant.

The radiologic progression analysis in the general cohort of patients with RA according the treatment response using DAS28 score is given in table 3.

Table 3

**Dynamics of the radiological changes (Δ radiological counts) depending on the clinical response to DMARD treatment**
Radiological parameters (Δ)  | Treatment response using DAS28
--- | --- | ---
Remission, n=31  | Moderate and good response, n=119  | Non-responders, n=24
Erosion score  | 0.87±0.43  | 1.34±0.30  | 6.62±1.28*##
JSN score  | 3.39±0.89  | 5.66±0.84  | 13.1±2.15*#
Total score  | 4.26±1.07  | 7.0±1.0  | 19.7±3.04*##

* p <0.001 compared with the group of patients with RA remission; *p<0.01; ##p<0.001 compared with the group of patients with moderate and good clinical response to the treatment.

As stated by the table 3, the patients who did not respond to the treatment according to DAS28 had significantly faster joints destruction compared to the patients who had moderate or good response to DMARD treatment. In patients who achieved clinical remission, increase in the radiological count was the lowest.

For the general examined patients with RA, regardless of disease duration and DMARDs assigned, a moderate negative correlation between the clinical (Δ DAS28) and the radiological improvement (Δ total radiological count) was revealed: r = -0.35 (fig. 2).

![Fig.2. Correlation between the clinical (Δ DAS28) and radiological (Δ SHS) dynamics of RA.](http://www.sworld.com.ua/e-journal/J21306.pdf)
The correlation study between the clinical and the radiological improvement depending on the assigned DMARDs showed the following results: \( r = -0.33 \) for MTX (\( p < 0.05 \)), \( r = -0.43 \) for LF (\( p < 0.05 \)), \( r = +0.2 \) for SS (\( p > 0.05 \)), \( r = -0.24 \) for CBT (\( p < 0.05 \)).

Thus, unlike MTX, LF and CBT, in SS group there is no relationship between the dynamics of the clinical, the laboratory parameters and the radiological disease progression.

**Discussion**

According to the controlled studies [8, 9], MTX treatment showed significantly less radiological progression than SS. The authors of the Scottish guidelines consider SS and MTX as the equivalent drugs of choice for treatment of early RA [9]. According to our observations, there is a tendency to more severe radiographic joint destruction with SS treatment compared to MTX but without statistical significance. Both of these drugs are inferior to LF by its ability to slow down joints destruction. These results are consistent with the international studies US301, MN301/303/305, according to which inhibitory effect of LF on the radiological progression of RA was significantly prominent compared with MTX [10]. However, according to other researchers [11], MTX in average dose and LF are equally effective. Our findings showed the lowest anti-destructive potential of SS (statistically significant compared to LF and CBT) which correspond to the recommendations of the French Society of Rheumatology [12], according to which the first-line drugs for the treatment of early RA are MTX or LF, whereas SS is assigned to patients with mild and moderate arthritis and only in the absence of structural changes of the joints.

As per findings of the international studies [1, 2, 4], positive clinical dynamics are not always accompanied by slowing-down of the radiological joint destruction. Our analysis shows a moderate negative correlation between the clinical and the radiological changes (\( r = -0.35 \)). The similar findings were observed in the studies of other researchers [1, 2]: although patients met the remission criteria, they still had the radiographic progression of the disease. According to our data, the close relationship between the positive clinical dynamics and slowing-down of the radiological
progression during treatment with LF was observed, whereas SS treatment did not show such connection at all.

**Conclusions**

1. In patients with RA, LF or CBT 2 years treatment exerts more pronounced effect on slowing-down of joint destruction compared to MTX (in average doses) or SS, which is manifested as lower number and rate of erosions formation, and high rate of the radiological remission. The effectiveness of low doses of MTX (<15mg/week) is significantly lower than in average doses.

2. In patients with moderate or good response to the therapy and those who achieved RA remission by DAS28, the radiographic progression is significantly lower compared with the patients who did not respond to DMARDs treatment.

3. There is an inverse moderate correlation between the dynamics of the clinical activity (Δ DAS28) and the radiographic progression of RA. While receiving SS treatment, unlike MTX, LF and CBT, reduced disease activity does not correlate with slowing-down of joint damage.

**References:**


NONFORMED FISTULAS OF THIN BOWEL AS THE CAUSE OF ENTERAL SYNDROME.

Department of Surgical Diseases, operative surgery and topographic anatomy,
V.N. Karazin Kharkiv National University

Summary. The results of treatment of 72 patients with nonformed fistulas of thin bowel, which have been applied at with obturators, are presented. The results were estimated differentiated on a special scale. The application of original constructions of obturators in the main group of patients and preliminary stand prototyping allowed to promote efficiency of the method from 73,7% in comparison group to 100% in main group. Thus efficiency of the results of the treatment rose from 4,42±0,58 marks to 5,49+0,16 in comparison group and main group. Key words: intestinal fistulas, obturation, stand modeling, enteral syndrome.

Introduction. In recent years there has been an increase of the number of postoperative complications, including enteric fistula. This is due to social problems (economic, ecological, low-life of patients, lack of social awareness and, as a result, delays in seeking patients), and the high incidence of postoperative complications and imperfections in the prevention of postoperative fistula problems [4]. Among all of the defects of the intestinal wall of the small intestine fistulas occur in 42% [3, 4]. This is explained by the fact that the small bowel fistula significantly contribute to violations of the homeostasis system and, in case of insufficient or delayed correction of the latter, can lead to death on the stage of non-formed fistula. This requires urgent actions to their "elimination" [2, 5]. Treatment outside of enteric fistula is one of the urgent problems of surgery because of the high mortality of patients, which can be up to 80% [1, 2]. Installation of prosthetic fistula defect directly "on the patient" is often
not individualized, very often in practice there are a variety of surgical complications of this technique (e.g., multiple leaks from the fistula defect chyme, as a consequence - burrowing pus formation, maceration of the skin, etc.). For the treatment of enteric fistulas currently available conservative methods: the use of nutritious food, correction of metabolic and fluid and electrolyte disorders, occlusion of the fistula with various devices (obturators, ointment tampons, etc.), care of the skin around the fistula [4, 5]. However, a number of questions appeared according to the choice of forms of fistula (for example, the study of problems of prevention of enteric fistulas, selecting types of obturators for the problem) [1]. Selection under this configuration obturators certain fistulous defect assessment strain bowel obturator and its elimination, optimization of treatment for each individual patient with non-formed fistulas are not studied.

Materials and methods. We analyzed 72 cases of patients with intestinal fistulas in period of 2001 – 2012 years. These patents were treated at the "IGES NAMS of Ukraine" and "Kharkiv state hospital of emergency medical care". The patients were divided into two groups (main and the comparison groups), which explored the characteristics of the disease. Assessment of the overall state of patients in the study was based on clinical data and laboratory data of instrumental studies. By sex, age and pathology, leading directly to fistula, all groups were comparable. We used the original bench layout. On examination, the patient studies the size of fistula, its location in relation to the sides of the wound, sets a default location in intestines according to the wound. Then fistulous defect modelled on the original stand (Patent of Ukraine № 60703), based on which the selection was made to seal the concrete structure of the defect (Fig.1).
With the successful obstruction of model defect on the stand, representing the original three-part obturator with simulated intracolonic element (Patent of Ukraine № 67417), was placed in the fistula defect in the patient (Fig. 2). Also used to optimize the angle of the wound specialized wound meter (Patent of Ukraine).

Fig. 2. General view of the obturator with a simulated three-element intracolonic element (№ 67417)
Methods of assessing the quality seal, used in our work included a three-point scale to assess the quality of installation of obturating devices and sealing level of sinus defects. The evaluation scale is the following picture: 0 points - failed to achieve sealing (or failed to establish design) 1 point - the design is set, the legs causes deformation of analogue, 2 points - set design, sealing part time, 3 points - sealing is an analogue of the physiological state the bowel wall. The results were subjected to statistical analysis using standard parameters of variation statistics, t-test.

**Results and discussion.** Stand tests were conducted various designs of obturating devices as widely known or developed in our clinic. The tests were conducted on the original stand on analog of intestine and colon layout - tube with a diameter of 25 mm. Last by transparency of the walls allow visual assessment of the deformation element of intracolonic obturator. In the tests, it was found that if it is possible to set the design in a "fistula hole" layout intestine, the introduction of intracolonic element in the "fistula" defect analog of intestine is no deformation of the latter. 38 patients in the comparison, which used traditional methods of obturation results, is built a complete hermetic were obtained in 18 patients ± 3,05 (47,4% ± 8,08), p <0.05, 5 patients (13.2%) required frequent design changes (1 every 1-3 days), which gave rise to the early surgical treatment with no deaths. 16 patients were operated on compensation state in a period of 3 weeks to 2 months to 4 mortality (10.5%) outcomes. In the remaining patients (39.4%) reported negative effects of traditional designs: increase the size of fistula, the transformation incomplete non-formed intestinal fistulas in full, the growth process of maceration, at T-, S-and U-shaped intestine; efficiency linear structures was obturators insufficient. In 14 cases, the situation was the indication for operative intervention with 6 (15.8%) deaths. Obturation efficiency of the main group was 29 ± 0,58 (85,3% ± 4,65)

In the main group all of 34 patients who have been fitted with the original three-element obturators simulated intracolonic element, with the poster layout was achieved sufficient effect, which was considered in assessed 5,80 ± 0,03 (96,6%) scores (p < 0.05). At the same time, the overall efficiency of the final result of treatment was 5,49 ± 0,16 (91,5%) (p> 0.05).
Conclusion. Thus, the application of the developed technique of enteral syndrome treatment helped improve the method to 91.5%. However, the problem of treatment of non-formed external fistulas of the small intestine as a cause of enteric syndrome continue to be valid and requires further research.

Findings

1. Obturation efficiency of non-formed external fistulas of the small intestine, as a way of correcting enteral syndrome, mainly determined by the type used with adequate structures and their selection can be up to 91.5%.

2. Preliminary bench layout using the original techniques of the algorithm is the basis of first aid to the patient in the selection and modeling of the obturator fixed type and the subsequent correction of enteral syndrome.

References:


CLASSIC METHODS OF HUMAN’S AND ANIMALS’ EPIDERMOMYCOSES DIAGNOSTICS (survey article)

Kazakh agrotechnical university after name of S. Seyfullin
Astana, Kazakhstan

In this research are scrutinized the traditional methods of animals’ epidermomycosis diagnostics, which are regulated by veterinary legislation and recommended for using in the veterinary diagnostic laboratories.

Keywords: diagnostics, epidermomycosis (dermatophytosis), dermatomycetes, trichophytia, microsporia, scab

Epidermomycosis is an infectious disease of the skin and its appendages, which are caused by dermatomycetes – keratinophil musty fungi, parasitizing on the cornified substrates (epidermis, hair and nails). Epidermomycosis of animals and human is widespread. [1]

Dermatomycetes are fungi-cosmopolites, which meet in every corner of the globe. They smite all the species of domestic animals and the most of wild animals, they are widespread among fish and birds, are pathogenic for human. Nowadays the pathogens of epidermomycosis circulate in the different countries of the world. They are imperfect fungi of three sorts: Trichophyton, Microsporum, Epidermophyton, and they cause, consequently, trichophytia, microsporia and another epidermomycoses. [2]. Trichophyton verrucosum, T. mentagrophytes and Microsporum canis have the most epidemiologic meaning among the zoophile dermatomycetes and from the anthropophilic trichophytons is more detected the T. rubrum.

In Kazakhstan, as in the another countries, epidermomycoses of different localization widely propagated among the population. Flashes of mycosis are observed in the ecologically dysfunctional districts of Kazakhstan not infrequently, it is noticed an expanding spectrum of the micromycetes – pathogens of diseases of the
different localization at the expense of “facultative parasites”, saprophytes, phytoparasites and etc., which is explained as their variability, influenced by anthropogenic impact and reduction of the immunity.

The purpose of present article is the analysis of the classic methods of epidermomycosis, recommended for using with the diagnostic aim.

Trichophytosis (or bald ringworm) is a contagious disease, characterized by the appearance on the skin of the acutely bounded hairless hotbeds with the exfoliating pityriasis surface or with the phlogistic reaction of the skin and follicles, caused by fungi of *Trichophyton sort* (*Malmsten, 1845*), which are famous for their big variety (near 60).

It is used to separate the fungi on two basic groups, depending on the relation of fungi to hair: 1) *Trichophyton endothrix* (at the hair defeat elements of fungi grow predominantly inside hair and do not cause an abrupt inflammatory reaction from the skin); 2) *Trichophyton ectothrix* (primary growth of the fungus is around the hair and in the epithelium of internal hairy axil), causes defeat of the skin [6].

*Mictosporia* is a contagious fungal disease, caused by the fungi of *Microsporum sort*. It is characterized with the defeat of skin and its appendages and accompanied with the inflammatory appearances, breaking and prolapse of hair. [7].

Nowadays more than 25 sorts of Microsporum fungus are famous, and following sorts are distinguished as the pathogens: geophilic group (*M. gypseum, M. cookeii, Keratotynomyces ajellonii*), anthropophilic group (*M. ferrugineum, M. audouinii, M. distorum, M. rivalieri, M. langeronii*), zoophilic group (*M. canis, M. nanum, M. persicolor*) [2]. Zoophilic *Microsporum spp.*., source of which are domestic cats and dogs, also can be exciters of the infection among people. In case of mycosis of pilous part of the head fungi are detect not only in the stratum corneum and around the hair, but also inside it.

Favus or scab is a chronic fungal disease. Basic disease exciter among people is *Trichophyton schonleinii*; seldom another fungi can give the clinical picture, similar with the favus (*T. violaceum, M. gypseum и другие*). Favus is met among the birds and seldom – among the mammals. Basic exciters of favus are the fungi of sort
Trichophyton (син. Achorion): *A. schöenleinii Remak* (син. *T. schöenleinii*) is an exciter of favus among the people (sporadically it can cause disease among dogs, cats, mice, monkeys and calves); *A. quinckeaneum Zopf* (син. *T. quinckeaneum*) causes favus among rats and mice, cats, dogs, sheep, horses catch this disease, human is afflicted, too; *A. gallinae (Megnin) Silva Benham* (син. *T. gallinae*) affects the birds [3].

Traditionally the diagnosis on dermatophytosis is established on the grounds of the clinical picture and laboratory research (detection of septate mycelium).

In ordinary laboratory clinical practice scientists often limit themselves with the microscopic and cultural research of the infected material. With purpose to differentiate the exciter it is conducted the test with five percent iodine solution or the examination with the help of Wood’s lamp [8].

Among animals trichophytosis can pass externally, by way of deep or follicular form, erased or atypical. Among animals are distinguished:

- favioforme trichophytosis, basic exciters are *T. faviforme Sabourand* (син. *T. verrucosum*). Variants are *T. faviforme* var. *album*, *T. faviforme* var. *discoides*, *T. faviforme* var. *ochraceum*. Fungi affect the hair according the type of ecotrix and cause the disease of the cattle and sheep.

- gypseous trichophytosis, exciter is *T. gypseum Bodin* (син.: *T. mentagrophytes*). Variants are *T. gypseum* var. *asteroides Sabourand*, *T. gypseum* var. *granulosum Sabourand*. Fungi affect the hair according the type of ecotrix. Mice, rats, dogs, cats, rabbits, cavies, furbearers fall under this disease.

* T. violaceum Sabourand, T. rubrum (Castellani) Sabourand; *T. crateriforme*, can be rare exciters of trichophytosis, which are allocated from calves, dogs and cows. This disease affects the horses, dogs also can be ill [9].

The clinical picture of fungal diseases is polymorphous, because in all cases the diagnosis must be confirmed by the laboratory methods. In the laboratory diagnostics can be used microscopic, luminescent, cultural, immunologic (allergic and serological) methods of research and also experiments with animals [1].
Microscopy is one of the basic ways of identification of mycosis exciters. Microscopic research of the material is compulsory and reliable during the diagnosis decree, because the detection of fungal spores and mycelium in the material indicates on the presence of exciter and warrants for establishment of diagnosis [2].

Dermatomycosis research’s material for the microscopy is taken from the affected areas of skin, hair, nails (claws), from fresh, but already full-grown hotbeds of lesion, where the elements of fungus can be found more. The microscopic research of fungal pathological material is usually produced in the naturally occurring and dyed preparations by the method of the hanging or squashed drop. For more accurate detection of fungal elements scientists conduct the enlightenment of material, its concentration or, on the contrary, dilution. With this purpose they have recourse to different substances, most of all – to the acrid alkali (KOH, NaOH), which dissolve the epidermal flakes, slime, pus, clarify the pigment of hair and by that make the fungi available for research [3].

Elements of the fungus in the pathological material (hair) encamp differently: 1) at the ecotrix fungal spores are situated on the surface of hair in the form of cover; 2) ecotrix is characterized with the location of spores inside the hair, according its length in the form of chains; 3) at the neoendotrix spores can propagate inside the hair, in the form of longitudinal chains and outside – in the form of cover. At the favus (type of favus) fungal hyphae sprout inside the hair but do not survive subsequently, leaving voids (bubbles of air), arthrospores are not detected [2, 3].

At the microscopic research of the affected fungus tribal affiliation of the dermatophyte can be determined. For example, in the time of trichophytosis, caused by T. violaceum и T. tonsurans, elements of the fungus, basically, spores, settle inside the hair according endotrix type in the form of chains. Border of the hair is precise and plain, spores are walloping and round, sometimes have faulty roundish outlines, they stretch as bundles, but do not lap over the hair.

At the mycosis express-diagnostics smears are often painted with special colorants because simple coloring with the hematoxylin-eosin often does not detect cells of the fungi. At the cytological diagnostics following types of coloring prevail
most of all: Gram’s stain, processing with 10% KOH (NaOH), coloring with the nigrosine and ink, stain according to Romanovsky-Gymze or Rait, coloring with the metenamine silver substance according to Gomory, coloring according to Gridley, coloring with the periodiode acidity and Schiff reagent (according to Mac-Manuss), method of direct fluorescence. Musty fungi are colored with the haematoxylin into blue-gray color, with the gentian violet – into violet color, with the azure-eosine – into dark blue color, with the Schiff reagent - into deep pink or red color [10].

Russian mycologists R.A. Araviyskiy, N.N. Klimko, N.V. Vassilyeva [1] consider that at the superficial mycosis it is enough only to detect the exciter during the microscopy of material from the lesion hotbed for establishment of diagnosis and its successful treatment.

Histological research of the skin is an estimable method for characterization of inflammatory appearances in different tissues and organs, for detection of changes at the different forms of fungal diseases and lightening of details of mutual relations between tissue and parasite. Fungi in the corneous layer of epidermis are identified little in the form of fibers of mycelium and spores. In rare cases, when there are many fungi in the lesion hotbeds, they can be detected in sections, colored with the haematoxylin-eosine, in the form of tender basophilic structures in the corneal layer. Inflammatory changes in the epidermis can be different: from small edema of tubercular cells (T. mentagrophytes var. interdigitale) to manifest spongiosis. Sometimes manifest hyperkeratosis is noticed there (T. rubrum). Histological changes in the derma are not specific and they correspond to acute, subacute and chronic inflammation [10].

At the dermatomycosis diagnostics Gram’s stain or its numerous modifications are used more often than others. The fungi in such smears from the clinical material are presented by gram-positive cells. After coloring metenamine silver substance according to Gomory cells of the fungi are dark gray or black; after processing with the 10% acrid potassium exciters’ structures are visualized in all skin fragments and appendages, because KOH destroys keratin, leaving the fungal cells unaltered. With
the help of immersion system druses, blastospores and fungal mycelium are detected relatively easy [2].

The immunofluorescence methods of coloring are used for confirmation of diagnosis when the fungus are absent in the infiltration. For these purposes is used antiserum marked with the fluorescein, which permits to detect the fungal antigens in hair and perifollicular infiltration. The diagnosis is considered confirmed if the fungal elements are detected in the histological preparations, though it is recommended to take into account the exciter’s presence and also the histological picture of changes, which are necessary for estimation of pathogenic fungi’s in the tissues [10].

It should be said that at the dermatomycosis present method of diagnostics is used extremely seldom.

**The allocation of pure culture** is a highly sensitive and specific method of the laboratory diagnostics of mycosis. Cultural method permits to identify exciters even if the microscopy information is negative; it gives an opportunity to identify sort and kind of the exciter and, consequently, to hold an adequate therapy and prophylaxy of the disease. The cultural method is especially useful for diagnostic of the latent mycosis forms, carrying of dermatophyte by healthy people [2].

For identification of dermatomycosis scientists usually use affected hair, less – flakes of the skin. Hair which lost shine, was broken or different from normal ones according to another features, are treated 20 minutes in the antibiotic solute before the seeding. The pathologic material is fission on the object-plate to small pieces, 5-6 of them are transferred to the surface of slanting agar and situated on the 1-2 cm distance one from another. Material of one assay are sowed into 2-3 test-tubes (hair) or 4-5 test-tubes (dermal and unguinal flakes). For primary isolation of dermatofits there is more adapted the standard agarinic Saburo environment with 2-4% of glucose or suslo-agar, containing antibiotics (penicillin 50 mkg/ml + streptomycin or biomycin (50 mkg/ml and 200 mkg/ml respectively) and anti-yeast antibiotic actidione (cycloheximide) 0,1-0,5 mg/ml. Actidione does not influence on the growth of dermatofits and suppresses many types of fungi and also *Candida* and *Cryptococcus sorts*. The seeding is incubated till 20-30 days at the temperature 22-30
°C (it is better when temperature is 28° C). At the absence of growth in the course of 30 days results of cultivation are considered negative. At the optimal conditions primary cultures of numerous dermatofits are identified on the 7th-10th day after seeding. Primary cultures grow relatively slowly, at the appearance of growth in the period of primary seeding it is conducted attrition from the edge of colony to fresh differential environment for obtaining the pure culture [11].

Usual environments for identification of fungal cultures are liquid slop, slop-agar, Saburo environment. The most widespread nonselective environment is Saburo agar, that is a peptonic agar with the maltose (or glucose); it differs from another tight nutritious environments thankful to its high carbohydrates content, which ingibits the reproduction of bacteria. Nowadays it is not recommended to use the exciters of derpatophytosis for primary allocation; but in the case of antibiotics bringing in the application of agar is possible. Often selective environments are used for allocation of dermatomycetes – these are ordinary nonselective environments, supplemented with the penicillin (20 units/ml), streptomycin (40 units/ml) or gentamycin (0,5 mkg/ml), chloramphenicol (16 mkg/ml). The cycloheximide (0,5 mkg/ml) is entered into the environments for ingibition of tempestuous growth of the mould, suppressing slowly growing, dimorphous fungi. The dextrose Saburo agar provides good growth of the fungi but does not promote the formation of microscopic structures by them, and this structures often have decisive meaning for accurate identification [3].

Culture is determined according to either external or microscopic picture. Forms of sporulation and mycelium organs are detected for identification of isolate, allocated from the clinical material, also morphology is studied on macro- and microscopic levels because as a matter of fact many unconnected fungi can have identical morphological features of colonies and unordinary pleomorphism is characteristic for them depending on conditions of growth [2, 11].

Usually the fungal cultures are investigated in the dynamics, with the determination of color, value, surface character, pattern, consistence, speed of the growth, enzymatic activity, pathogenicity. Seeding of investigated biosubstances is conducted 2 or 3 times. The most part of pathogenic fungi is not demanding to the
nutritious environments and grows in aerobian conditions well. pH of the nutritious environments is acid – 4.0-6.5. Among the vitamins the most part of fungi needs biotin, riboflavin, thiamine and etc. The reseeding is conducted on the nutritious environments with amino acids for the differentiation of dermatomycosis. It is recommended to add into the tight Saburo environment the 2-5% yeast hydrolyzate, which promotes a formation of conidium at the fungi of *Trichophyton sort*. The dermatophytes of *Trichophyton sort* in the cultures form either macro- or microconidia, macroconidia of trichophytons are uneven, and macroconidia of microspores are smooth.

*T. verrucosum* (син. *T. faviforme*) cultures on the nutritious environments constitute colonies, different according to form and color, and develop slowly at the first generations. White, velvety or coriaceous colonies develop at the 25<sup>th</sup>-40<sup>th</sup> day, the growing edge is lobed, the mycelium plunges into the agar deeply. At the following generations of *T. verrucosum* cultures there is a significant variability of cultural features. Colonies’ color can be orange, violet or ochre yellow. On the potato agar, at the temperature 25° С, *T. verrucosum* colonies can have different colors – from white to creamy, with very restricted growth, they can rise up strongly. Pigment of the underside, if it is present, is yellow. Hyphae are septate, with rare club-shaped microconidium (4-7×2-3 mkm). Macroconidia if they are present, have the following value 35-45×4-7 mkm, they are multicellular, in the form of string of beads. At the 37° С temperature often the chlamydosporen are formed [11].

*Trichophyton mentagrophytes* according to its morphological singularities is divided on two basic variants: *T. mentagrophytes* var. *gypseum* and *T. mentagrophytes* var. *interdigitale*. *T. mentagrophytes* var. *gypseum* is a zoophilic fungus, which is pathogenic for animals and human, with gypseous-farinaceous colonies, which are rich of microconidia in their turn. The mycelium is flat, ramose and septate. The microconidia are roundish or pear-shaped. Macroconidia spindle-shaped, their size is 10-30×5-8 mkm, they consist of 3-5 cells, the free end is roundish [12].
*T. mentagrophytes* var. *interdigitale* is a typical anthropophilic dermatophyte, its mature colonies are white, velvety, color can vary from pink to brown, the surface is smooth, seldom it is radially striated, with the deepening in the center. At the microscopy it is detected a long, ramose, septate mucellium with the thin curls and spirals. The hyphae are colorless, with numerous roundish or nearly globular microconidia on each side of the mycelium. The pleomorphism of *T. mentagrophytes* cultures is met quite often [2].

*T. rubrum* forms fluffy and velvety, farinaceous or skinny colonies. The reverse side of the cultures has red or crimson color. The mycelium is smooth and septate, has 2-3 mkm in diameter. There are abundant drop-shaped, lengthened or pear-shaped microconidia, the size of which is 3-5 mkm, and they are situated on each side of the mycelium. The macroconidia are 5-6-celullar, their size is 4-6×15-30 mkm, they are blunt-pointed and they are formed on the final threads, but are not met at all strains. The chlamidosporen are intercalary and final. Pigments of *T. rubrum* fungus are greatly various, often they have red color, but can be creamy, olive and wine-red [3].

*T. schöenleinii* forms smooth, yellow-white colonies, later they are high, wrinkled, hollow, with the crumby consistence. In the young cultures mycelium is thin - 1,5-2 μ, in the old ones – 5 μ in the diameter, it consists of long segments and is met in the form of deer’s horns. During the mycelium large chlamidosporen are formed, club-shaped inflations are formed on the ends of threads. The mycelium of mature cultures turns into the chlamidosporen from 4-6 to 8-12 μ.

Nowadays for allocation of dermatophytes it is used the Saburo environment with cyclohyxemide, chloramphenicol, gentamycin and yeast extract. There are widespread such prepared environments with cyclohyxemide and antibiotics as *Mycobiotic*, *Mycosel* and etc. It can be added an indicator into the environments – phenol red, during the dermatophytes’ growth color of the environment changes from yellow to red. DTM (*dermatophytes test medium*) environment consists of yeast extract, 0,8 М of hydrochloric acid, cyclohyxemide, gentamycin and...
Modern scientific research and their practical application. Vol J21306

chlordetetracycline. Recently scientists for the differentiation of fungi have elaborated inhibiting musty (mold) and SABS-l-agar.

For identification of fungal type scientists pay attention on the character of colonies’ growth, then make preparations. They take the material for research suchwise, that either periphery of colony, or its central part (sector) turn up into the preparation. It is better to conduct the microscopy of primary culture on several occasions, according to the growth of culture [3].

A luminescent method is used either for diagnostics and control for the efficiency of treatment at the individual patients, or in the epidemiologic hotbeds. The fluorescence is observed only in hair, entirely affected by the fungus, it cannot exist in fresh hotbeds of defeat. By post of Volf (1957) M. lanosum (syn. M. canis) and M. gypseum produce fluorescent pigment named pteridine, that causes effect of luminescence if it is amassed in pathogenic material enough.

Luminescent analysis is used for early diagnostics of hidden and atypical forms of microsporia among the animals – horses and furbearers. At the same time all animals, suspected in the contamination, also sick, incurred the treatment, are examined for the control of treatment efficiency.

At the using of Wood’s luminescent lamp elements of the fungi in the hotbeds of microsporia give light green fluorescence. This fluorescence is characterized only for hair, affected by fungi of Microsporum (M. canis, M. audouinii, M. ferrugineum, M. distortium, seldom M. gypseum и M. nanum), sort, also by T. schonleinii. Hair, affected by microspores, give the brightest fluorescence. What about hair, affected by T. schonleinii, they have dim greenish fluorescence or dim white one [2].

It should be noticed, that different authors have opinion that the laboratory diagnostics is complicated because the fungal structure notably changes depending on the conditions of cultivation (environment, temperature, access of air), and the fungal ability to transfer from parasitical form to saprophytic is connected with it [1, 2, 3, 6, 12].

Thereby, nowadays for sufficient diagnostics different authors offer the microscopy and allocation of exciter’s culture, although they notice that an
intraspecific identification of the fungi is difficult, even if they use seeding, the percent of exciters’ detection will not be high: an average sensibility of microscopy is 53.8%, and sensibility of the seeding with culture’s allocation is 22-61.5% [2].

Methods of microscopy and pure culture’s allocation are offered in Kazakhstan for detection of fungal defeat of animals’ and human’s skin.

References:
In modern medicine becomes more and more important problem is stress-induced arterial hypertension (AH), a variant of which is hypertension "in the workplace" [1, 3, 10]. According to recent studies found that men with high levels of stress in the workplace increases the risk of cardiovascular morbidity and mortality [2, 3, 9].

In recent years, proved the effectiveness of the overall magnetic therapy (OMT) for a number of diseases, due to its positive influence on the processes sanogenesis [4, 6, 12, 13, 14]. It is known that the HTA has antihypertensive, antiplatelet, stresslimitiruyuschem therapeutic effects, increases the activity and performance that justifies the use of OMT pathogenesis in treatment of stress-induced hypertension [5, 7, 8, 11].
The aim of our study was to evaluate the effect of magnetic therapy on the overall stress reactivity in workers locomotive crews with hypertension "in the workplace."

We observed 125 men with newly diagnosed Stage I level to the "workplace", the average age of 41.2 ± 1.7, the profession master and his assistant, for a test and treatment in the therapeutic department and the department of rehabilitation bureau at the station Surgut. All patients were divided into three randomized groups. The patients of the main group (41 people) received diet therapy, massage Moshkovo, exercise therapy, the overall magnetic therapy, 24.8% of all patients were receiving antihypertensive drug therapy: Nebil to 5 mg per day. The drug was selected based on the absence of adverse effects with respect to concentration. Patients comparison group I (41 people) also received comprehensive treatment, but rather the impact of HTA placebo patients comparison group II (43 people) instead of HTA electrophoresis 2% solution of magnesium sulfate on the collar area. For the procedure used by HTA magnetotherapy installation "ALMA" (OOO "ALMA", Byisk). Patients on admission to the medical ward were examined, followed by 2 weeks of being treated, and then follow-up visit.

As psihomentalnogo test (PMT) conducted by machinists and their assistants after therapeutic measures test was used, "Mathematical account". When the PMT to treat patients from the main group and the comparison groups react rise in SBP and heart rate with no significant differences.

In the study group before the PMT was initially observed averages GARDEN - 143.7 ± 5.7 mm Hg, and after the PMT was an increase in SBP to 175.2 ± 6.6 mm Hg (P <0.05); increase SBP 17.8% (p <0.05), which is evaluated as a measure of blood pressure of hypertensive reaction to stress (table 1). Change in diastolic blood pressure in the study group: Prior to BMI - 87.8 ± 2.4 mm Hg, after TMT increase to 101.9 ± 2.7 mm Hg (P <0.05), DBP increase corresponded 16.1% (p <0.05), which is also estimated as a measure of blood pressure of hypertensive response to stress. After a comprehensive rehabilitation with the inclusion of a course in general magneto SBP was 125.9 ± 1.8 mm Hg, after a gain PMT to 133.4 ± 2.2 mm Hg.
which corresponds to (5.9%) (p > 0.05). DBP to BMI was 77.6 ± 1.5 mm Hg, after TMT observed increase to 81.6 ± 1.2 mm Hg, diastolic blood pressure increased by 5.1% (p > 0.05); which corresponds to a normal blood pressure response to PMT. In comparison groups I and II after the application of a complex therapeutic interventions increase after stress test SBP was 19.4% (p <0.05) and 19.2% (p <0.05), respectively, 17.7% DBP (p <0.05) and 19.2% (p <0.05), respectively, indicating that the persistence of hypertensive response to stress.

Table 1

<table>
<thead>
<tr>
<th>Groups of patients</th>
<th>Dynamics of blood pressure (mm Hg) at a stress test before to treatment</th>
<th>Dynamics of blood pressure (mm Hg) at a stress test after to treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SBP</td>
<td>DBP</td>
</tr>
<tr>
<td>Basic (n=41)</td>
<td>143.7±5.7</td>
<td>87.8±2.1</td>
</tr>
<tr>
<td></td>
<td>175.2±6.6*</td>
<td>101.9±2.7*</td>
</tr>
<tr>
<td>Comparison group I (n=41)</td>
<td>144.3±6.1</td>
<td>86.2±2.2</td>
</tr>
<tr>
<td></td>
<td>174.2±5.2*</td>
<td>101.5±4.3*</td>
</tr>
<tr>
<td>Comparison group II (n=43)</td>
<td>143.5±2.1</td>
<td>86.2±3.2</td>
</tr>
<tr>
<td></td>
<td>175.5±2.2*</td>
<td>100.6±3.5*</td>
</tr>
</tbody>
</table>

Note:
- Numerator - the results of pre-treatment, in the denominator - after a course of treatment;
- * - Significance of blood pressure before and after the stress test (p <0.05);
- ▲ - the accuracy of blood pressure differences between the main group and the comparison groups after the stress test (p <0.05).
At the beginning of treatment in heart rate to MMT in the study group was 83,3 ± 3,6 beats / min, after the PMT gain was observed to 102,4 ± 4,5 beats / min (p <0,05), difference -19.1 bpm / min (22,9%) (p <0,05), which exceeds the norm. At the end of treatment in the study group before the PMT heart rate - 75,6 ± 0,8 beats / min and - 79,2 ± 0,5 beats / min, the difference was 3.6 beats / min (4,8%) (p > 0,05), i.e. remained within the established norm. After a course of treatment measures increase in heart rate in the comparison groups I and II after the stress test testified about the continuing hypertensive reaction to stress (respectively 19.2% and 16.7%) (table 2).

### Table 2

**Dynamics of indicators of heart rate (beats / min) in the study group and the comparison group when the PMT in the treatment process**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Dynamics of heart rate on the stress test before to treatment</th>
<th>Dynamics of heart rate on the stress test after to treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic (n=41)</td>
<td>83,3±3,6 102,4±4,5*</td>
<td>75,6±0,8 79,2±0,5*</td>
</tr>
<tr>
<td>Comparison group I (n=41)</td>
<td>84,5±2,9 103,4±3,2*</td>
<td>80,2±2,6 95,6±3,7* ▲</td>
</tr>
<tr>
<td>Comparison group II (n=43)</td>
<td>83,7±2,7 104,3±3,2*</td>
<td>80,1±2,5 93,5±3,4 *▲</td>
</tr>
</tbody>
</table>

*Note:*

- Numerator - the results of pre-treatment, in the denominator - after a course of treatment;

* - Significance of indicators of heart rate before and after the stress test (p <0,05);

▲ - the accuracy of the performance differences between the heart rate between the core group and the comparison groups after the stress test (p <0,05).

The comparative analysis of stress-reactivity at 6 months using the test psihomentnalogo "Mathematical score" showed that in the study group remained
positive effect after OMT: response to stress-test slightly above normal. Gain SAD stress test 6 months 7.6% (7.7%) (p <0.05), respectively, at a rate of 7% of systolic blood pressure source.

In the comparison group, despite the persistence of the normal numbers of blood pressure to the stress test, there was a hypertensive reaction: after 6 months of growth SBP 39.6 ± 1.3 mm Hg (22.3%) (p <0.05), DBP - by 10.6 ± 1.2 mmHg (10.9%) (p <0.05) (table 3).

**Table 3**

**Changes in the level of blood pressure in groups during psihomentalnogo test after 6 months of treatment**

<table>
<thead>
<tr>
<th>Groups of patients</th>
<th>Before the stress test</th>
<th>After the stress test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SAD (mmHg)</td>
<td>DAD (mmHg)</td>
</tr>
<tr>
<td>Basic (n=41)</td>
<td>125.9±1.4</td>
<td>77.6±1.5</td>
</tr>
<tr>
<td></td>
<td>136.7±1.4*</td>
<td>79.2±1.7</td>
</tr>
<tr>
<td>Comparison group I (n=41)</td>
<td>141.2±3.4</td>
<td>82.3±2.5</td>
</tr>
<tr>
<td></td>
<td>138.4±1.7</td>
<td>86.7±2.7</td>
</tr>
<tr>
<td>Comparison group II (n=43)</td>
<td>141.4±4.4</td>
<td>82.3±2.5</td>
</tr>
<tr>
<td></td>
<td>137.2±1.5</td>
<td>85.6±1.6</td>
</tr>
</tbody>
</table>

Note:
- Numerator results after a course of treatment, the denominator - the 6 months after treatment.
- * - Significance of SBP before and after the stress test (p <0.05);
- ** - Reliability of differences DBP performance before and after the stress test (p<0.05);
▲ - the accuracy of the differences in BP after the course of treatment and at 6 months (p <0.05).

Thus, these results suggest that the inclusion of OMT in the complex treatment of locomotive crews of workers with hypertension "in the workplace" reduces stress reactivity and increased stress resistance. In catamnesis 6 months stress reactivity was also significantly lower than in the comparison groups.

References:


THE EFFECT OF LONG-CHAIN ω-3 POLYUNSATURATED FATTY ACIDS ON N-TERMINAL PRO-BRAIN NATRIURETIC PEPTIDE CONCENTRATION, SOME PARAMETERS OF LIPID METABOLISM IN PATIENTS WITH TYPE 2 DIABETES MELLITUS AND CARDIOVASCULAR AUTONOMIC NEUROPATHY

Danylo Halytsky National Medical University. Pekarskaya 69, 79010, Lviv, Ukraine.

Introduction.

Cardiac autonomic neuropathy (CAN) in type 2 diabetes mellitus (DM), which is characterized by lesion of nerve fibers in parasympathetic and sympathetic nervous system is one of the leading causes of heart arrhythmias and an independent risk factor for cardiovascular mortality in patients with type 2 DM [1, 2]. Therefore, the problem of effective treatment of CAN is particularly relevant. Pathogenetic treatment CAN includes: balanced diet and physical activity; optimizing of glycaemic control; treatment of dyslipoproteinemia (DLP); correction of metabolic abnormalities in myocardium; prevention and treatment of thrombosis; use of aldose reductase inhibitors; γ-linolenic acid, acetyl-L-carnitine, antioxidants, first of all α-lipoic acid, use of long-chain ω-3 and ω-6 polyunsaturated fatty acids (ω-3 and ω-6 PUFA), vasodilators, fat-soluble vitamin B₁, aminoguanidine; substitutive therapy of growth factors and others [1, 3].

It is known that patients with type 2 DM often verified DLP, which is characterized by increasing of concentration of triglycerides (TG) and decreasing of high density lipoproteins level (HDL-cholesterol). It is obvious that the use of medicines, which contain ω-3 and ω-6 PUFA should be accompanied by positive changes in lipid metabolism. However, research regarding of the features of ω-3 and
ω-6 PUFA in diabetic patients without diagnosed coronary heart disease (despite of numeral evidences that type 2 DM is mainly valued as equivalent to CHD) are scarce, and the results do not confirm their effectiveness [4, 5].

Objective: To analyze the effect of long-chain ω-3 polyunsaturated fatty acids on the levels of N-terminal pro-brain natriuretic peptide (NT-proBNP), some indicators lipid profile of blood in patients with type 2 diabetes mellitus and cardiovascular autonomic neuropathy.

36 patients with type 2 DM and verified CAN at the age of 50-59 years were observed, disease duration - 1-6 years, HbA1c rates - 7,1 ± 0,5 %. CAN diagnosed according to [6, 7]. Patients with type 2 DM and CAN were divided into 2 groups. First group was received traditional hypoglycemic therapy (n = 15, control group 1) for three month; patients in group 2 (n = 21), in addition to standard treatment was administered 1 capsule/day of the ω-3 PUFA, which contains a capsule ~90 % ω-3 PUFA, mainly eicosapentaenoic (EPA) and docosahexaenoic acids (DHA) for three month.

ECG and vectorcardiography results were analyzed using a 12-channel electrocardiograph "UCARD-200" (UTAS, Ukraine) and daily monitoring of blood pressure (BP) [monitor JSC "ABPM-04" (Meditech, Hungary)]; Holter electrocardiogram [ECG "The EC-3H" (Labtech, Hungary)] was analyzed. Determination of parameters of intracardiac hemodynamics and structure-functional state of the myocardium was assessed using the "Siemens Sonoline Versa Plus" (Germany). The concentration of glucose in the blood was determined by the glucose oxidase method, HbA1c - a highly sensitive method of ion-exchange liquid chromatography with D-10 analyzer and BIO-RAD reagents (USA). Determination of NT-proBNP were performed using commercial kits the Biomedica (Austria) using ELISA analysis. Lipid metabolism was assessed by the concentration of total cholesterol, TG, HDL cholesterol and low density lipoprotein cholesterol (LDL cholesterol). The lipid content was determined using of HUMAN reagents (Germany) for the analyzer HUMANLAYZER 2000.
Statistical analysis: the variational method using statistical parametric t-test, nonparametric Wilcoxon, t-test and Fisher's Pearson correlation coefficient [ANOVA (MicroCal Origin v. 8,0)]. The work was done according to the principles of the Declaration of Helsinki (2004).

The studies found that the HbA1c concentrations in the blood of the patients with type 2 DM with CAN was not statistically significant before and after treatment (p > 0.05). Changes of the level of NT-proBNP, some parameters of lipid metabolism in patients with type 2 DM and CAN after 3-month of ω-3 PUFA therapy are given in the tab.

### Table

**Changes of the level of NT-proBNP, some parameters of lipid metabolism in patients with type 2 DM and CAN after 3-month of ω-3 PUFA therapy (Δ%, M±m)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Patients with type 2 DM and CAN (n = 36)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control (n = 15)</td>
<td>ω-3 PUFA (n = 21)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>group 1</td>
<td>group 2</td>
<td></td>
</tr>
<tr>
<td>NT-proBNP, fmol/ml</td>
<td>-3.0 ± 1.1</td>
<td>-6.8 ± 1.1</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>LDL cholesterol, mmol/l</td>
<td>-8.3 ± 1.4</td>
<td>-12.8 ± 1.9</td>
<td>p &gt; 0.05</td>
</tr>
<tr>
<td>HDL cholesterol, mmol/l</td>
<td>+4.1 ± 1.0</td>
<td>+7.1 ± 0.5</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>TG, mmol/l</td>
<td>-8.3 ± 1.2</td>
<td>-35.4 ± 2.6</td>
<td>p &lt; 0.1</td>
</tr>
<tr>
<td>Total cholesterol, mmol/l</td>
<td>-6.7 ± 1.0</td>
<td>-8.2 ± 1.1</td>
<td>p &gt; 0.05</td>
</tr>
</tbody>
</table>

Note. - Differences from baseline were statistically significant at the level of – p < 0.05, p < 0.01, p < 0.1 - compared with the control group.
Prescription of the drug, containing ω-3 PUFA to patients with type 2 DM and CAN (group 2) promotes more pronounced significant increase of the HDL cholesterol concentration [+7,1 ± 0,5 % (P <0,05)] and reduction of TG [-35,4 ± 2,6%, (p <0,1)] and NT-proBNP [-6.8±1.1 (p < 0.05)] concerning the results obtained in the control group.

Analysis of experimental and clinical studies proves that ω-3 PUFA inhibit the absorption of cholesterol in the intestine and its synthesis in the liver, lead to increasing the clearance of lipoproteins in the blood, prevent the development of insulin resistance (IR) in experimental diabetes, raise levels of glucose transporters GLUT4 mitochondrial RNA skeletal muscles, have a positive effect on the indirect age slowing of blood flow in the brain and improve utilization of glucose in hypertensive rats under stress, there is no influence on the development of hypertension and obesity. Ω-3 PUFA decrease level of BP, dose-dependently prevent the development of diabetes, IR, improve the sensitivity of platelets to ADP and collagen, contribute to positive changes in the parameters of coagulation, endothelial cells migration, enhance and inhibit the proliferation of smooth muscle cells [8, 9].

We previously reported that the use of "Omacor®", which contains a one capsule ~90% ω-3 PUFA, mainly EPA and DHA in treatment of patients with type 2 DM and CAN improved the general condition of the patients. The evaluation of a vegetative condition (questionnaire Wayne): sum of score was decreased significantly, positive changes of temporal and spectral parameters of heart rate variability, QTc interval was observed; increasing of the period of inactivity platelet aggregation, inhibition of the first phase aggregation, decreasing of their hyperactive state, the tendency to normalization of the status of prostacyclin I2-thromboxane A2 system was determined.

Prescription of ω-3 PUFA contributed significant decreasing of diastolic blood pressure (DBP) avg., time index of hypertension DBP, diastolic hypertension area index and variability of DBP during the day and night hours, was accompanied by a tendency to a low pulse pressure [10]. Effective influence of ω-3 PUFA on the dynamics of metabolism is probably due to their effects on IR and glucose
homeostasis (IR reduces in the muscle > fat >> liver); inhibition of insulin secretion; lipid metabolism (improves the lipid profile in patients with type 2 DM and DLP); moderately reduces of BP, improves endothelial function, reduces proinflammatory status and improves antioxidant protection [4, 11, 12].

The combination of the positive influences of ω-3 PUFA on content of NT-proBNP, certain lipids in the blood, and also noted earlier moderate hypotensive effects of ω-3 PUFA [13] demonstrates the feasibility of their use in complex treatment of patients with type 2 DM and CAN. Further investigations aimed to establish the influence of ω-3 PUFA on dynamics of independent cardiovascular tests, daily monitoring of ECG, daily monitoring of BP, arterial wall stiffness parameters in patients with type 2 DM and cardiac autonomic neuropathy are necessary.

Conclusions.

Prescription of the ω-3 PUFA to the patients with type 2 diabetes mellitus and CAN is accompanied by a statistically significant decrease of NT-BNP levels in the blood.

Prescription of the ω-3 PUFA to the patients with type 2 diabetes mellitus and CAN contributes significantly more pronounced positive changes in the concentration of HDL cholesterol and TG in the blood compared with the results obtained in the control group.

Obtained results suggest that the efficacy of ω-3 PUFA is not associated with improved compensation for type 2 DM in patients with CAN, and is the result of a direct effect of pharmacological agent on the investigated metabolic indexes.

References


Kurenkova G.V.

ASSESSMENT OF THE STATE OF HEALTH OF WORKERS OF TUNNELS WITH AN EXPERIENCE

Irkutsk State Medical University,

In this work are provided data of results of medical examinations of the workers serving railway tunnels, the state of health of underground workers is estimated as unsatisfactory.

Key words: railway tunnel, radon, underground working conditions, medical examinations in the conditions of a hospital, prevention

Analysis of the production factors of the environment at the facilities of railway transport services shows that the improvement of working conditions as a result of the modernization of the production is carried out slowly, and overall improvement of working conditions cannot be traced [1]. Hazards of labor are responsible for the formation of occupational diseases, the pathogenetic mechanism for the development and progression of common diseases [2].

Railway tunnels are strategic objects to the rail network. East-Siberian Railway has the largest number of tunnels of different length and depth of the total length of 34.5 km. According to the results of our studies of hygienic conditions in railway tunnels, it was found that workers are exposed to a complex unfavorable factors - low temperatures, high relative humidity and air velocity, vibration, noise, lack of natural light, and physical and emotional stress, weakening the geomagnetic field, high radon activity, etc.

In the hospital were examined 69 tunnel workers who have been working in hazardous conditions for more than 5 years (average length of 11.3 ± 1.18 years), aged 25 to 59 years (mean age 41.0 ± 1.12 years) without occupational diseases.

Evaluation results of a general blood test revealed that the number of red blood cells and white blood cells were within the physiological range, the number of
reticulocytes in 58.5% of cases exceeded the norm. Leukocyte left shift occurred in 17.1% of cases. Hemoglobin levels were elevated in 40% of cases, the erythrocyte sedimentation rate - in 18.8% of cases. Breach the blood formula, probably due to the influence of natural ionizing radiation (radon). In evaluating the results of a urine test for all workers there were no significant deviations.

The results of biochemical blood analysis showed that there were changes in lipid metabolism. Total cholesterol above normal in 22.2% of cases, triglycerides - in 24.4% of the patients, atherogenic fractions of cholesterol - in 16.7% of cases. Drawback antiatherogenic cholesterol fractions have experienced 67.5% of the patients. 71.4% of workers had impaired cholesterol metabolism, as evidenced by the high atherogenic index. Excess of serum creatinine was noted in 21.9% of cases.

The results revealed diffuse electroencephalographic changes in 72% of cases. The results indicated a high rheoencephalography tone of cerebral blood vessels in 80% of patients. According osteodensitometry at 56.8% of the patients there was a decrease in bone mineral density in the lumbar vertebrae, which is probably also indicative of an adverse effect of the complex factors on the underground workers (the vibration severity of labor, radon, etc.) [3, 4].

The structure revealed pathology of underground workers predominated diseases of the musculoskeletal system and connective tissue - 27.8% presented vertebrogenic dorsopathy, diseases of the respiratory system - 20.1%, diseases of the ear and mastoid process - 14.4%. Noteworthy identified in 7.7% of cases of endocrine and metabolic disorders (thyroid disease prevailed).

Thus, the state of health of the employees of railway tunnels should be regarded as unsatisfactory. Probably the part of occupational diseases is masked in the structure of the total incidence. The obtained data are preliminary, research on the health status of employees of railway tunnels continue.

References:
THE EFFECTIVENESS OF PROPRANOLOL IN TREATMENT OF HAEMANGIOMAS IN CHILDREN OF DIFFERENT AGES

Regional Children Hospital of Dnipropetrovsk

49100 Ukraine, Dnipropetrovsk, Kosmicheskaya str,

The author evaluated the effectiveness of propranolol-therapy of 163 hemangiomas in 106 children according to age: 1st Group - children aged 1 - 5 months (the phase of proliferation), 2nd Group - 6 - 8 months (the phase of stabilization) 3d Group - 9 - 24 months (regression phase) group 4th - 4 - 16 years (complete regression phase). However very high efficacy at hemangiomas that had not completed the transformation (they were in its various phases) was demonstrated, and no effect in the group of completed regression.

Key words: haemangioma, treatment, propranolol, children of different ages.
Introduction. Hemangiomas are the most common benign tumors in childhood, especially early childhood age. They damage 10 - 12% of infants, more girls than boys (2.5 - 4: 1), are diagnosed in 1 - 2.6% of newborns [3,5,7,11,16,18]. Complex hemangiomas (such as, for example, the segmental) are observed in about 0.1%.

They are inherent to preterm infants with low birth weight, the frequency of their occurrence increases due to placental injury or placental complications (placenta previa, amniocentesis) during pregnancy. According to the literature, hemangiomas are more common also in cases of multiple pregnancies (twins), age pregnancy, family history.

The uniqueness of hemangiomas is predictable development, determination of phase formation [5,11,16,18].

There may not be clear manifestations of hemangioma at child’s birth, the place may look like a scratch, flat superficial limited lesion (teleangiectasia), pale spot on the skin or small hemangioma. The rapid growth phase of superficial and / or deep hemangioma components (proliferative phase) begins in the first weeks of life, which usually lasts from 3 to 6 months, and sometimes up to 24 months. [2,16]. Deep hemangiomas tend to grow longer than the surface one. [4]. Then hemangioma is in a relatively stable condition during the certain time (usually several months). Then, the involution phase lasting from 4 to 10 years [15] occurs, which is incomplete in more than at 50% of cases [6,9]. Regression is completed in 4 years in 60% of cases and in 76% - up to 7 years. The minimal residuals remain in many cases in the form of surplus skin, fibrous, scarring, fatty residues and telangiectasis [2,4.]

Hemangiomas can be life threatening if they develop in areas of the neck, chest, near the upper respiratory tract or in it, in liver, spleen, causing severe respiratory failure, heart failure or massive intraabdomenal bleeding [3,8,16,19].

Local complications such as hemorrhage, necrosis, ulceration (even small in size and depth) can have a significant negative influence on child’s life quality due to the painful sensations, and scars appearance that are difficult to correct.
Hemangiomas of some locations can impair sensory functions (induce anisometropia, astigmatism and amblyopia development, impaired development of the teeth, bite, chewing function, swallowing).

In addition, hemangiomas can cause cosmetic flaws, sometimes ugliness, scars that lead to psychological disorders (the problem of social desadaptation).

Despite the ability of most hemangiomas to natural regression, 10 - 20% of them require early treatment (at proliferative phase). The indications for active tactics are: ulceration or the risk of its occurrence, prevention or elimination of life-threatening complications, prevention or treatment of functional disorders, unaesthetic defects.

The real revolution in treatment of problematic hemangiomas was made by French physicians who found the ability of the drug propranolol to cause the hemangiomas regression in children [15]. More data is coming from all over the world about the wonderful efficacy and safety of its use for this purpose [1,3,8,12,19]. But there are a number of issues that require further study: the mechanism of action of the drug, its effectiveness in children of different age groups, further tactics against minimal residual local changes in the skin at the place of the initial location of hemangioma.

The aim of the work was to compare the dynamics of hemangiomas volume change under the influence of propranolol and completeness of their regression in children of different ages.

Materials and methods.

Propranolol (Propranolol) is a well-known drug from the group of non-selective β - blockers, which is used worldwide for over 40 years for treatment both adults and children [8,14].

We started to use propranolol - therapy in combination with laser exposure in the treatment of problematic hemangiomas in children in April 2010 after the endorsement of our protocol by Ethics Committees of the Dnipropetrovsk Region Children's Hospital and Dnipropetrovsk State Medical Academy. Parents must signe informed consent.
Treatment was carried out in the estimated dose of 2 - 2.5 mg / kg body weight / day, divided into 3 equal portions. The calculated dose is achieved gradually: ¼ dose on the first day, ½ - in the second, the full dose – from the third day. In outpatient treatment control of the cardiovascular system and overall health according to the protocol, dose adjustment according to changes in body weight was performed monthly. Duration of treatment is determined by clinical outcome. Cancel the drug was gradual - reduce dose by 1 ¼ once a week.

Inclusion criteria: age older than 1 month, the presence of "problematic" hemangiomas: diffuse hemangiomatosis, segmental hemangiomas of any location, multiple hemangiomas, hemangiomas of large size at the perineum, genitals, scalp, body, local ones in the ear, eye, nose, lips, cheeks, perianal region, paraorbitalis hemangiomas with the threat of compression, displacement and / or damage to the eyeball, hemangioma of neck with extension into the trachea and / or risk of airway obstruction and hemangiomas of the internal organs.

Exclusion criteria: presence of general propranolol contraindications.

The purpose of the initial examination (measurement of blood pressure, blood tests, daily (Holter) monitoring the heart rate, echocardiography, cardiologist, neurologist consultations) was to identify contraindications.

The randomnicity of the sample is ensured by including in trial all children, who entered to the hospital with problematic hemangiomas and who needed propranolol - therapy according to the protocol.

Enrolled patients for treatment: 112 children aged from 1 month to 16 years: 30 boys and 82 girls, in accordance with the approved criteria.

As far as according to the literature, in most cases active growth of hemangiomas occurs in the first 5 months, in 6 - 9 months the growth stabilizes, from 9 months and later begins the regression phase, which ends in 4 - 10 years, children were divided into 4 groups by age: 1st group - 1 - 5 months (the phase of proliferation), 2nd group - 6 - 8 months (the stabilization phase), 3d group - 9 - 24 months (regression phase), 4th group - 4 - 16 years (complete regression phase).
Hemangiomas response to the treatment was estimated by comparing their residual volumes at the determined points of treatment (1 day, 2-3 days, 1 week, 2 weeks, 1 month, 2 months and so on – every month until the end of treatment) with the initial volume, which was taken as 100%. The data were analysed by standard statistical methods using software STATISTICA 6.0.

Photodocumentation, ultrasound measurements (when it was possible), a computer or magnetic - resonance imaging (in some cases) were performed.

Results and discussion.

The analysis of the distribution of patients by age showed that children of the first six months of life most often were taken to treatment in occasion of problematic hemangiomas (Fig. 1)

According to many researchers, children older than 4 - 5 years have only vascular malformations or hemangiomas of another types [17]. Despite this opinion our study of the hemangiomas growth features allowed us to consider vessel abnormalities in some children older than 3 years as a result of transformation of infantile hemangiomas.

![Figure 1. Age of patients at treatment start.](URL: http://www.sworld.com.ua/e-journal/J21306.pdf)
The number of children in groups of observation: group 1 (1 - 5 months) n = 78, group 2 (6 - 8 months) n = 14, group 3 (9 - 24 months) n = 14, group 4 (4 - 16 years) n=6.

There were 170 hemangiomas at 112 children - 41 at boys and 129 at girls. Hemangiomas localization: 110 - head and neck, 31 - extremities, 21 - trunk, 7 - gluteal-sacral area and perineum and scrotum, 1 - liver hemangiomatosis, including 8 segmental hemangiomas of different locations, 3 children had from 5 to 10 hemangiomas and 1 child - disseminated hemangiomatosis of head and body.

Pretreatment (surgery, intralesional hormones or sclerosants, laser, different types of coagulation - radiowave, microwave, cryo- destruction, X-ray therapy, sewing of vessels, their combinations) of 23 children did not bring satisfaction.

The final effect was estimated at 106 children (163 hemangiomas), who completed a full course of propranolol therapy for medical reasons. The duration of treatment ranged from 6 to 20 months. Considering the literature data about probability of hemangiomas relapse in early treatment withdrawal [16], therapy did not stop before 6 months to prevent recurrence. The duration of treatment was determined by clinical effect (as long as the regression goes on).

The positive effect (immediate stop of hemangiomas growing) occurred in 100% in 1, 2 and 3 groups of observation. The first changes were evident during the first day and even during the first hours of treatment - such as tumors softening and discoloration (blanching), but only the second group had significant volume loss (Group 1 - 97% ± 0,04 , p = 0.47, group 2 - 91% ± 0,03, p = 0.02, group 3 - 98% ± 0,16, p = 0,55). Within a week of treatment a significant reduction in the size of hemangiomas was observed in 1, 2 and 3 groups (residual volume in group 1 was 59% ± 0,01, p = 0,00; in 2 group - 63% ± 0,04, p = 0.00 in group 3 - 65% ± 0,04, p = 0.00) at the end of the second week of treatment hemangiomas volume decreased almost by a half. Subsequently there was a steady gradually size (volume) reducing of hemangiomas and percentage of change became lower with increasing of treatment duration (Figure 2). The most pronounced effect was observed in the first two months.
with a further reduction of its manifestations. These data are coincides with the findings of other researchers. [12].

Fig. 2. Dynamics of change in the volume of hemangiomas, depending on the age of the children at the beginning of therapy and duration of treatment.

Comparison of the tempo of hemangiomas volume regression in children of 1, 2, and 3 groups did not reveal significant differences throughout the course of treatment (p from 0.21 to 0.74, ie, p> 0.05). There were minimal remains in the form of flat spots with soft pink color (telangiectasias) in the area of the primary location of hemangioma in superficial layers of the skin after treatment in many cases (Fig. 3).
Fig.3. A series of photographs of a 5 months boy nose hemangioma: A - before treatment, B - after 1 day, C - after 10 days, D - after 2.5 months, E - after 10 months of treatment, F - 1.5 years after stopping propranolol therapy (laser surgery was not carried out due to failure of parents).

Results of treatment at the 4th group differ significantly from the results of 1, 2 and 3 groups - namely, volume and redness reduction of vascular tumors did not happen at any child (Figure 2). Treatment lasted from 3 to 7 months. Children had subjective feelings of tension and fullness reduce in vascular formation.

Cases of no effect or a weak effect (regression of hemangiomas less than 60%) in children younger than 2 years, we have not seen. Our data coincide with the data of most researchers on 100% response of hemangiomas of infants to propranolol - therapy with marked regression of primary vascular lesions [16] as opposed to those that report on rare occasions no effect - in the range 1.7 - 3% [3,12]. Long-term results were assessed in terms of 3 to 24 months. Relapses occurred in three children; full regression was achieved after the renewal of treatment.

Serious adverse effects of propranolol, have not been registered.
For now, 61 children received the 2nd phase of treatment - laser surgery of intradermal remaining items using a diode laser with a wavelength of 940nm in a pulsed mode. Hemangiomas were removed completely.

The mechanism of appearance and transformation of hemangioma, and the mechanism of propranolol action, which leads to involution of hemangiomas, are not quite clarified [4]. In opinion of scientists, skin hypoxia is a probable cause of proliferation of blood vessels [14]. Hemangioma contains a variety of cell types, including endothelial cells - precursors which are clonal in nature and had to disappear at birth, and increased levels of basic fibroblast growth factor (bFGF) and vascular endothelial growth factor (VEGF) [10 , 13]. It is believed that the effect of propranolol on growing hemangiomas implementes through three different molecular mechanisms: vasoconstriction, inhibition of angiogenesis and induction of apoptosis. It is still not clear why with child’s grows the content of growth factors in hemangiomas tissue and proliferative activity of endothelial cells decreases, how propranolol inhibits proliferation and induces apoptosis in endothelial cells. We can assume that, for unknown reasons, the tissues are gradually losing biologically active substances, the ratio of growth factors and intracellular enzyme systems is changing; hemangiomas vessels fallen down; blood flow stops; the obliteration of vessels occurs; and the remaining vessels form the mature abnormal structures (malformations). Perhaps beta-adrenergic receptors participate in the process of angiogenesis; and propranolol realizes its effect on blood vessels through them; and the expression of them also changes by unknown reasons. Treatment with propranolol leads to a significant reduction in the natural development of hemangiomas.

Conclusions. Systemic propranolol - therapy is the treatment of choice in the treatment of problematic hemangiomas in infants. There is equally a very high efficiency for hemangiomas in different phases of transformation. No effect for hemangiomas in complete regression. The method is available, comfortable both for baby and parents, and painless. Method, which is supplemented by diode laser with a
wavelength of 940nm in pulsed mode allows to complete removal of complicated hemangiomas with excellent functional and cosmetic results.

References:


J21306-014

UDC 615.21

Schapovalov V.V. (Jr.), Schuvera O.V.

FORENSIC AND EVIDENCE PHARMACY:
MONITORING PROBLEMS OF ALCOHOL DEPENDENCE IN THE WESTERN REGION OF THE COUNTRY

Kharkiv Medical Academy of Postgraduate Education
Department of Healthcare of the Kharkiv Regional State Administration
Kharkiv, pl. Freedom, 5, 61022
The paper presents the results of forensic pharmacy Monitoring of alcohol dependence among people of Western region, and separately in the Khmelnytsky oblast. These data indicate the need to develop comprehensive programs to combat alcohol abuse among people who are intoxicated.

Key words: forensic pharmacy, pharmacy evidence, forensic and pharmaceutical monitoring, surfactants, alcohol, psychological dependence, deviant behavior and crime

During the last years, one of the main problems causing significant deterioration in social health of society, and bound over the years, it leads to a gradual degradation of the problem of alcohol addiction. Particularly acute this problem occurs in those regions where there is the lowest level of employment in a healthy population and in countryside areas where eliminated all farms, destroyed farms and other facilities where people work not only physically, but also followed their moral and ethical behavior and felt responsible for the others [3].

Unfortunately, the problem of the village is a very painful subject for all parts of science and requires long and detailed discussion. Therefore, a more transparent analysis and pay attention to regions and cities of Ukraine.

Thus, in 2008, the clinical records regarding chronic alcohol syndrome (F 10.2), taken the greatest number of people in the following areas: Dnipropetrovsk, Donetsk, Kyiv, Luhansk, Lviv, Odesa, Khmelnytsky. Separately analyze the two cities in the western region of the country [4]. Thus, in the course of monitoring in relation to demographic, found that the percentage of people who abuse non-medical use of the psychoactive substance – alcohol in Khmelnitsky region is 0.93% per 100 thousand population while in Lviv, the rate was only 0.34% to 100 thousand people. Therefore, more attention should be paid to the Khmelnitsky region, as well as the population in Khmelnytsky almost 3 times lower and the level of alcohol abuse is higher than the population of Lviv region [1].

After a forensic and pharmaceutical analysis in Khmelnytsky region it was found in 2008 among the various psychoactive substances consumed over the population
that acted largest number was on alcohol (97% - alcohol, 3% - other psychoactive substances). As known, uncontrolled and constant drinking leads to psychological dependence that manifest mental and behavioral disorders in the above-mentioned entities. For example, the number of mental and behavioral disorders due to use of alcohol Khmelnytsky population in 2008 compared with previous years increased by 15 and 43%. However, in parallel with an increase in behavior disorders manifested deviant attitudes sick person to the surrounding society, increased crime rates among persons who were intoxicated. Overall level of crime among the above-mentioned contingent persons in 2008 increased by 0.6 % compared to previous years [2, 5].

Conclusions: Having Forensic Pharmacy monitored the alcohol dependence among the population of the Western region, and separately in the Khmelnytsky oblast has been found that the Khmelnytsky requires immediate development programs to combat alcohol abuse population, which in turn should lead to a reduction in crime among those who are while intoxicated.

References:


4. Shuvera E.V. Forensic pharmaceutical monitor trends alcohol abuse in Ukraine / Shuvera E.V., Shapovalova V.A., Shapovalov V. V. // Man and Medicine:
J21306-015

UDC 615.21

Shapovalov V.V., Shapovalova V.O., Hmelevsky M.O.

MODERN STATE SUPPORT DRUG PATIENTS IN RURAL AREAS:
ANALYSIS OF COMPLAINTS OF CITIZENS ON PRINCIPLES OF
MEDICAL AND PHARMACEUTICAL LAW

Kharkiv Medical Academy of Postgraduate Education
Department of Healthcare of Kharkiv Regional State Administration

Kharkiv, pl. Freedom, 5, 61022

In this paper, on the basis of pharmaceutical and medical law discusses the features of the current state of software drugs patients in rural areas. The problems of public health institutions on the conditions and the risks of preferential discharge prescriptions for drugs (drugs) of all legal nomenclature and classification and legal groups in the present market conditions and peculiarities of doing business in the village. Analyzed examples of citizen complaints arising from the reduction of preferential access to medicines in rural areas.

Key words: pharmaceutical law, pharmacy, countryside, risks, treatment of drug classification and legal groups

Downloaded from SWorld. Terms of Use http://www.sworld.com.ua/index.php/ru/e-journal/about-journal/terms-of-use
Medical reform aims to strengthen social security, medical and pharmaceutical workers, as the President of Ukraine V.F. Yanukovych [1] says. The experience of many countries that reformed the medical and pharmaceutical industry shows that the conditions when gradually increasing funding above areas as development of these areas requires many years.

At present, Ukraine has introduced a gradual reform of the health system, which in turn is a structure of multi assistance in various areas of disease.

According to the Law of Ukraine «On the Fundamentals of Legislation of Ukraine on Health” patient has the right to be treated in any health care facility.

Due to this provision of the Law of patients treated in health facilities at various levels of care including in public institutions (institutions) National Academy of Medical Sciences of Ukraine in different directions diseases.

For regional administration periodically receives complaints from citizens who are eligible to receive drugs at discounted and free prescription on the issue of denial of preferential discharge prescription of the national institutes of the Academy of Medical Sciences.

According to the Department of Pharmacy Department of Healthcare of the Kharkiv regional state administration for the period from 01.01.2012 to 31.12.2012, received 1275 complaints. Of these complaints 42% of patients (women 51% , men 49%) associated with delayed or incomplete provision of drugs (psychotropic, hypnotic, etc.) prescribed by doctors in countryside areas.

Problems of grace and free distribution of medicines drug addicts, mental health and neurological disorders consider the example of a complaint from a citizen A., who lives in the area of Balakleya concerning refusal to grant preferential prescription drugs for medical practitioners Institute of Neurology, psychiatry and Neurology National Academy of Medical Sciences of Ukraine.

In accordance with Section 1.1. of the Order of the Ministry of Healthcare of Ukraine from 19.07.2005 №360 "On approval of writing prescriptions and requirements of orders for drugs and medical products, order dispensing of medicines and medical products from pharmacies and their departments, instructions on how to
store, accounting and disposal of prescription forms and requirements of orders" recipes for medicines and medical products issued by doctors health facilities regardless of ownership and subordination, according to the type of medical practice for which a license was issued by the Ministry of Health of Ukraine and to medical positions.

Recipes for medicines, medical products, which sold on favorable terms or free of charge, allowed doctors to prescribe state and municipal health facilities in consultation with health authorities of local public administration. As the Institute of Neurology, Psychiatry and Neurology National Academy of Medical Sciences of Ukraine is not part of the public health institutions of Kharkiv region to issue discounted prescriptions to obtain drugs medical staff are not eligible.

In order to avoid issues of privilege contingent invited to start following mechanism.

Physician practitioner (district internist) directs the patient to treat the institution of the National Academy of Medical Sciences of Ukraine (according to treatment) pre-defining a doctor who will conduct medical - advisory action for quick recovery of the patient.

Defining a list of medications to treat the patient, the physician should institute provide guidance district physician at the residence of the patient (privileged) for the proper discharge of preferential prescriptions for medicines that are necessary for effective patient pharmacotherapy.

Reproduced mechanism to improve and make changes to the orders of the Ministry of Health of Ukraine in accordance with the norms of medical and pharmaceutical law in Ukraine [2-5]. Given this example, there should be paid attention to drug treatment doctors, psychiatrists and family physicians on rational prescribing and during the treatment period following medicines.

References:

1. Social protection of health care workers will be strengthened – President // 12.09.2013 [Electronic resource] // Press Service of the President of Ukraine Viktor

Downloaded from SWorld. Terms of Use http://www.sworld.com.ua/index.php/ru/e-journal/about-journal/terms-of-use


J21306-016

UDC 615.21

Ryschenko O.O., Shapovalova V.O., Shapovalov V.V.

MEDICAL AND PHARMACEUTICAL LAW:
THE FORMULARY SYSTEM IN UKRAINE

Kharkiv Medical Academy of Postgraduate Education

Department of Healthcare of the Kharkiv Regional State Administration

Kharkiv, pl. Freedom, 5, 61022
In the article the review of the regulatory framework and guidelines formulary of Ukraine. The basic objective function and the principles of making formulary system in Ukraine in terms of medical and pharmaceutical law.

Key words: the formulary system, drug, medical law, pharmaceutical law

National policy on the drugs (medicines) is the part of state policy in the field of healthcare. In the absence of proper provision of quality of the drugs or misuse suffers the completely healthcare system, as the level of medical care is directly dependent on the pharmaceutical sector. In fact, national policy on drugs aimed at ensuring the legality and sustainability industry and to guarantee the availability, quality, safety and efficacy of drugs, their rational use.

International experience shows that to achieve these goals is a set of effective management techniques in health care, which provides the application of rational, organizational and cost effective methods of supply and use of drugs to ensure that in the specific circumstances of high quality medical and pharmaceutical care and optimal use available resources, i.e. through formulary system (FS) [1].

According to current pharmaceutical legislation, the term “The formulary system" shall mean a set of management techniques in health care, providing application of rational, organizational and cost effective methods of supply and use of drugs in order to ensure in concrete terms the highest quality care and optimal use of existing resources [4].

Therefore, FS is the system of choice drugs in daily medical practice, which does not alter the diagnostic and therapeutic aspects of art therapy. All the principles and guidelines of FS based on the principles of evidence-based medicine and pharmacy that is based on analysis of the use of drugs in large numbers of patients. In fact, using the FS based physician in his daily work on the vast experience of medical and pharmaceutical community. The decision of the efficacy and safety of a particular type of medication is taken based on a meta-analysis of data collected in the treatment of hundreds of thousands of patients [2].

Development of the FS in Ukraine is based on the regulations at different levels (resolution of the CMU, orders of the MH of Ukraine etc.) [4, 6, 7, 8].
The purpose of the introduction of the FS is: ● to ensure priority use of efficient, safe, economically affordable drugs; ● developing and implementing effective and cost-effective system that includes consistent standard protocols pharmacotherapy, State Form (owner), regional and local forms (lists); ● maximum safety of drugs on the basis of monitoring and evaluation of their use in medical and pharmaceutical practice in order to maximize prevention of adverse reactions to drugs and errors in their application; ● to develop and implement measures to improve the use of drugs by specialists who prescribe them and patients that will require testing and monitoring of drugs [1].

The current pharmaceutical legislation of Ukraine provides six major functions of the FS of Ukraine, including: medical, which consists in identifying and developing methods for rational pharmacotherapy of common diseases, pharmacological, which provides for monitoring the proper use of drugs and the adoption of measures to prevent iatrogenic errors and corrections, social, and providing patients with drugs with proven clinical efficacy, cost, allowing use of pharmacotherapy during clinically and economically most effective drugs, information - dissemination of objective information about the effectiveness and safety of drugs and vocational education, which includes capacity building and training of doctors different profiles, clinical pharmacists, pharmacists, nursing and pharmacy staff [4].

General principles of the FS based on the following criteria: ■ administration of drugs to the formulary lists of all levels, in line with those of industry (region), school health, data on efficiency, safety, obtained by evidence-based medicine and pharmacy, national data on the effectiveness of, safety obtained by pharmacologic surveillance method (spontaneous reports and monitoring of hospitals on the efficacy and safety of drugs); ■ standardized clinical protocols and local protocols of care; ■ possibility of using drugs that are not included in the formulary list (under the terms of the clinical situation); ■ possibility of therapeutic substitution of drugs; ■ counter influence of representatives of pharmaceutical companies and trade ads [1].
Ukrainian State Duma introduced into medical and pharmaceutical practice as forms three levels: 1). State Form 2). Regional Form 3). Local Form of the drugs health institution [4].

State form of the medicines is a list of drugs registered in Ukraine, including drugs with proven efficacy, acceptable safety and cost-effective use and appears to be in the format Formulary Handbook [3].

Regional form of the drugs is a list of drugs with the greatest evidential base for their efficacy, safety and cost-effective use of the region where he developed and approved and has the format Formulary List. [4]

Local Form of the drugs healthcare facility includes a list of drugs with the greatest evidential base for their efficacy, safety and cost-effective use of health institution approved by the managers of health care in consultation with the Ministry of Healthcare [3 , 4].

To ensure the implementation and use of FS in the Kharkiv region was developed "Regional Form of the drugs in Kharkiv region on the basis of medical and pharmaceutical law". The basis for this publication was National Medicines Form fourth issue, which is approved by the Ministry of Healthcare of Ukraine on 28.03.2012, № 209 "On approval of the fourth issue of the State form of medicines and ensure its accessibility". In turn, a regional form of Kharkiv region is the main list of formulary drugs necessary for the establishment of local forms for the medical health care Kharkiv region. It should be noted that the structure of the regional form is fundamentally different from the usual structure of regional forms of other regions of Ukraine. In general list of drugs and their formulary items he plans to present data on the availability of drugs for forensic and pharmaceutical criterion "control mode" that eliminates errors specialist medicine and pharmacy at the stage of prescribing and dispensing formulary drugs [4, 8].

Thus, the expansion of formulary drugs articles, included in the formulary lists of all levels formulary system to their availability for forensic pharmaceutical criterion "control mode" provides not only perform basic tasks and functions FS, but will
Modern scientific research and their practical application. Vol. J21306

support materials for practitioners and pharmacists in question of the circulation of these drugs.

References:


J21306-017

UDC 615.1:351.76:613.99

Radionova V.A., ShapovalovaV.A.,
ShapovalovV.V., Smokvina T.O.

MEDICAL AND PHARMACEUTICAL LAW: THEORETICAL STUDY
OF STATE POLICY ON EQUAL RIGHTS AND OPPORTUNITIES FOR
WOMEN IN UKRAINE

Kharkiv Medical Academy of Postgraduate Education, Department of Healthcare of the Kharkiv Regional State Administration
Ukraine, Kharkov, pl. Freedom, 5, 61022

In this article from the perspective of medical and pharmaceutical law grounded public policy to ensure equal rights and opportunities for women in Ukraine. The basic international and national legal instruments related to gender equality between women and men.

Keywords: medical and pharmaceutical law, public policy, gender equality, the rights of women, discrimination.

According to the United Nations Organization (UNO) index of gender inequality in Ukraine is 0.33, which is equal to the 57th position among 146 countries. The UN
believes that women's rights in Ukraine significantly disadvantaged in almost all areas: family, work, political [1]. Therefore, one of the goals of government programs is the implementation of gender equality and the elimination of all forms of discrimination against women by creating the conditions and legal provisions necessary for the implementation in practice of the constitutional principle of equal rights and equal opportunities for women and men. The relevance of this problem is due to a number of factors, including not least owned by changing social and economic conditions in Ukraine.

The purpose of the work – is to ground state policy to ensure equal rights and opportunities for women in Ukraine on the basis of medical and pharmaceutical law.

The basis of gender policy in Ukraine is generally accepted by the international standards enshrined in several international legal instruments: the Universal Declaration of Human Rights, the UN Convention on the Elimination of All Forms of Discrimination against Women, the International Covenant on Civil and Political Rights, the ILO Convention number 156 equal treatment and equal opportunities for men and women workers, the recommendations of the Council of Europe, the outcomes of the UN Fourth World Conference on Women (Beijing, 1995) "Beijing Platform for Action", The UN General Assembly resolution number 1325 concerning "The women, Peace and Security" etc. In accordance with the international obligations of Ukraine adopted at the state level a number of legal instruments aimed at eliminating all forms of discrimination against women. [2]

The right to a fair exercise of the rights and freedoms without discrimination enshrined in Art. 24 of the Constitution of Ukraine. According to the Constitution of Ukraine women and men also have secured equal rights to protection of life and health (Art. 27), healthcare and medical assistance (Art. 49), leisure and social protection (Art. 45, 46) at work and their free choice (Art. 43), to an adequate standard of living for themselves and their families (Art. 48), each spouse has equal rights and responsibilities in marriage and the family (incl. 1 tbsp. 51). An important addition to the provisions of the Constitution of Ukraine on the equality of citizens regardless of gender is art. 161 of the Criminal Code of Ukraine "Violation of
equality of citizens regardless of their nationality or religion. Extension guarantees rights to non-discriminatory hiring by Art. 2 of the Labor Code of Ukraine under which prohibits unreasonable refusal to accept a job as well as any direct or indirect restriction of rights or granting direct or indirect benefits in hiring [3].

Unfortunately, the legislation regulating gender equality in the first place, are often declarative in nature and are not provided with means of implementation, ie financial and organizational resources to ensure these obligations, and secondly, civil society in Ukraine to date, Unfortunately, there is no force that can affect the gender situation. The most pronounced gender inequalities in two areas, labor and employment, and in politics. Typically, more women than men employed in jobs characterized by low wages and instability in the terms of employment. These facts present in modern Ukrainian society due to the domination of traditional patriarchal stereotypes regarding gender social roles of men and women, manifestations of latent discrimination due to lack of an effective mechanism of social control over compliance gender equality under the law.

Thus, public policy to ensure equal rights and opportunities for women in Ukraine should be directed at strengthening the enforcement of existing regulations in this area.

References:


3. Pharmaceutical law and proving pharmacy in the system legal relationship: state - law - the manufacturer - wholesaler - Manager - doctor - patient - pharmacist -
Vasina Y.V., Shapovalov V.V., Shapovalova V.O.

MEDICAL AND PHARMACEUTICAL LAW:
LEGAL PROCEDURES CIRCULATION EXTEMPORANEOUS
COMPOUNDING IN PHARMACIES UKRAINE

Kharkiv Medical Academy of Postgraduate Education

Department of Healthcare of the Kharkiv Regional State Administration

Kharkiv, pl. Freedom, 5, 61022

The results of the study of legal procedures turnover extemporal recipe comprising narcotic drugs, psychotropic substances and precursors, pharmacies Ukraine. The peculiarities of turnover stages of manufacture, quality control, storage, dispensing (implementation).

Key words: medical and pharmaceutical law, extemporal recipe, turnover, pharmacy.

In recent years, Ukraine emphasis formulations manufactured by prescription in pharmacies, which enables efficient to combine different medications of classification and nomenclature of legal and regulatory groups and promotes individual approach to treatment. Thus, the Ukrainian government measures aimed at expanding the network today pharmacies that may engage in economic activities in different stages of treatment extemporaneous preparations in the pharmaceutical environment, especially in rural areas [1].

Objective: to study the basic steps circulation in Ukraine extemporal formulations comprising narcotic drugs, psychotropic substances and precursors based on medical and pharmaceutical law.
Results. Found that the procedure of the circulation of the extemporal composition (EC) in pharmacies Ukraine includes several stages: licensing, manufacturing, quality control, inventory, storage, sale (supply). It should be noted that the legal procedures of the circulation of EC containing narcotic substances (NS), psychotropic substances (PS) and precursor (P) has some specifics about special licensing requirements of the State Service of Ukraine on Drug Control. Thus, the stage production of EC containing NS, PR and P, may be admitted person with a state diploma for pharmacy education and certificate of assignment (confirmation) the title of pharmacist general practitioners (experts who have completed higher education after 1992 year). Financially responsible persons and persons for job descriptions have access to outstanding EC from NS, PR, P determined by the manager of the entity, which should be familiar person under the signature. In addition, access to the circulation of NS, EC, PR, P issued the following documents: certificate of the appropriate state or municipal health institution the absence of mental disorders related to alcohol abuse, or PR in NS workers under with their official duties are or will be available directly to the EC, NS, PR, P and a lack workers among these persons found not suitable to the production of certain activities related to circulation of the NS, PR and P; Help Interiors of a lack of workers is not withdrawn or canceled in the prescribed manner conviction for the crime of medium gravity, grave or especially grave crime or offense of trafficking NS, PR and P including those committed outside Ukraine [2].

An entity that operates the production (manufacturing) of the EC in the pharmacy shall: ensure that the logistics, availability of production and support facilities for the production (manufacturing) of the EC and storage of raw materials, pharmaceutical blank inside (concentrates, intermediate products), finished products according to their physical and chemical properties, the requirements of the State Pharmacopoeia of Ukraine or other applicable regulations, adhere to the qualification requirements for pharmacy staff who is engaged in manufacture (production) and EC quality control [3].
Let us consider the stages of circulation EC containing NS, PR and P in pharmacies Ukraine. Pharmacist pharmacy prescriptions taking the above-mentioned dosage forms must specify the age of the patient, verify dosing, compatibility prescribed ingredients appropriateness of a prescription. When all these rules for making a recipe passed.

The study was also set some specific features of EC containing NS, PR and P on the stages of manufacture and storage. Thus, in areas where the activities of the production or sale (vacation) EC from NS, PR, P then this EC should be stored in a fireproof safe in an amount which does not exceed the daily requirement needed for manufacturing dosage forms. At the end of the day NS, PR and P of pharmacy premises where the activities for the production of EC should be transported in the pharmacy premises provided for the storage of dosage forms. In addition, NS, PR and P in powders, pills or tablets (angra), comprising the EC should adventure pharmacist pharmacy that controls the production, in the place of storage in the presence of a pharmacist that receives and produces drugs after what shtanhlasses with the aforementioned EC should immediately locked in the safe. On the back of the counter placed the painting on the issue and on receipt of sold NS, PR or P indicating their name and number. The back of the prescription label instead of the hand may be affixed the stamp of receipt and delivery of NS, PR, P used for the manufacture of EC in pharmaceutical health care. The resulting assistant NS, PR or P must be immediately used for the manufacture of the dosage form, which immediately sent for testing to the person responsible for quality control. If the pharmacy is only one pharmacist, after waging of the NS, PR, P the employee shall be noted on the back of the counter to the number and the name of the drug used and stamped signature. Made pharmacy dosage forms containing NS, PR or P must be sealed or plugged "a run-in" (closing bottles with aluminum caps with a special device) and store up to dispensing pharmacies in the rooms provided for storage. Made in pharmacies for the treatment and prevention of health care -EP containing NC, PR or P must have signature or label on the following details: number (name) pharmacy where creation of the EC accurately and clearly indicate "internal", "ointment", "for injection", "eye
drops" etc., names of office (cabinet) for which the EC is made, the composition formulation that meets the requirements specified in the requirements submitted by the pharmacy, date of manufacture of dosage forms, signatures of persons that are produced, checked and published formulations of the drug. The issue for the medical health care made in pharmacies EC on packages above which no notation is not allowed.

It should be noted that the issue is made in the pharmacy extemporaneous formulations, which include NS, PR, P accomplished only after quality controls and permit implementation (issue). When dispensing to patients rather than prescription medicines signature appears with a yellow stripe at the top and the words of the black type on her “signature". If the recipe with other ingredients prescribed NS, PR or P, then release them separately, not as part of manufactured dosage forms is strictly prohibited.

Conclusions. Study of legal procedures circulation extemporaneous formulations containing in its composition narcotic, psychotropic substances and precursors in pharmacies of Ukraine. Established particularities of the circulation stage of manufacture, quality control, storage, sale (vacation).

References:


Found that the prevalence of cannabinoids narcomany (F12) is an urgent problem in the world. Developed by scientific and practical recommendations for countering the proliferation of cannabinoids narcomany (F12) by algorithm for definition of the status of cannabinoids dependency (F12) on the basis of the pharmaceutical law and forensic pharmacy.

Key words: dependence on cannabis, status determination algorithm dependence on cannabis, pharmaceutical law, forensic pharmacy.

Introduction. The spread of drug abuse, increased drug crime is in causal connection with illicit psychoactive substances (surfactants), aggressive advertising of alcohol, drugs, herbal energy drinks, tobacco, dissemination of information via the Internet, which requires the government to strengthen measures to combat drug trafficking and expanding the range of medical and pharmaceutical, social and economic services for drug dependent patients [3,8-11]. Among the surfactants of vegetable origin are the most common drugs that derived from hemp, due to growing this plant availability and ease of fabrication thereof drugs. For drugs that are obtained from the hemp and cannabis relegated homemade drugs (cannabis resin, extracts or tinctures of cannabis, marijuana, hashish, hashish oil), which are composed of cannabinoids, the abuse of which leads to the formation of the cannabinoid dependence (F12) or cannabinoid addiction (F12) [2,4,6,7].
The aim of the study was to develop an algorithm of the definition of status of the cannabinoid addiction (F12) based on pharmaceutical law and judicial pharmacy.

Materials and methods. Conducting forensic and pharmaceutical research was made using analytical-descriptive method, which was specially developed algorithm, consisting of 5 steps: Step 1 – Development of the questionnaire with question; Step 2 – Definition of contingent respondents; Step 3 – Conducting of the surveys and calculation smallest number of questionnaires to obtain representative data survey; Step 4 – Conducting of the initial processing of the results; Step 5 – Graphical and tabular presentation of the results. Survey respondents were consumers of illegal cannabinoids, patients with a diagnosis (F12) for ICD-10 and control workers, lawyers and law enforcement agencies of Ukraine. Period of study: 2006-2012 years.

Results and discussion. Following forensic and pharmaceutical research authors developed an algorithm for the definition of the status of the cannabinoid dependence (F12), which consists of four levels: set the motivation to abuse of cannabinoids, establishing the level of dependence from the cannabinoids (F12); establish the level of non-abuse of cannabinoids, establishing the level of risk of abuse cannabinoids for the patient [1].

The level of motivation to abuse of cannabinoids was determined based on counting the number of points for the answers respondents according to the proposed list of questions on the amount of points that can range from 3 to 15, which indicates the level of motivation to abuse of cannabinoids: Level 1 - low motivation (up 7 points); level 2 - Average motivation (7 to 11 points ), 3 levels - high motivation (over 11 points). Analysis of responses to the question is given an opportunity to highlight the factors that motivate (encourage) illegal consumers to abuse cannabinoids , which will look into the causes of abuse and patient behavior change plan for the period of refusal from them. The level of the cannabinoid dependence (F12) was investigated using multiple choice questions , constructed on the basis of advanced authors K. Faherstrem test, and evaluation of tests performed by calculating the total score , which indicates the level of dependence from the cannabinoid (F12): Level 1 (1-5 marks) - weak dependence on 2 levels (6-10 points) - the average
dependence; 3 level (11-15 points) - a strong relationship. The level of non-abuse of cannabinoids was determined using a special test for the number of points that can range from 0 to 8. The higher the total score, the higher the level of readiness of the patient to stop abuse of cannabinoids: Level 1 - low level of non-abuse of cannabinoids (3 points): The patient does not want to stop the abuse of cannabinoids, it can offer a program to reduce the intensity of use of cannabinoids, 2 level - average level of non-abuse of cannabinoids (3 to 5 points): patients can be offered relatively new phenomenon pharmacotherapeutic program to reduce abuse of cannabinoids and gain a desire to abandon them; 3 level - high level of non-abuse of cannabinoids (more than 5 points): the patient can be offered long pharmacotherapeutic program in order to complete abandonment of cannabinoids [16]. The level of risk of abuse cannabinoids calculated using the index abuse by the cannabinoids (IAC) based on the formula proposed by the authors, which shows the level of probability of further consequences in the form of the patient's other associated health problems (e.g., respiratory disease: Level 1 - low likelihood of comorbidities (IAC to 36), 2 level - the average probability of comorbidities (IAC 36 to 71), 3 levels - high probability of comorbidities (IAC over 71). IAC calculation performed for each patient from dependence on cannabinoids (F12), who comes to the doctor or hospital to receive and record the results in the history of the disease and correlate with underlying disease in this patient [5].

Conclusions. Found that the prevalence of drugs of cannabinoids (F12) is a pressing problem in the world. The scientific and practical recommendations to counteract of drug distribution with cannabinoids (F12) by means of an algorithm for definition of status of the cannabinoid dependence (F12) based on pharmaceutical law and forensic pharmacy.

References:

1. Copyright 41139, Ukraine. Brochure "Forensic evidence and pharmacy: the status kannabinoyidnoyi dependence (F12)" / V. Shapovalov (Jr.), SM non-Greek,


In this article we compare the effect of pesticide Gamma HCH-doses 0.1 and 0.3 mg/kg of feed on biochemical blood measures of chicken-boiler under research and control group during 38 days.

**Key words:** Pesticides, biochemical blood measures, chicken-boiler, veterinary-sanitary examination.

Blood – is a rare connective tissue of the body that performs important functions in the maintenance of his life, that it is directly involved in all the metabolic functions of the body. Therefore, analyzing the hematological researches, we can draw some conclusions about the growth of chickens, their productivity and resistance, as well as the quality of products derived from them, especially in case of feeding them by pesticides. [3]

From the obtained data of the hematological researches it becomes clear what the extent affects to the broiler chickens body due to feeding them pesticide gamma-HCH. These data (Table 1) shows that during the feeding test pesticide gamma-HCH in the amount of 0.1 and 0.3 mg / kg of feed the broiler chickens demonstrate some changes compared to the control group.

Substantial changes are taking place in the determination of hemoglobin. The results of the research show that the difference compared with the control group is in 0.8 times less for the first test group and 1.2 times less than for the second.

Hemoglobin measure for the first group is – 115 g/l, for the second – 109 g/l, for the control group – 127 g/l, due to the reduction of erythrocyte hemoglobin saturation, and for the first group - 47.8 pg, for the second - 46.5 pg, for the control -
This tendency, likely, indicates the decrease of metabolic processes in the body. [7,1]

**Table 1**

<table>
<thead>
<tr>
<th>Test type</th>
<th>First test group 0,1 mg/kg of feed</th>
<th>Second test group 0,3 mg/kg of feed</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin (Hb)</td>
<td>115 g/l</td>
<td>109 g/l</td>
<td>127 g/l</td>
</tr>
<tr>
<td>Erythrocyte (RBC)</td>
<td>3,16 Tera/l</td>
<td>3,02 Tera/l</td>
<td>3,36 Tera/l</td>
</tr>
<tr>
<td>The average volume of erythrocytes (MCV)</td>
<td>103,1 femtoliter</td>
<td>100,4 femtoliter</td>
<td>104,3 femtoliter</td>
</tr>
<tr>
<td>Hematocrit (Hct)</td>
<td>26 %</td>
<td>23 %</td>
<td>27 %</td>
</tr>
<tr>
<td>The average number of Hb for Erythrocyte (MCH)</td>
<td>47,8</td>
<td>46,5</td>
<td>49,4</td>
</tr>
<tr>
<td>The average concentration of Hemoglobin for Erythrocyte (MCHC)</td>
<td>470 g/p</td>
<td>465 g/p</td>
<td>473 g/p</td>
</tr>
<tr>
<td>Width distribution of erythrocytes (PDW)</td>
<td>7,2 %</td>
<td>7,0 %</td>
<td>7,3 %</td>
</tr>
<tr>
<td>Morphology of the erythrocytes</td>
<td>normocytosis</td>
<td>normocytosis</td>
<td>normocytosis</td>
</tr>
<tr>
<td>Leukocytes (WBC)</td>
<td>5,1 Giga/l</td>
<td>6,7 Giga/l</td>
<td>4,1 Giga/l</td>
</tr>
<tr>
<td>Lymphocytes (Lym%)</td>
<td>69 %</td>
<td>79 %</td>
<td>54 %</td>
</tr>
<tr>
<td>The absolute concentration of lymphocytes</td>
<td>3,9 Giga/l</td>
<td>5,29 Giga/l</td>
<td>2,21 Giga/l</td>
</tr>
<tr>
<td>Plasma cells</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Monocytes (Mon%)</td>
<td>2 %</td>
<td>1 %</td>
<td>5 %</td>
</tr>
<tr>
<td>Parameters</td>
<td>Test Group 1</td>
<td>Test Group 2</td>
<td>Control Group</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>--------------</td>
<td>--------------</td>
<td>---------------</td>
</tr>
<tr>
<td>The absolute concentration of monocytes</td>
<td>0,11 Giga/l</td>
<td>0,067 Giga/l</td>
<td>0,21 Giga/l</td>
</tr>
<tr>
<td>Miyelotsyty</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Metamiyelotsyty</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Neutrophils stab</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Neutrophils segmented</td>
<td>3%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Eosinophils</td>
<td>25%</td>
<td>16%</td>
<td>38%</td>
</tr>
<tr>
<td>Basophils</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>The absolute concentration of granulocytes</td>
<td>1,48 Giga/l</td>
<td>1,34 Giga/l</td>
<td>1,68 Giga/l</td>
</tr>
<tr>
<td>Thrombocytes (PLT)</td>
<td>85 Giga/l</td>
<td>0 Giga/l</td>
<td>165 Giga/l</td>
</tr>
<tr>
<td>The average volume of thrombocytes (MPV)</td>
<td>3, femtoliter</td>
<td>0 femtoliter</td>
<td>5, femtoliter</td>
</tr>
<tr>
<td>Plateletcrit (Pct)</td>
<td>0,08%</td>
<td>0%</td>
<td>0,09%</td>
</tr>
<tr>
<td>The distribution width of thrombocytes (PDW)</td>
<td>5,4%</td>
<td>0%</td>
<td>6,8%</td>
</tr>
<tr>
<td>Erythrocyte sedimentation rate (mm/h)</td>
<td>2 mm/h</td>
<td>3 mm/h</td>
<td>2 mm/h</td>
</tr>
<tr>
<td>Dislocation index of Leukocytes</td>
<td>0,53</td>
<td>0,25</td>
<td>0,69</td>
</tr>
</tbody>
</table>

Also, the measurement results varied of leukocytes. For the first test group is 5,1 Giga/l, for second – 6,7 Giga/l, that higher from the control group in 1,2 and 1,6 times accordingly. Along it was marked the increase of absolute lymphocyte content: the first group – 3,9 Giga/l, the second group – 5,29 Giga/l, the control group – 2,21 Giga/l. The ratio of the content of monocytes for the first test group is 2%, for the second – 1%, the control group – 5%. The absolute content of monocytes in the blood of the first experimental group is 0,11 Giga/l, for the second group – 0,067 Giga/l, at the same time this measure for the control group is 0,21 Giga/l. Reduction of monocytes
(monotsytopeniya) or absolute lack of them in peripheral blood may develop by severe infections and trends of inflammatory diseases, during the bone marrow with decrease its function (B12-deficiency anemia, aplastic anemia). We believe that this may be due to the decrease in the body's metabolism in the result of decline in hemoglobin levels. [7,3,1]

Also the characteristic was a sharp decrease in blood eosinophils in the direct proportion with the increase of the concentration of the pesticide that received Broilers. The amount of eosinophils for the first test group is 25%, the second group is 16% when the control group has 38%. In most cases the eoynopeniya cause by increasing adrenocortical activity, which leads to a delay of eosinophils in the bone marrow. Eosinopenia is particularly characteristic of the initial phase of infectious-toxic process. Also eosinophils play an important role in controlling helmints, their larvae and eggs. [3] So as a conclusion, we can note a general decrease in the immunity and resistance of the organism in common. [4]

From these results, we see that the first test group concentration of platelets is 85 Giga / l in the second the platelets in the blood is detected, where in the control group performance platelets is 165 Giga / l.

Normally, platelets below normal (thrombocytopenia) are observed in severe iron deficiency anemia, thyroid and liver, some infectious diseases, drug intake, which in turn proves a general decline in immunity and disease forming organs due to taking feed that has been contaminated with pesticides. According to the research of total protein and protein fractions in the serum broiler chickens (Table 2) shows that prolonged feeding gamma-HCH at the concentrations of 0.1 mg / kg and 0.3 mg / kg of the feed is not any significant changes. With the change in of concentration, compared with the control group, there begins to fluctuations in total protein, namely in the first experimental group - 34 g / l, for the second - 32 g / l, control - 34 g / l.[3]

There is not any significant changes in the level of the serum globulin in experimental groups compared with the control. In our view, given the fact that the deterioration of hematological parameters of the blood, this only underscores the latent reaction of the immune system to get into the body of harmful substances,
which, in turn, causes inhibition of metabolism and impair the development of the poultry.

Table 2

Biochemical measures of blood serum of broiler-chickens under research and for control group

<table>
<thead>
<tr>
<th>Test type</th>
<th>First test group 0,1 mg/kg of feed</th>
<th>Second test group 0,3 mg/kg of feed</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total protein</td>
<td>34 г/л</td>
<td>32 г/л</td>
<td>34 г/л</td>
</tr>
<tr>
<td>Albumin</td>
<td>11 г/л</td>
<td>11 г/л</td>
<td>12 г/л</td>
</tr>
<tr>
<td>Globulin</td>
<td>22 г/л</td>
<td>21 г/л</td>
<td>22 г/л</td>
</tr>
<tr>
<td>Albumin-globulin ratio (A/Г)</td>
<td>0,5</td>
<td>0,52</td>
<td>0,55</td>
</tr>
</tbody>
</table>

As an indicator of inhibition of the metabolic processes in the body broiler research groups can serve as a result of research concentration of the final product of protein metabolism, such as uric acid, and activity of enzymes. After reviewed the data from the Table 3 which show that uric acid decreased in the test groups compared with the control. So we see that after 38 days of feeding pesticide the level of urea in blood serum of the first test group is 1.2 times lower compared with the control group and is 73 mmol / l, the level of the second test group was 1.8 times lower than in the control group and is 49 mmol / l, the level of the control group - 88 mmol / l. [3]

To define functional state of the liver, heart and other organs, the overall functional status of the body as well as to assess the exposure to substances that enter the body, which identify in clinical practice and study the activity of enzymes alanine aminotransferase and aspartate aminotransferase. From these (Table 3) data show that the trend is more evident the sharp increase in alanine aminotransferase compared with the increase of aspartate aminotransferase in the test group. That higher indicators of both enzymes, but a higher tendency to excess in the enzyme alanine aminotransferase.
is 49 u/l, for second – 61 u/l, that higher in 1, 5 times compared with measures of the control group. The control group has 40 u/l. The level of aspartate aminotransferase for first group is 218 u/l, for second group – 238 u/l, the control group - 202 u/l. Thus, from the results we can see that the increase of the alanine aminotransferase, which exceeds the increase of aspartate aminotransferase, characteristic of the liver damage. [7,3,1]

Table 3

<table>
<thead>
<tr>
<th>Test type</th>
<th>First test group</th>
<th>Second test group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>alanine aminotransferase</td>
<td>49 u/l</td>
<td>61 u/l</td>
<td>40 u/l</td>
</tr>
<tr>
<td>aspartate aminotransferase</td>
<td>218 u/l</td>
<td>238 u/l</td>
<td>202 u/l</td>
</tr>
<tr>
<td>uric acid</td>
<td>73 micromoles /l</td>
<td>49 micromoles /l</td>
<td>88 micromoles /l</td>
</tr>
</tbody>
</table>

The sharp decrease of hemoglobin in the blood serum, the total absence of platelets and reduced platelet counts indicate the general deterioration and the weakening of the immune system of the poultry research, the certain diseases of the blood and liver. Also there is the deterioration in metabolic processes, as well as the evidence of alanine aminotransferase activity, aspartate aminotransferase, and uric acid in the blood serum of broiler chickens test and control groups.

Based on the careful analysis of the results of clinical and biochemical tests of the broiler chickens blood, we can probably say that getting into the body the gamma-HCH with feed, at the dose of 0.1 and 0.3 mg / kg feed for 38 days has the negative affect for all biochemical processes of the body of birds.

References


7. The rules for animals vet inspection and veterinary-sanitary examination of meet and meet products before slaughter, approved by order of State Department of Veterinary Medicine Ukraine from 07.06.2002 № 28 and registred in ministry of justice of Ukraine 21.06.2002 under № 524/6812

J21306-021

Grigoryan A.Yu., Bezhin A.I., Pankrusheva T.A.,
Kobzareva E.V., Gorohova A.S.

APPLICATION OF COMBINED OINTMENTS IN TREATING WOUNDS

Kursk State Medical University,
Russian Federation, Kursk, st. Karl Marx 3, 305033
The problem of the prevention and treatment of purulent infection, despite the current success of antibiotic therapy, is one of the most important in modern surgery. This is confirmed not only the prevalence of chronic inflammatory diseases, the frequency of which does not diminish with age, but the severity of their flow with frequent adverse outcomes [2, 4].

Currently, due to the massive and often uncontrolled use of antibiotics most modern organisms - pathogens of purulent infection - were either resistant or insensitive. All this makes it necessary to search for new effective, but at the same time available for the treatment of septic wounds [1, 3].

One of the promising directions in the treatment of septic wounds is the use of sorbents. Application sorption drainage acute and chronic inflammation leads to a reduction of the load on the lymphatic system, since dressings with sorbent granules eliminated large fragments nonviable tissue protein antigens and cell aggregates [5].

As draining preparations suggest the use of carbon sorbents. One form is Polymethylsiloxane polyhydrate which has detoxifying effect adsorbs bacteria, viruses and their products.

Objective: to study wound healing in experimental properties of combined based ointments Polymethylsiloxane polyhydrate first (I) and second (II) phase of wound healing.

Research material ointment, developed jointly by the departments of operative surgery and topography anatomy and pharmaceutical technology KSMU.

Ointment 1 (CBMPP):
Chlorhexidine Bigluconate 0,05% - 30,0 grams
Methyluracil – 2,0 grams
Polymethylsiloxane Polyhydrate – 70,0 grams;

Ointment 2 (HMPP):
Hexetidine – 30,0 grams
Methyluracil – 2,0 grams
Polymethylsiloxane Polyhydrate – 70,0 grams.
Served as the control of the 70% gel Polymethylsiloxane Polyhydrate (PP) and untreated festering Wounds Model (WM). The experiments were performed on 144 white rats breed "Wistar". Animals are modeled by the method of purulent wound P.I. Tolstih.

Methods: planimetric (method L.N. Popova, a fixed area of wounds, the percentage of reduction of wound area, the rate of wound healing), microbiological (quantitative determination of colony-forming unit in 1 gram (CFU/g) of tissue in the dynamics), histological (biopsy specimens coloring hematoxylin-eosin), morphometric (counting cells infiltrate: fibroblasts, granulocytes, lymphocytes, macrophages), statistical (average value of the error average, Kruskal-Wallis test and the Newman-Keuls) [2, 3, 5].

Analysis of the results showed that by the 15-th day the area of wounds decreased: in the WM - series to 72,2 ± 1,2%, for the treatment of PP 86,0 ± 0,5%, in a series of CBMPP - by 99,8 ± 0.1%, HMPP - by 92,0 ± 0,24%. Differences between control and untreated wound, between experienced series, between the control and experimental series of statistically significant (p<0.05).

The rate of wound healing in the WM series was the highest in the interval 3-rd – 5-th day of observation and was 7,7±0,9%/day, in the treatment of PP - the interval 1-st – 3-rd day, amounted to 14,8±0,9%/day, the maximum rate of wound healing in the treatment of CBMPP observed as well in the interval 1-st – 3-rd day of observation and was 16,5±0,5%/day, and throughout the period of observation was significantly higher than in the control series, in a series of HMPP - on 3-rd – 5-th day and was 12,4±0,47%/day, indicating a pronounced wound-healing activity in the first and a second phase of wound healing ointments experienced.

Microbial contamination of wounds in the WM series to 10-th day was 39,6±0,8×10^5CFU/g, for the treatment of PP 6,5 times less than in the WM series. CBMPP treatment – 58,1 and series HMPP 8,3 times less than in the treatment of PP, indicating pronounced antimicrobial activity experienced ointments.

Microscopic wounds on the 1-st day after modeling in all the series, you looked as follows: the surface is covered with wounds massive fibrinuous deposits with a lot
of dead white blood cells. Subject to the bottom of the wound loosened connective tissue infiltrated with segmented leukocytes and macrophages isolated dramatically swollen. There have been dilated blood vessels. There are pockets of hemorrhage diapedetic character. Swelling volume extends beyond the experimental injury.

On the 5-th day in the WM series of significant changes have occurred, the wound covered with fibrin, granulation powerfully infiltrated by polymorphonuclear leukocytes (PML), there is a pronounced swelling of the underlying tissue. In the series PP notes bundle dermal infiltrate and spread between layers. In thicker creams and underneath infiltrates. In PML infiltration dominated. Been an increase in lymph capillaries, which speaks about the difficulty of outflow. In a series of CBMPP swelling deeper layers of the wound, above it - the infiltration, which has a two-layer organization, most of the expressions on the surface of the wound beneath the ointment. In a series of HMPP in the surface layers - the incorporation of cover, then a strong neutrophilic inflammatory infiltrate spreads into the muscle. Disorganization and reduced oksifilii muscle fibers.

On the 10-th day in the WM series is further wound defect filling with granulation tissue, which is still covered with fibrin deposits. Infiltrate extends to the depth of granulation. In a series of PP superficial layers are infiltrated. Narrow zone of infiltration. Neutrophils migrate into the layer with ointment. There have been massive edema of the granulation tissue and fiber. In a series of CBMPP on the edge of the wound young collagen, slight swelling and infiltration of granulation tissue that spreads under cuticularization sites. In a series of HMPP infiltrate penetrating the muscle, there separation of muscle fibers, sometimes there is necrosis of the muscles.

Morphometric analysis of the results showed that significant differences in the cellular composition between WM and PP series are revealed only on the 10-th day of observation. The number of fibroblasts was significantly (p<0.05) than in the series CBMPP (on the 10-th day of 57,8±2,18%) compared to the PP series and the HMPP for the duration of observation, as well as the number of lymphocytes. In a series CBMPP granulocytes was significantly (p<0.05) less (on the 10-th day 22,8±0,86%) compared to PP series (40,4±0,51%) and HMPP (46,0±1,14%).
Conclusions:

1. The use of an immobilized form of Chlorhexidine Bigluconate with Methyluracil in the treatment of purulent wounds in phase I and II of wound healing compared with the treatment of 70% Polymethylsiloxane Polyhydrate gel helps to reduce the area of wounds on average 1,5±0,42 times, faster during phase I and II wound healing process on average to 1,9±0,26 times, reduces microbial contamination of wounds in 58,1 times, to have an expression of anti-inflammatory activity, promotes fast purification and early onset of tissue regeneration, due to the high sorption activity Polymethylsiloxane Polyhydrate, broad spectrum antimicrobial action of Chlorhexidine Bigluconate, and highly active promoter regeneration Methyluracil.

2. Compared with the treatment of 70% gel of Polymethylsiloxane Polyhydrate use the immobilized form Hexetidine with Methyluracil in the treatment of purulent wounds in phase I and II of the wound process helps to reduce the area of wounds on average 1,4±0,35 times, the dynamics of changes in clinical signs and morphometry of reliable differences were not found, reduces microbial contamination of wounds by 8,3 times, to the 10-th day remains a massive infiltration with necrosis of muscle. Weak activity combined with ointment Hexetidine apparently caused by its chemical interaction with Methyluracil which leads to instability in the ointment.

References:


J21306-022

UDK 619:615.3:614.31:637:636.087.7

Kit A. A.

EFFECT OF THE SOLUTION OF POLTAVA BISHOFIT ON THE MICROORGANISMS OF MILK OF CLINICALLY HEALTHY SOWS AND SOWS THAT HAVE SUBCLINICAL MASTITIS.

State Agrarian Academy of Poltava

A method of prevention and treatment of subclinical mastitis in lactating sows is examined on this paper with an effect of the solution of Poltava bishofit. Keywords: the solution of Poltava bishofit (SPB), the microflora of milk, subclinical mastitis of sows.

Bischofit- is an environmentally friendly mixture of salts, which has about 96% are MgCl₂•6H₂O. The rest are the salts of hydrochloric acids, sulfuric acids, and carbonic acids with macrocells. A total number of chemical elements is more than 65 elements [1-3].

The clinical condition of lactating sows and their litters of piglets was examined during the farrowing. We took into experience the 16 sows, that were examined in
testing of influence of BPM on the bacterial flora of milk, according to the scheme shown in Table 1.

Before application SPB, after 7 days, 14 and 21 days from the start of application, we selected the samples of milk of sows, which were examined by a test with mastidinom, and by the bacteriological method. We studied the biological properties of isolated cultures of bacteria to identify possible changes in their properties after the application of the SPB [2].

Table 1

Scheme of the formation of groups of sows on a pig farm "Atlanta" and application of BPM to the skin of udder

<table>
<thead>
<tr>
<th>Groups of sows</th>
<th>Clinical state</th>
<th>Amount</th>
<th>Amount</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>tests</td>
<td>tests of milk, which</td>
<td>It is applied on a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of sows</td>
<td>with mastidinom</td>
<td>skin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>reacted</td>
<td>reacted, irresponsive</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Patients on mastitis</td>
<td>4</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>1.2κ</td>
<td>Patients on mastitis</td>
<td>4</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>2.1</td>
<td>clinically healthy</td>
<td>4</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>2.2κ</td>
<td>clinically healthy</td>
<td>4</td>
<td>-</td>
<td>16</td>
</tr>
</tbody>
</table>

Sows of 1.1 and 2.1 RPB applied to the skin of udder 7 times with a 24-hour intervals with the medical and purpose of prevention on the third day after farrowing. Animal of 1.2 and 2.2 groups were controls.

Table 2

The results of tests of samples of milk of sows

<table>
<thead>
<tr>
<th>Grup of sows</th>
<th>Test with mastidinom</th>
<th>Bacteriological method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sow, heads</td>
<td>test of milk, things</td>
</tr>
<tr>
<td>absolut</td>
<td>%</td>
<td>absolut</td>
</tr>
</tbody>
</table>

Downloaded from SWorld. Terms of Use http://www.sworld.com.ua/index.php/ru/e-journal/about-journal/terms-of-use
Positive research results of milk samples of sows of groups 1.1. and 1.2K were received with dough of mastidinom in 66,7% and 58,3% of the cases, and with dough of bacteriological method in 91,7% and 91,6% respectively, and 2.1 and 2.2K groups in 0,0 % of cases.

After 7 days after application of RPB with mastidinom only 2 samples of 1 sow milk was reacted in group 1.1., and with bacteriological method was found 4 samples (33,3%) of the 12 samples was tested against 7 (58,3 %) and 10 (83,3 %) - control. The samples of milk of sows of groups 1.1 and 2.1 gave negative results in all tests, groups of 1.2K and 2.2K were positive in the express-test in 6 (50,0 %) and 7 out of 12 (43,8 %) of 16 samples, for bacteriological studies - 8 (66,7 %) and 7 (43,8%) samples after 14 days of its application. After 21 days – we received positive results in both tests from one sow of group 1.1, and one sow of group 2.1 (bacteriological
method), suggesting that they re-diseased mastitis. These data shows that two sows of control group continued to match mastitis.

Table 3

The frequency of isolation of bacterial cultures of samples of milk of sows before and after the application of the SPB

<table>
<thead>
<tr>
<th>Cultures of bacteria</th>
<th>Group 1.1</th>
<th>Group 1.2к</th>
<th>Group 2.1</th>
<th>Group 2.2к</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 7 14 21</td>
<td>0 7 14 21</td>
<td>0 7 14 21</td>
<td>0 7 14 21</td>
</tr>
<tr>
<td><em>St. aureus</em></td>
<td>6 2 - 1</td>
<td>4 3 4 3</td>
<td>- - - -</td>
<td>- 3 5 4</td>
</tr>
<tr>
<td><em>St. aureus</em></td>
<td>5 - - -</td>
<td>6 5 4 4</td>
<td>- - - -</td>
<td>- 4 4 2</td>
</tr>
<tr>
<td><em>St. epidermidis</em></td>
<td>6 2 3 3</td>
<td>4 4 3 2</td>
<td>- - - -</td>
<td>- 2 - -</td>
</tr>
<tr>
<td><em>Str. agalactiae</em></td>
<td>2 - - -</td>
<td>2 3 2 1</td>
<td>- - - -</td>
<td>- 2 2 1</td>
</tr>
<tr>
<td><em>Str. lactis</em></td>
<td>3 1 2 2</td>
<td>4 3 1 2</td>
<td>3 2 3 2</td>
<td>- 1 4 5</td>
</tr>
<tr>
<td><em>Str. faecalis</em></td>
<td>4 1 1 2</td>
<td>4 2 3 2</td>
<td>2 3 1 1</td>
<td>1 3 1 2</td>
</tr>
<tr>
<td><em>Str. pyogenes</em></td>
<td>2 - - -</td>
<td>1 - 1 -</td>
<td>- - - -</td>
<td>- - - -</td>
</tr>
<tr>
<td><em>E. coli</em></td>
<td>2 - - -</td>
<td>2 - 1 -</td>
<td>- - - -</td>
<td>- - - -</td>
</tr>
</tbody>
</table>

The data in Table 3 shows that we isolated culture *St. aureus* and *St. epidermidis* in the milk of sows with subclinical mastitis. Culture *St. aureus* induced α- , β hemolysis of sheep. After application of the SPB we isolated only cultures of *St. epidermidis* in the samples of milk of sows of group 1.1, and on the 21th day we also isolated another culture *St. aureus*, which was not virulent for mice. During the experiment, the control group continued to sow ill subclinical mastitis and also it was isolated the culture of *St. aureus* and *St. epidermidis* of milk. Before applying the SPB of milk samples of patients sows (gr. 1.1 and 1.2) isolated culture *Str. agalactiae*, *Str. pyogenes*, *Str. lactis* and *Str. faecalis*, and healthy (grupy 2.1 and 2.2) - *Str. lactis* and *Str. faecalis*. Cultures have biological properties described in the literature [4-7].

After 7 days of applying SPB, found in the milk of sows culture *Str. lactis* and *Str. faecalis*, and control - *Str. agalactiae*, *Str. lactis* and *Str. faecalis*. Similar types of bacteria isolated at 14 and 21 days of observation.

Before application of the SPB it was isolated the cultures of *E. coli* - to 2 (16,7 %) from the milk of sows of groups 1.1 and 1.2, on the 14th and 21th day of sows of
groups 1.2 and 2.2. - one and four of culture, respectively. A total number of cultures is 9, 8 of them were attributed to serovar variants of 08 and 026. They were virulent for white mice, induced \( \beta \) -hemolysis of sheep and pigs, and had enterotoxins. One culture of *Escherichia* was not identify.

There was not isolated the cultures of *St. aureus*, *Str. agalactiae* and *Str. pyogenes* of samples of milk of sows that recovered from subclinical mastitis. The cultures of *St. epidermidis*, *Str. lactis* and *Str. faecalis*, that was not pathogenic, was isolated. The cultures of enteropathogenic serovars of 08 and 026 *E. coli* and pathogenic *St. epidermidis*, *Str. lactis* and *Str. faecalis* isolated before and after the application of SPB, have similar biological properties. The part of the control sows that were clinically healthy at the beginning of the experience in the period from 7 to 21 days were sick of subclinical mastitis. There were isolated the cultures of *St. aureus*, *Str. agalactiae*, *Str. pyogenes*, *St. epidermidis*, *Str. lactis*, *Str. faecalis* and *E. coli* of the samples of milk of serovars 08 and 026.

Conclusion. The cutaneous application of BPM 7 times with a 24-hour interval has a therapeutic effect for 14 days, and prophylactic - 21 days. To be the most effective, SPB should be used for the treatment in combination with antibacterial drugs, as well as for the treatment and prevention - through 19 - 20 days after the beginning of the first cycle – it needs to repeat the application in the second round by an identical scheme.

**Literature.**


3. Guidelines on the application of the solution of Poltava bishofit in veterinary


