International Academy of Science and Higher Education
London, United Kingdom
Global International Scientific Analytical Project

TRADITIONAL AND EXPERIMENTAL METHODS OF STUDYING AND OVERCOMING THE MEDICAL AND BIOLOGICAL PROBLEMS IN ENSURING THE OPTIMAL VITAL FUNCTIONS OF HUMAN BEINGS AND THE WILDLIFE

Peer-reviewed materials digest (collective monograph) published following the results of the CXLII International Research and Practice Conference and I stage of the Championship in Medicine and Pharmaceutics, Biology, Veterinary Medicine and Agricultural sciences
(London, April 13 - April 21, 2017)

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"Traditional and experimental methods of studying and overcoming the medical and biological problems in ensuring the optimal vital functions of human beings and the wildlife" Peer-reviewed materials digest (collective monograph) published following the results of the CXLII International Research and Practice Conference and I stage of the Championship in Medicine and Pharmaceutics, Biology, Veterinary Medicine and Agriculture. (London, April 13 – April 21, 2017)/International Academy of Science and Higher Education; Organizing Committee: T. Morgan (Chairman), B. Zhytnigor, S. Godvint, A. Tim, S. Serdechny, L. Streiker, H. Osad, I. Snellman, K. Odros, M. Stojkovic, P. Kishinevsky, H. Blagoev – London: IASHE, 2017. **–** 70 p.

In the digest original texts of scientific works by the participants of the CXLII International Scientific and Practical Conference and the I stage of Research Analytics Championship in Medicine and Pharmaceutics, Biology, Veterinary Medicine and Agriculture are presented.

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Dear friends!

On November evening on the eve of St. Martin's Day 1659 one of the most popular taverns in the central part of Delft, which is located in the South of the Netherlands, halfway between Rotterdam and the Hague, was crowded with citizens joyfully celebrating the upcoming holiday. Pale light of the full moon shone evenly through the weeping windows of the pub and created a bizarre contrast with the trembling light from candles and oil lamps inside the room. Most of the visitors of the tavern were merchants, artisans and fishermen with their wives or girlfriends. Some tables, however, were occupied by petty city officials engaged in easy conversations while drinking juniper vodka and eating cheese and ham.

Suddenly, the tavern door opened wide, letting inside a burst of cold air, which almost blew out the flame of a large wood-burning stove... A strange man of low stature entered the room backwards. He was wearing a long coat and a wide-brimmed felt hat on top of a fashionable wig. With both his hands he was holding a wicker basket covered gently covered with a piece of leather. The loud clap of the closing door made the visitors of the tavern flinch synchronously. Everyone fell silent for a while and looked at the newcomer. However, the new tavern client did not seem worthy of close attention to the present people, and, bit by bit the former atmosphere of serene fun in the pub was restored.

Antoni van Leeuwenhoek was the culprit of this triumphal entry into the tavern. Carrying his burden at the level of his chest, he began to manoeuvre between the tables in search of a free seat. Although he managed to find such a place in the far dark corner of the tavern - behind the stove and next to the fishermen sleeping in a drunken stupor, the naturalist continued his search, trying to find a better place near the sources of light.

Finally, desperate to find a free place in the central part of the hall, Leeuwenhoek approached a massive blacksmith who alone occupied the whole bench at a table near a pillar with an oil lamp. Together with his friends he was singing some kind of a joyful song. Leeuwenhoek said:

- Dear sir, I'm terribly sorry to bother you, but an urgent matter forces me to cause you some inconvenience ...

- What?! - cried the drunken giant in confusion. He clenched his fists and raised his seat. - How dare you interrupt us when we are performing our favourite verses!

- Trust me, if You move a bit and let me sit next to you, I shall show you something you have never seen before and will hardly ever see in future. - Leeuwenhoek put his basket on the floor, took off his hat and looked at the blacksmith. - I assure you, you will not regret and will never forget this!

- Sounds interesting, lad. But you'd better be right, because if I remain disappointed…- The blacksmith slowly moved away from the edge of the bench and invited Leeuwenhoek to occupy the free space. - Sit down and either surprise me, as promised, or get yourself prepared for a painful thrashing.

- Many thanks! - Said the naturalist. He extracted from his basket an oblong metal object with some glass inserts and put the device on the table. - And now someone, please, ask the tavern keeper to serve us a piece of cheese...

Дорогие друзья!

Один из наиболее популярных трактиров в центральной части города Делфт, что расположен в южной части Нидерландов, на полпути между Роттердамом и Гаагой, в ноябрьский вечер накануне Дня Святого Мартина 1659 года был переполнен оживленно отмечающими предстоящий праздник горожанами. Бледный свет полной луны равномерно лился сквозь запотевшие окна заведения и создавал причудливый контраст с дрожащим освещением внутри помещения, исходившим от свечей и масляных ламп. Среди посетителей трактира преобладали торговцы, ремесленники и рыбаки со своими женами или подругами. Но за отдельными столами можно было увидеть и мелких городских чиновников, которые за неторопливой беседой степенно пили можжевеловую водку и закусывали кусками сыра и ветчины.

Неожиданно дверь трактира распахнулась настежь, позволив потоку холодного воздуха ворваться внутрь и едва не задуть пламя большой дровяной печи… В помещение, пятясь спиной вперед, вошел странный невысокий человек в длинном пальто и широкополой фетровой шляпе поверх модного парика, который обеими руками держал перед собой плетеную корзину, содержимое которой было бережно прикрыто куском кожи. От громкого хлопка закрывающейся двери посетители трактира синхронно вздрогнули и на некоторое время замолчали, обернувшись в сторону вошедшего. Однако личность нового клиента трактира не показалась присутствующим достойной пристального внимания, и, постепенно, былая атмосфера безмятежного веселья в заведении восстановилась.

Антони ван Левенгук, а виновником столь триумфального вхождения в трактир был именно он, приподняв свою ношу на уровень груди, принялся торопливо лавировать между столами в поисках свободного места. И, несмотря на то, что такое место ему удалось найти в дальнем темном углу трактира – за печью, по соседству со спящими в пьяном угаре рыбаками, натуралист продолжил свои поиски, отдавая предпочтение столам вблизи источников освещения.

Наконец, отчаявшись найти свободное место в центральной части зала, Левенгук подошел к массивному кузнецу, который в одиночку занимал всю скамью за столом вблизи столба с масляной лампой и вместе с друзьями распевал какую-то задорную песню, и произнес:

- Уважаемый, мне ужасно неудобно Вас беспокоить, но неотложное дело требует, чтобы я причинил Вам некоторые неудобства…

- Что?! – недоуменно воскликнул хмельной гигант и, сжав кулаки, вскочил со своего места. – Да как ты смеешь прерывать нас во время исполнения любимых куплетов!

- Поверьте, если Вы подвинетесь и позволите мне присесть рядом, то я Вам покажу то, что Вы никогда ранее не видели и вряд ли еще когда-нибудь сможете увидеть, - Левенгук поставил свою корзину на пол, снял шляпу и пристально посмотрел на кузнеца. – Уверяю Вас, Вы не пожалеете, а увиденное оставит неизгладимый след в Вашей памяти.

- Ты меня заинтересовал, дружище, но, если я окажусь разочарован, тебе не поздоровится! – кузнец медленно отодвинулся от края скамьи и жестом указал Левенгуку на освободившееся место. – Присаживайся и либо удивляй, как обещал, либо готовься к мучительной трепке.

- Искренне Вам благодарен! – произнес натуралист, извлек из своей корзины продолговатый металлический предмет с какими-то стеклянными вставками и водрузил

- Cheese?! - The blacksmith turned red again. - Do you want to surprise me with cheese?"

- No, my friend, I want to show you tiny creatures, which are a thousand times smaller than the eye of an adult louse. And in addition I can surprise with the fact that these tiny creatures fill, for example, your entire mighty body! - Leeuwenhoek pinched off a small crumb of cheese brought by the tavern keeper, crushed it into powder with his fingers and touched one of fingers with a metal plate, which he then placed under a lens of his device. - Look through this tube and behold the organisms that exist in cheese consumed by us with such pleasure ...

Half an hour later, the table, where Leuwenhoek was sitting, was surrounded by all visitors of the tavern. People pushed each other away, trying to squeeze themselves closer to the magic microscope.

- So do you are saying, dear Antoni, that these moving "sticks" and "hooks" can be found in the drop of my blood that I'd put on the plate? - The dumbfounded blacksmith couldn't take his eyes from Leuwenhoek and barely resisted his excitement. - But how?! How is this possible?! Here on the table there are the same drops of my blood. Red, no "little creatures" inside! Are you a wizard or a swindler?! You have indeed surprised me and deprived me of calmness! Why did you even come here today? To impress the imagination of people here?

- No, my dear Martin, it's very simple: I haven't left the house for several days. I've been polishing the lenses and building a brand new type of a microscope. And when I finished my work, I found out that I had no food to examine different kinds of bacteria through this device... So, I was simply forced to visit this tavern at such a late hour, disturb your peace and conduct a public experiment! - Leuwenhoek looked around and smiled slyly. - But you have no idea, my friends, how many interesting and useful for science things I have discovered in this blood, as well as saliva, semen, surface of the skin, and organisms of animals and insects...

This digest includes reports, presented on the CXLII International Research and Practice Conference "Traditional and experimental methods of studying and overcoming the medical and biological problems in ensuring the optimal vital functions of human beings and the wildlife" and on the 1st stage of research analytics championship of various levels in Medicine and Pharmaceutics, Biology, Veterinary Medicine and Agricultural sciences.

We are sincerely grateful to authors of works presented in the digest for active participation in international scientific communications, we congratulate winners and awardees of relevant research analytical championships and we look forward to further participation of these scientists in the Global International Scientific Analytical Project of the IASHE and to their new ideas and scientific innovations.

прибор на стол. – А теперь кто-нибудь попросите, пожалуйста, трактирщика подать нам кусочек сыра…

- Сыра?! – вновь вскипел кузнец. – Ты решил удивить меня сыром?!

- Нет, мой друг, я решил показать Вам маленьких животных, которые в тысячу раз меньше глаза взрослой вши. А заодно могу удивить тем фактом, что подобные животные наполняют, например, весь Ваш могучий организм! – Левенгук отломил мизерную крошку от куска сыра, принесенного трактирщиком, растер её пальцами и дотронулся до одного из пальцев металлической пластиной, которую затем разместил под линзой своего прибора. – Вот загляните в эту трубку и полюбуйтесь, какие организмы существуют в сыре, который мы все с вами с таким удовольствием поедаем…

Через полчаса вокруг стола, за которым сидел Левенгук, столпились все постояльцы трактира и, отталкивая друг друга, пытались протиснуться к волшебному микроскопу.

- Так Вы, уважаемый Антони, утверждаете, что эти подвижные «палочки» и «крючочки» находятся в той капли моей крови, которую я поместил на пластину? – ошарашенный кузнец не сводил глаз с Левенгука и едва сдерживал свое волнение. – Но как?! Как это возможно?! Ведь вот же на столе такие же капли моей крови - красные, без всяких там «маленьких животных»! Вы – волшебник или мошенник?! Вы действительно удивили меня и лишили спокойствия! И зачем же Вы сюда сегодня пришли? Чтобы поразить воображение присутствующих?

- Нет, уважаемый Мартин, все очень просто: я несколько дней к ряду не выходил из дома, шлифовал линзы и собирал микроскоп новой конструкции. А когда закончил свою работу, то обнаружил, что у меня нет ни крошки еды, чтобы я мог понаблюдать через этот прибор за бактериями разных видов… Таким образом, мне пришлось в столь поздний час посетить этот трактир, нарушить ваш покой и провести публичный эксперимент! – Левенгук оглядел присутствующих и лукаво улыбнулся. – Но вы не представляете, друзья, сколько интересного и полезного для науки я обнаружил в той же крови, а также слюне, семени, на поверхности кожи, в организмах животных и насекомых…

Данный сборник включает доклады, представленные на CXLII Международную научно-практическую конференцию «Традиционные и экспериментальные методы изучения и преодоления медико-биологических проблем обеспечения оптимальной жизнедеятельности человека и живой природы», а также 1 этап научно-аналитических первенств по медицинским и фармацевтическим, биологическим, ветеринарным и сельскохозяйственным наукам.

Искренне благодарим авторов представленных в сборнике произведений за активное участие в международных научных коммуникациях, поздравляем победителей и призеров соответствующих первенств по научной аналитике, а также с нетерпением ожидаем дальнейшего участия этих ученых в «Международном научно-аналитическом проекте МАНВО», их новых идей и научных разработок.

Yours sincerely, -
Head of the IASHE International Projects Department
Thomas Morgan

May 8, 2017
London, UK

С уважением и наилучшими пожеланиями, -
Руководитель Департамента
международных проектов МАНВО Томас Морган

«8» мая 2017 г.
Лондон, Великобритания

National Research Analytics Championship

Azerbaijan
Kazakhstan
Moldova
Russia
Ukraine

Open European-Asian Research Analytics Championship

Azerbaijan
Kazakhstan
Russia
Ukraine

International Scientific and Practical Conference

Azerbaijan
Bulgaria
Kazakhstan
Moldova
Russia
Ukraine

EXPERTS OF CHAMPIONSHIPS AND CONFERENCE

ALEXANDER CHIGLINTSEV (RUSSIA)
Doctor of Medicine, Full Professor

Place of work: South Ural State Humanitarian Pedagogical University
Discoveries and inventions: 11 certificates of the Russian Federation of computer programs state registration, 6 patents for inventions of new methods of operations and surgical instruments.
Scope of research interests: practical and theoretical urology, psychology, organization of health care and public health, the legal aspects of medical practice, intellectual property in medicine, patent law.

ALEXANDRA TEGZA (KAZAKHSTAN)
Doctor of Veterinary medicine, Full Professor

Place of work: Kostanai State University A. Baitursynov
Discoveries and inventions: Copyright certificate «Method of producing dry museum preparations of tubular organs»
Scope of research interests: Pathology of the reproductive system of cows;
The pathogenesis of foot rot among sheep.

BAKAR SUDHIR (INDIA, USA)
DM, Cardiology Centre (Agra).

DANI SARSEKOVA (KAZAKHSTAN)
Doctor of Agricultural sciences, Associate Professor, Acting Professor

Place of work: S. Seifullin Kazakh Agro Technical University.
Discoveries and inventions: patent pending.
Scope of research interests: forest plantations, irrigation forestry.

GABRIEL GRAZBUNGAN (SWITZERLAND)
DSc, co-owner of an international agricultural corporation.

GALINA KHIMICH (KAZAKHSTAN)
Candidate of Biology, Associate Professor.

Place of work: Innovative University of Eurasia, Pavlodar.
Scope of research interests: Problems of adaptation of organism when influenced by different etiological factors, problems of developmental physiology.

GEORGE CRUIKSHANK (UK)
HScD, cal clinic "قلب" (Damask, Syria)

HOKUMA KULIEVA (AZERBAIJAN)
Doctor of Biology, Full Professor

Place of work: Baku State University, Institute of Zoology of the Azerbaijan National Academy of Sciences.
Discoveries and Inventions: Patent I 2003 0100, Patent I 2012 0091
Scope of research interests: entomology, ecological physiology.

MAXIM KOSTIN (RUSSIA)
Candidate of Agricultural sciences

Place of work: Russian Academy of Sciences - Institute of Forest Science
Discoveries and inventions: Patent application submitted in 2013, pending.
Scope of research interests: Rational nature management, protective afforestation, restoration of forest plantations.

LASZLO KORPAS (HUNGARY)
East European Cynology Association, PhD

LIUDMILA KOKOLOVA (RUSSIA)
Doctor of Veterinary medicine, Head of the laboratory

Place of work: Yakut Research Institute of Agriculture (Yakutsk).
Discoveries and inventions: FIIP Patent for invention №2532977, 2014
Certificate №2014621492, 2014
Scope of research interests: Veterinary medicine, helminthology, parasitology, microbiology, biotechnology

SAITO KANO (JAPAN)
DSc, Head of the Tingo Maria National Park Breeding Service (Peru)

SUSANNE KRAUSE (GERMANY)
The Menarini Group Company, DM

THOMAS STEVENS (USA)
The Department of supervision of animal populations in urban areas (Indiana, Indianapolis, IN), D.Sc.

YELENA SHARACHOVA (RUSSIA)
Doctor of Pharmaceutics, Full Professor

Place of work: Altai State Medical University.
Scope of research interests: human resource management in health care, pharmacoeconomics, rational use of medicines.

YURIY LAKHTIN (UKRAINE)
Candidate of Medicine, Associate Professor

Place of work: Kharkiv Medical Academy of Postgraduate Education
Scope of research interests: dentistry, dental diseases, periodontal tissues, oral mucosa, anesthesiology in dentistry, physiotherapy, dentistry, dental filling materials, the organization of health care, drug treatment in dentistry, pharmacotherapy in dentistry, dental ecogenic

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AWARD PROTOCOL № 142 c-2017

Date: May 8, 2017

Following the results of the I stage of the Championship in Medicine, Pharmaceutics, Biology, Veterinary Medicine and Agriculture, held within the framework of the National Research Analytics Championship and the Open European-Asian Research Analytics Championship, the Championship Organizing Committee and IASHE regional expert council decided to single out the following reports as the best research works presented at the championships:

OPEN EUROPEAN-ASIAN RESEARCH ANALYTICS CHAMPIONSHIP

Absolute championship

Agricultural Sciences

Bronze decoration, Maxim Kostin
Money bonus in the amount of Euro 25 and 50 credits

Biology

Bronze decoration, Oxana Khluchshevskaya,
Money bonus in the amount of Euro 25 and 50 credits Galina Khimich

Pharmaceutics

Bronze decoration, Nataliia Bondarenko,
Money bonus in the amount of Euro 25 and 50 credits Mykola Blazheyevskiy

Veterinary

Bronze decoration, Alexandra Tegza
Money bonus in the amount of Euro 25 and 50 credits

NATIONAL RESEARCH ANALYTICS CHAMPIONSHIP

Absolute championship

Medicine

Ukraine

Silver decoration, Liubov Hryhorenko
Money bonus in the amount of Euro 30 and 60 credits

Bronze decoration, Olena Vasilenko,
Money bonus in the amount of Euro 25 and 50 credits Olena Viedienieieva,
Valentin Drozda

Pharmaceutics

Ukraine

Bronze decoration, Nataliia Bondarenko,
Money bonus in the amount of Euro 25 and 50 credits Mykola Blazheyevskiy

All the participants of championships except those who were awarded with diplomas receive certificates of participants of the championship.

On behalf of the Organizing Committee and the Commission of Experts
I stage of the Championship in Medicine, Pharmaceutics, Biology,
Veterinary Medicine and Agriculture
of the National research analytics championship
and the Open European-Asian research analytics championship

Head of IASHE International Projects Department
Thomas Morgan

The results obtained at the end of the treatment have proved the low capacity of healing of periodontal tissue in patients who have hyperglycemia. This fact can be seen comparing the results of the1st and the 2nd group.

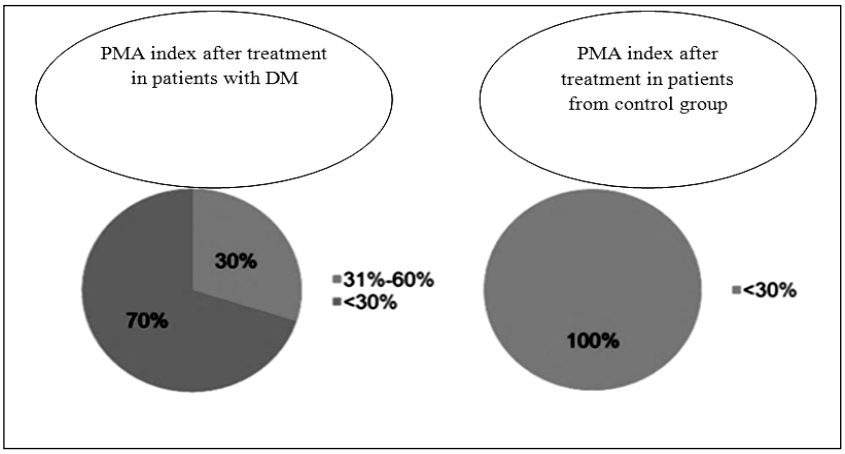

Fig. 8. PMA index comparation between 1st and 2nd group after the treatment

1. In first group:

In 70% - PMA index after treatment is lower than 30%

In 30% - PMA index after treeatment is between 31-60%

2. In second group, PMA index is lower than 30% in 100% cases.

There persists an after-treatment inflamation in patients with DM, which can be easily explained through a certain mechanism, which consists of:

Advanced glycationend - products (AGE) can convert macrophages in cell with destroyer phenotype, which can produce proinflammatory cytokines – IL1-β, IL-6 and TNF α. AGE increase the number of adhesives receptors which mentain an chronical inflamation, progressive tissue damage and the decreased ability of regeneration. The accentuation of gum inflammation is due to diabetic angiopathy.

Researchers stated that glycemia increases in patients with CMP having DM, but if it is treated (CMP) then the glycemia normalizes.

Conclusions: Diabetes presents a prevalence and an incidence that continues to grow, the fact that determines the dentist to have in his daily work more patients with this disease.

Periodontitis in DM are met in about 60%-90%, having an early debut and rapid progression. Patients with diabetes need an individual stomatological treatment, because the decrease of the salivary flow dynamics contributes to the significant growing of the plaque and tartar deposits.

The decreasing of post-treatment gum inflammation is seen in patients with DM because of the increasing of adhesive receptors which mentain a chronical inflamation, progressive tissue damage and the decreased ability of regeneration.

References:

1. International Diabetes Federation., Access mode: http://www.diabetesatlas.org/

2. Bergman SA. Perioperative management of the diabetic patient.OralSurg Oral Med Oral Pathol Oral Radiol Endod. 2007; 103:731-7.

3. Gearelete A. Sindromul bucal în medicina internă, EdituraMedicală. - Bucuresti, 1982.

4. American Diabetes Association. Diagnosis and classification of diabetes mellitus. Diabetes Care. 2010;33:62-9.

5. Kidambi S., Patel SB. Diabetes mellitus: considerations for dentistry. JAm Dent Assoc. 2008; 139:8S-18S.

6. Eni A. Afecțiunile complexului mucoparodontal. Ediția II, 2011; pp. 213-215.

7. Mincu I., Hancu N. Bolile metabolice în practica medicală, Editura Dacia, Cluj, 1981.

8. Löe H. Periodontal disease.The sixth complication of diabetes mellitus. Diabetes Care. 1993; 16: 329-34.

9. Segura-Egea J. Castellanos-Cosano L. Diabetes mellitus, periapical inflammation and endodontic treatment outcome. University of Sevilla, Spain, 2008.

DETERMINATION OF PHYSICAL AND CHEMICAL PROPERTIES OF BLOOD PLASMA AND ASCETIC FLUID IN PATIENTS WITH LIVER CIRRHOSIS

A. Dzygal, Cand. of Medicine
Odessa National Medical University, Ukraine

Conference participant,
National championship in scientific analytics

With the aim of individual treatment strategy selection authors studied proteins content as well as both blood plasma and ascites chemical properties characteristics in patients with liver cirrhosis at different stages of its intensity. 262 patients with liver cirrhosis were divided into 4 groups according to diagnostic examination results which revealed different severity of the pathological process in the liver parenchyma. Proteins level, total bilirubin content, the average mass molecules, the residual nitrogen, urea, creatinine, ALT, AST, alkaline phosphatase, cholesterol and lecithin concentrations were determined in blood plasma and ascites of patients with liver cirrhosis. The data obtained reveal protein homeostasis disturbance, atherogenic lipoproteins levels increase that induce hepatocytes membrane structure failure in patients with liver cirrhosis at all stages.

Ascites detected components correlated with the liver parenchyma degree of functional activity disturbances. The authors conclude that homeostasis disorders established in patients with liver cirrhosis complicated by ascites should be taken into account in cases of surgical tactics performing out.

Keywords: *liver cirrhosis, ascite, proteins, endotoxicosis, pathogenetic treatment, surgical treatment individual tactic*

Introduction. Treatment of patients with liver cirrhosis (LC) and its complications remains one of the most difficult problems of surgery, including surgical hepatology and biliary surgery. According to WHO, the LC rate is steadily increasing [1, 2]. As to the results of autopsy, it ranges from 1 to 11% [3-5].

Unfavorable high incidence of LC morbidity as described above, due to rising incidence of acute viral hepatitis, especially due to viral hepatitis types B, C and D, results in marked chronic inflammatory and destructive process in the liver parenchyma [6, 7] with the formation of LC and other complications [7, 8].

It should also be noted that the development of inflammatory and destructive lesions of the liver with the formation of LC is brought about by adverse environmental conditions, contact with hepatotropic poisons, alcoholism as well as drug addiction. Viral hepatites play an important part in increasing the incidence of LC, as it was shown that chronic pathological process in the liver during the first year is 15 - 22.7% in patients with viral hepatitis B and C [2]. In prolongation of the course of viral hepatitis B – for about 3-5 years - the chronic process is observed in 40.9% of patients and in 74.4% of patients with hepatitis C. It is shown that on an average 20-30% of these patients develop liver cirrhosis, and about 20% of the disease is transformed into cancer [2, 3, 9].

Therefore, adverse environmental conditions, consistently high level of alcoholism, drug addiction growth, reinforced by economic difficulties, promote the growth of the liver disease as well as in general organs of the gastro-duodeno-hepatobiliary system, as it is the leader in the maintenance and regulation of homeostasis. A severe course of the disease, prognosis, and - in most cases - failure of treatment makes this disease the most important in modern surgery. It is clear that specific surgical techniques should be used for these patients as well as individual approach, on the basis of which an individual treatment strategy should be devised. Therefore, we made a series of retrospective calculations and traced quantitative content of blood proteins, and a number of other compounds that determine peculiarities of the course of endotoxic reactions in blood and ascetic fluid (AF) in patients with LC in comparative perspective study.

Objective. Investigation of proteins and determination of chemical properties characteristic of blood plasma and AF in patients with LC in different stages of its intensity in the comparative perspective study to select individual tactics of further treatment.

Materials and methods. 262 patients with LC have been treated aged from 36 to 69 For the last 7 years. There were 164 (62.6%) women and 98 (37.4%) men. The age of 67 patients (25.6%) was over 40, the age of 97 patients (37.0%) was over 50, and the age of 56 patients (21.4%) was over 60.

The diagnosis of LC was made on the basis of clinical examination of patients, blood chemistry, ultrasound of the organs of the hepatopancreatoduodenal area, CT, endoscopic retrograde pancreatocholangiography, etc.

As a result of complex diagnostic examination and subsequent treatment, all patients were retrospectively divided into 4 groups: group 1 - patients with LC in the compensation stage (n=33, 12.6%), the second group - patients with LC in the subcompensation (n=152, 58.0%), 3 group - patients with LC in the decompensated stage (n=61, 23.3%) and 4 group - patients with LC in the critical terminal stage (n=16, 6.1.0%). The control group consisted of 19 healthy individuals without liver disease, having a professional medical examination.

Conventional methods determined the content of proteins (albumin, globulins), and total bilirubin, the molecules of medial weight (MMW), residual nitrogen, urea, creatinine, ALT, AST, alkaline phosphatase, cholesterol and lecithin in the blood plasma and AF of patients with LC. The results obtained in patients at the time of admission to the surgical hospital before treatment have been analyzed. The results were treated statistically. Differences were considered statistically significant in $p<0.05$.

Results and discussion.

The data are presented in tables. While analyzing quantitative characteristic of blood plasma proteins and AF in patients with LC at different stages of its manifestation, it was clear that the main studied indices did not differ significantly from those we have received in the follow-up studies (Table 1, $p>0.05$) in patients of 1 group. So, considering the figures the number of proteins and other investigated compounds (Table 2), it is clear that the relative compensation of its function is characteristic of patients with the first stage of the pathological process in the hepatic parenchyma in absence of an active destructive (alternating) process, which is expressed predominantly by maintaining protein-synthesizing function, but there is observed lipid metabolism disorder and moderate chronic intoxication.

The patients with LC at the subcompensation stage are characterized by a moderate activation of the liver with a clear decrease in the protein-synthesizing function, mainly due to albumin - globulin imbalance (Table 1), with development of chronic intoxication. AF of these patients is observed to reduction of protein, and decrease in plasma results in significantly greater loss of its concentration in the blood due to extravasation. The content of toxic compounds (bilirubin, nitrogen-containing components) had a tendency to increase, but was statistically identical with the corresponding data in healthy patients.

61 patients with LC in the decompensated stage were clearly traced dysproteinemia. In general, deep dysfunction of the liver accompanied by the development of cholestasis and cytolysis, hypo- and dysproteinemia, nitrogen- and fermentemia, etc is characteristic of this group of patients (Table. 1 and 2). AF in these patients was characterized by protein reduction - almost 2.5-3.0 times ($p <0.01$). So this is the consequence of protein-synthetic disorder of the liver.

Data on disorder of homeostasis of cholesterol and related lipid-containing components are of interest as their concentration increased in the patients of the 3rd examined group. We explain this by the fact that accumulation of low-density and very low density lipoproteids that are responsible for removing cholesterol from the membrane causes the development of destructive changes in the hepatocyte membrane, which is the pathophysiological basis for further progression of the pathological process in LC. It is likely that one of the possible directions of pathogenetically grounded therapy in patients with LC is the use of hypolipid therapy.

Another interesting aspect that can be seen in Tables 1 and 2 is the content of the studied compounds in AF of patients with LC. Thus, the same components of the body homeostasis are in AF, such as blood plasma (sometimes even in bigger amount), making AF an adequate plasma component replacement in LC and in its progression to liver failure. Having a significant antiatherogenic potential AF should be determined before certain complex of hypolipid therapy in its repeated use.

Hypo- and dysproteinemia were marked in the blood of 16 patients in the terminal stage of the disease. The protein content in AF was also significantly reduced. Clinical symptoms were predominant during the examination of such patients - development of edema of the lower extremities, cachexia, severe cardiovascular and pulmonary insufficiency, presence of transsudate in the pleural cavity, etc.

Summarizing these data, it should indicated that all stages of LC, which are complicated by the presence of ascites, are characterized by the disorder of protein homeostasis, increased content of atherogenic lipoproteins in the blood and consequent changes in the structure of hepatocyte membranes. Key studied indices of AF correlated (r=0.69-0.87) with the degree of functional activity of the liver parenchyma. The above indices of disturbed homeostasis of the corresponding patients should be taken into account in the development of surgical treatment of patients with LC complicated by ascites.

Tab. 1.

Quantitative characteristic of blood plasma proteins and ascetic fluid (AF) in patients with liver cirrhosis in different stages of its manifestation

Manifestation stage of liver cirrhosis in treated patients	Site of determination	General concentration, g/l M±m						Ratio of albumin / globulin
		General protein	Albumins	Globulins				
				Alpha		Beta	Gamma	
				1	2			
Control indices (blood plasma), n=19		77.7±7.3	48.2±5.6	4.5±0.4	6.5±0.5	12.7±1.4	14.1±1.6	1.4±0.1
I stage, n=33	Blood plasma	62.9±6.9	34.8±4.1	6.8±0.9	10.7±1.3	11.3±1.5	19.4±2.0	1.0
	AF	44.6±4.5	33.8±3.6	-	-	-	-	-
II stage, n=152	Blood plasma	57.1±4.9	28.9±3.2	5.2±0.7	11.3±1.4	12.7±1.7	22.1±2.3	0.9
	AF	31.1±2.9	21.9±2.4	-	-	-	-	-
III stage, n=61	Blood plasma	54.7±5.0	20.4±2.4	4.6±0.5	8.9±0.8	12.9±1.7	23.5±2.4	0.8
	AF	19,7±2,3	-	-	-	-	-	-
IV stage, n= 16	Blood plasma	43.7±4.4	18.3±2.1	5.2±0.5	8.6±0.8	13.1±1.7	30.6±3.1	0.6
	AF	3.1±0.4	-	-	-	-	-	-

Tab. 2.

Comparative characteristic of chemical properties of blood plasma and ascetic fluid (AF) in patients with liver cirrhosis in different stages of its manifestation

Manifestation stage of liver cirrhosis in treated patients	Site of determination	Total bilirubin, mcmol/l	MCM, (од)	Residual nitrogen, mmol/l	Urea, mmol/l	Creatinine, mmol/l	ALT, mcmol/l	AST, mcmol/l	Alkaline phosphatase, U/l	Cholesterol, mmol /l	Lecithin, mmol/l
Control indices (blood plasma), n=19		15.6±±3.3	208±20	16.5±1.8	5.1±0.6	0.08±0.01	0.56±0.04	0.34±0.03	44.7±4.1	5.1±0.5	1.7±0.2
I stage, n=152	Blood plasma	18.6±2.2	245±25	18.1±1,9	5.1±0.5	0.06±0.01	0.26±0.02	0.30±0.02	62.1±5.7	4.4±0.3	1.4±0.1
	AF	5.9±0.6	90±8	6.7±0.7	2.1±0.2	-	0.19±0.02	0.16±0.02	-	3.0±0.3	1.0±0.1
II stage, n=152	Blood plasma	33.7±3.4	300±29	26.4±2.3	5.5±0.5	0.08±0.01	0.62±0.05	0.91±0.08	69.8±7.1	3.7±0.4	5.0±0.4
	AF	18,.1.2.1	210±19	21.1±2.0	3.0±0.3	-	0.24±0.02	0.21±0.02	-	2,4±0.3	0.7±0.1
III stage, n=61	Blood plasma	89.4±8.8	600±56	36.7±3.2	9.1±0.8	1.00±0.01	0.56±0.06	0.54±0.05	104.4±9.3	7.6±0.7	3.1±0.2
	AF	38.4±4.1	390±40	26.4±2.9	5.9±0.5	-	0.45±0.04	0.31±0.03	-	3.6±0.3	0.8±0.1
IV stage, n= 16	Blood plasma	15.1±1.3	-	21.4±2.2	7.3±0.7	0.07±0.01	0.23±0.02	0.37±0.04	109±9.7	3.1±0.3	2.2±0.2
	AF	9.1±0.8	-	17.8±1.8	4.6±0.4	-	0.21±0.02	0.16±0.02	-	3.0±0.3	0.6±0.1

References:

1. Alekseeva I.N., Bruzhyna T.N., Pavlovich S.I., Ylchevych A.B. The liver and immunologic reactivity. - Kiev, 1991. - 150 p.

2. Andreev G.N., Borisov A.E., Ybadyldyn A.S. et al. Pathogenesis, diagnosis and treatment of liver cirrhosis, complicated by refractory ascites. - B. Novgorod, 1999. - 191 p.

3. Eramyshantsev A.S., Manukyan G.V. "Today" and "tomorrow" of surgery of portal hypertension: look at the problem., Annales of surg. hepatol. - 1998. - Vol., No. 2., pp. 72-75.

4. Ybadyldyn A.S, Treatment of refractory ascites in patients with portal hypertension., Health protection of Kazakhstan. - 1987. No. 6. pp. 40-42.

5. Ybadyldyn A.S., Andreev G.N., Borisov A.E. Polysyndrom of liver cirrhosis. - Novgorod, 1999. - 196 p.

6. Abdukadurova M.A. Hepatitis C virus - one of the main ecologic factors of chronic hepatitis., Chronic diseases of the liver from hepatitis to liver cirrhosis – Tashkent., 1996., pp. 4-5.

7. Frolov V.M., Petrunya A.M., Pinskij L.L. State of microhemodynamics and immune status in patients with chronic viral hepatic affections and their correction., Vrachebnoe delo [Medical Practice]., 1996. No. 10-12., pp. 144-146.

8. Chesnokov E.V., Kaszuba E.A. Chronic hepatitis and liver cirrhosis of viral aetiology. – Tyumen., 2000. - 286 p.

9. Gentilini P., La-Villa G., Romanelli R.C. et al. Pathogenesis and treatment of ascites in hepatic cirrhosis., Cardiology. - 1994., Vol. 84., No. 2., pp. 68-79.