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МАЗМҰНЫ

СОДЕРЖАНИЕ

CONTENTS

HEPATOCELLULAR CARCINOMA. LITERATURE REVIEW

Kaniyev Sh.A., Nurlanbayev Y.K., Isamatov B.K., Enin E.A., Tadzhibaev T.K., Baiguisova D.Z., Chormanov A.T., Medeubekov U.Sh., Seisembaev M.A., Baimakhanov B.B.

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Abstract

This article presents materials of domestic and foreign authors on hepatocellular carcinoma. The classifications, modern methods of instrumental and laboratory diagnostics, as well as effective treatment tactics are described in detail.

Hepatocellular carcinoma, while remaining a fairly common disease, requires careful research, both clinically and pharmacologically, especially in terms of providing care to patients in regions with limited resources.

Keywords
hepatocellular carcinoma, classification, diagnosis, treatment, liver resection, liver transplantation.

Гепатоцелюлярлық карцинома. Әдебиеттік шолу.

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Аңдатпа

Бұл мақалада гепатоцеллюлярлық карцинома бойынша отандық пен шетелдік авторларының материалдары ұсынылған. Дерттің жіктеулері, диагностикалаудың құрал-саймандар арқылы және зертханалық заманауи әдістері, сондай-ақ емдеудің тиімді тактикалары сипатталады. Барынша кеңінен таралған дерті бола тұра, гепатоцеллюлярлық карцинома қалайда клиникалық, сондай-ақ фармакологиялық тұрғысынан, әсіресе тиісті медициналық көмек көрсету бойынша шектеулі қорларына ие аймақтарда, лайықты меициналық көмек қолжетімді болу үшін жан-жақты зерттеуді талап етеді.

Түйін сөздер
гепатоцеллюлярлық карцинома, жіктеу, диагностикалау, емдеу, бауырды резекциялау, бауырды ауыстыру.

Гепатоцелюлярная карцинома. Литературный обзор.

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Аннотация

В данной статье представлены материалы отечественных и зарубежных авторов по гепатоцеллюлярной карциноме. Описываются классификации, современные методы инструментальной и лабораторной диагностики, а также эффективные тактики лечения.

Гепатоцеллюлярная карцинома, оставаясь достаточно распространенным заболеванием, требует тщательного исследования, как в клиническом, так и фармакологическом плане, особенно в аспекте предоставления помощи пациентам в регионах с ограниченными ресурсами.

Relevant

More than 600.000 people have died worldwide from hepatocellular carcinoma (HCC) [1]

HCC is the sixth of malignant tumor in the world, fifth of men and the eighth of women. HCC is the third of cancer deaths, after lung and stomach cancer and the most frequent malignant formation in some parts of Africa and Asia. [1]

In Kazakhstan, detection frequency of liver cancer is low - 15 ranked. In the death structure liver cancer ranks 8th. The specific gravity of the I-II stages in the diagnosis is 8.7%, the lowest among all cancers. 5-year survival rate is 31.8% - the lowest among all malignant neoplasms. [2].

The purpose

According to international and domestic experience in the hepatocellular carcinoma treatment a literature review based on classification, drug and surgical interventions was conducted.

Materials and methods

This article was used domestic and foreign authors' materials based on the diagnosis and tactics of hepatocellular carcinoma treatment. The method of investigation is a literary survey. The data was searched using Google Scholar, PubMed, where the data was taken from 2000 to 2017.

TNM Classification / AJCC table № 1. [3].

T –Primary tumor

Tx –not enough data for evaluation of primary tumor

T0 – No evidence of primary tumor

T1 – solitary tumor without vascular invasion,

T2 is up to 5 cm a solitary tumor in the largest measurement with vascular invasion, or up to 5 cm multiple tumors in the largest dimension without vascular invasion.

T3A - multiple tumors more than 5 cm in the largest dimension without vascular invasion,

T3B - solitary tumor or multiple tumors of any size with invasion of the main branches of portal or hepatic veins,

T4 - tumor (s) involves adjacent organs with the exception of the gallbladder, or with the perforation of the visceral peritoneum.

Note: the plane divides the liver into two lobes projected between the gallbladder and the inferior vena cava for classification

Стадия	T	N	M
I	1	0	0
II	2	0	0
IIIA	3	0	0
IIIB	1-3	1	0
IVA	4	Любая	0
IVB	Любая	Любая	1

Table 1.
Stages of hepatocellular cancer

N – describes whether or not the cancer has reached nearby lymph nodes.

NX - Regional lymph nodes cannot be evaluated

NO - No regional lymph node involvement (no cancer found in the lymph nodes)

N1-N3 - Involvement of regional lymph nodes (number and/or extent of spread)

The M category tells whether there are distant metastases (spread of cancer to other parts of the body).

MO - No distant metastasis (cancer has not spread to other parts of the body)

M1 - Distant metastasis (cancer has spread to distant parts of the body)

Nowadays, the most commonly used liver cancer classification is the Barcelona clinic (Table 2), which has taken into account the prevalence of the tumor process, the functional status of the liver, the objective condition of the patient and the estimated effectiveness of treatment.

There are five stages of the disease: from stage 0 (very early) and A (early) to stage D - terminal. The stage of BCLC, along with the prognosis of the disease and the treatment tactics, can change with the progression of the disease, or effective treatment. It should be noted the prognostic significance of classification for patients with HCC without regard to cirrhosis of the liver. An important feature of this classification is that it offers depending on the stage of the disease a treatment algorithm.

- stage 0 (very early stage) means solitary lesion measuring less than 2 cm in diameter

stage A (early stage) means there is a solitary lesion > 2 cm or early multifocal disease characterised by up to 3 lesions measuring less than 3 cm the tumor does not extend to the main vessels of the liver and adjacent anatomical structures; there are no tumor-specific complaints; patients' satisfactory general condition (ECOG 0 point); the liver is working well (Child-Pugh A).

- stage B (intermediate stage) single asymptomatic multifocal disease without macrovascular invasion; patients' satisfactory general condition (ECOG 0 point); Child - Pugh A / B.
- stage C (advanced stage) symptomatic tumours, that worsen general condition (ECOG 0–2 points); and invasive and/or metastatic disease Child-Pugh A / B.
- stage D (end-stage disease) Severe symptoms resulting from tumor or decompensation of cirrhosis (Child-Pugh C). according to the «Milan criteria» (solitary lesion <5 cm or no more than 3 foci with the largest size <3 cm) given the small tumor size orthotopic liver transplantation is possible. [3,4]

Diagnostics

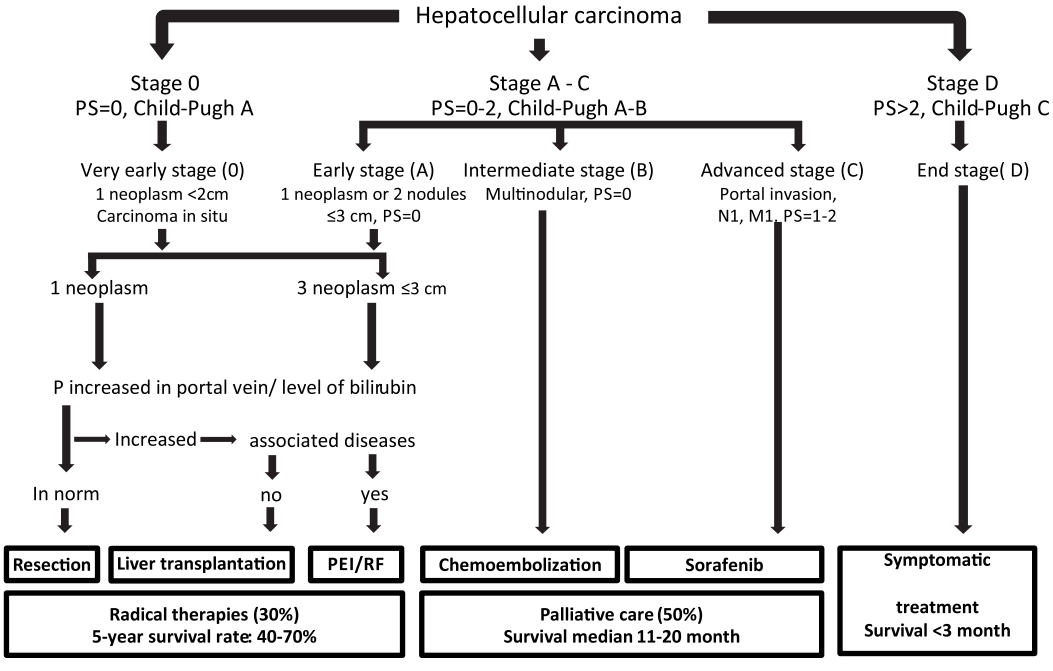
Serological test have undergone or are currently underway include the determination of AFP, DCP, also known as prothrombin II, induced by the absence of vitamin K (PIVKA II), the ratio of glycosylated AFP (fraction L3) to total AFP, fucosidase and glypicant 3 for the early diagnosis of HCC[5-6]. AFP is the most widely identified HCC biomarker. A stably high level of AFP is a risk factor for HCC. AFP is mainly determined for diagnostic purposes, and not for screening. This is important, because the value of the method in diagnosis is not equal to the value in the screening. So, as a screening method, the AFP determination is not indicative enough.

Ultrasound diagnosis (UCTT) is applied at the screening stage, for percutaneous biopsy and interventional interventions and sometimes for monitoring the effectiveness of treatment. The sensitivity of the method is not high at detecting small-size nodes. According to the world literature, ultrasound reveals 70% of tumors 1 cm size n and 90% of tumors with 5 cm size. Of the diagnosis specificity varies between 48-94%. [7-8]. Computerized and / or magnetic resonance imaging are used for differential diagnosis, estimation of the prevalence of the process, staging of the disease. [9-11].

Methods of objective visualization (multi-phase contrast CT, dynamic contrast MRI or ultrasound with contrast enhancement) allow evaluating the vascular profile of mass lesion, to reveal signs of a typical VC picture of vascularization: amplification into the arterial phase and «washing out» into the portal phase.

In international (AASLD and EASL) guidelines, the diagnosis of hepatocellular carcinoma is considered valid if both methods (dynamic CT and MRI) independently reveal typical vascularization in the tumor. The use of these methods leads to a significant improvement in the diagnosis of HCC: sensitivity increases to 89%, specificity up to 99%. [3,8]

Fig. 2.



CTA is most commonly usedmethod for refined diagnosis of HCC with obligatory intravenous contrast and evaluation of the features of tumor of the in various (in the arterial, venous and delayed) phase of the study at a recommended rate of injection of a contrast drug 2-4-8 ml / sec (with PKT). Unlike the unaltered unchanged liver parenchyma, which is fed from the portal vein system, hepatocellular tumors are blood supply mainly from the hepatic artery system, so in typical cases they are characterized by diffuse, heterogeneous «enhancement» to the arterial phase, followed by washing out the contrast drug into the venous and delayed phases, which is considered a classical mapping of the HRC. Features of the mapping of hepatocellular tumors depend both on their size and on the degree of their differentiation. Patients with cirrhosis and impaired liver function, the peak of contrasting parenchyma is difficult to predict. It comes much later - more than 30 - 40 minutes. [9-11].

Positron emission tomography (PET / CT) with glucose is not recommended for routine diagnosis and staging of HCC. PET / CT with choline can be useful for detecting extrahepatic metastases. [9-11].

A biopsy allows obtaining a morphological confirmation of the HCC. In the hands of an experienced surgeon, the frequency of complications of puncture of the liver (bleeding more often) does not exceed 1-2% [9]. Puncture biopsy in receiving a tissue column (cor-biopsy) is preferable to aspiration fine needle biopsy. When detecting (multiphase CT) in cirrhotic liver tumor with characteristic vascularization of HCC and confirmation of the diagnosis of contrast MRT morphological verification is not necessary.

A biopsy of the liver tumor is necessary when:

1. The small size of the tumor (<2 cm) and the typical for the HCC blood flow,
2. Atypical vascularization of a node> 2 cm in size,
3. Differences in the description and interpretation of contrasting dynamic studies in combination with a normal or slightly elevated level of AFP,
4. Identification of any tumor formation in the non-cirrhotic liver.

A biopsy of local formation in the cirrhotic liver is not needed if:

1. No treatment is planned for decompensated cirrhosis or other severe pathology;
2. A resection of the liver is planned. [3.9]

Treatment

Liver transplantation.

Liver transplantation with HCC is a simultaneous treatment of both the tumor process and concomitant liver cirrhosis. The MELD (Model for End-stage Liver Disease) classification is used for assess the status of candidates for liver transplantation. Orthotopic liver transplantation is a method of choosing early-stage HCC treatment, in cases not suitable for resection (multiple tumor lesions, cirrhosis, or severe impairment of liver function). The so-called «Milan» criteria are more commonly used: the size of a single tumor is not more than 5 cm or if there are up to 3 foci in the liver with a diameter of the largest node not more than 3 cm, no invasion of the vessels. If the «Milan» criteria are met at the stage of selecting candidates for liver transplantation, the 5-year survival of patients

reaches 70%, the frequency of tumor recurrence is <15%. Several studies indicate an early relapse after transplantation with high AFP (> 400 ng / ml), age> 60 years, and> 20 points on the MELD scale. Patients awaiting liver transplantation can receive both neoadjuvant and antitumor treatment, including ablation, embolization and partial resection of the liver, which increases the likelihood of liver transplantation beyond standard indications. Postoperative staging is performed on the basis of TNM classification taking into account preoperative examination. [4.9]

According to a recent systematic review of 90 studies involving 17,780 patients in 15 years, the Milan criteria are an independent prognostic outcome factor after liver transplantation [6]. The overall 5-year survival of patients with the Milan criteria (65-78%) was similar to the survival of patients without HCC in the European and American registers (ELTR and OPTN, respectively) (65-87%) [6,12-13]. According to ELTR results of more than 12 000 transplants, 10-year survival is about 50% [12]. Due to their success, the Milan criteria were included in the BCLC classification [14-15], as well as the system of pre-transplantation assessment of the stage of the UNOS (United Network for the Distribution of Donor Organisms) in the United States [16] and remain the starting point for all the prognostic criteria proposed to expand the indications to liver transplantation in patients with fcc and cirrhosis [17].

Ablation. Necrosis of the tumor can be caused by chemical ablation (percutaneous injection of ethanol, CHIE), thermoablation (radiofrequency ablation, RFA) or cryoablation. The ablative procedure can be performed percutaneously, laparoscopically or by open access. To date, in the treatment of HCC, RFA and CHE are most commonly used. The safety and efficacy of PI and RFA in the treatment of patients with compensated cirrhosis (class A in Child-Pugh) and HCC meeting the Milan criteria were examined in several randomized controlled trials. Both methods demonstrated a low incidence of complications. RFA showed greater efficacy both in achieving complete response (65.7% vs. 36.2%) and in reducing the number of relapses (within 3 years local tumor recurrence was observed in 14% of patients treated with RFA and 34% , received the PIER,). It has also been shown that RFA requires fewer procedures than CHIE [18-20].

According to published data, the best results were achieved after RFA in a series of patients with HCC, in which 5-year survival was 40-70% [21-22] and even higher in candidates with more stringent selection criteria [23]. The best outcomes were observed in patients with small (usually less than 2 cm) single tumors and Child-Pugh class A [24].

TACE (Transarterial chemoembolization). The procedure consists of introducing through a catheter a mixture of chemotherapeutic and embolizing agents into the hepatic artery. The aim of TACE is to deliver a high dose of chemotherapeutic agent directly to the tumor, to increase the contact time between tumor cells and the agent, while minimizing the systemic effect of the chemotherapeutic agent. Studies have shown a significant benefit of TACH over symptomatic therapy in patients with unresectable HCC. Thus, in one study, survival in the TACE group was: 1 year - 57%, 2 years - 31%, 3 years - 26%; in the control group: 1 year - 32%, 2 years - 11%, 3 years -3%. Although death from hepatic insufficiency was somewhat higher in the TACE group, the liver function was statistically significant in the groups did not differ. Frequent complications of TACHE include postembolization syndrome (fever, abdominal pain, vomiting), embolization of non-targeted branches of the hepatic artery, liver failure and cholecystitis [9]. Less common are portal vein thrombosis, bone marrow failure and pancreatitis. The incidence of major serious adverse events varies from study to study, but the incidence of treatment-related deaths is usually less than 5%. The evaluation of the efficacy and safety of TACHE is complicated by various agents used, such as embolizing particles, and chemotherapeutic agents (doxorubicin, cisplatin), as well as a different number of procedures in different patients. These differences were not evaluated in clinical randomized trials. [23,25].

Resection is the method of choice for patients with single tumors and well-preserved liver function (compensated cirrhosis, Class A according to Child-Pugh), normal bilirubin level and either a pressure gradient in the portal vein not more than 10 mm Hg, or a number of tromobocytes not less than 100 * 109 / l. Retrospective studies show a 5-year survival after resection in patients at an early stage of HCC with a preserved liver function at a level of 50-70%. Nevertheless, the recurrence of HCC occurs frequently.

The modern standards of HCC resection in patients with cirrhosis are defined by the expert group as follows: the expected 5-year survival rate of 60%, perioperative mortality 2-3%, the need for blood transfusion less than 10% [26-27].

Clear criteria for the dependence of the feasibility of liver resection on tumor size are not available; However, it should be remembered that the likelihood of vascular invasion increases with the size of the tumor. In one study, a 30% chance of vascular invasion with a tumor diameter of 10 cm or more was demonstrated. According to the national registry conducted in Japan, the five-year post-resection survival depended directly on the tumor size and was 66% for

tumors less than 2cm, 52% for 2-5cm, and for only 37% for tumors greater than 5 cm. A five-year survival rate of more than 50% after resection patients who meet the Milan criteria (no more than 3 foci not larger than 3 cm), but not suitable for liver transplantation. However, the feasibility of liver resection for vascular invasion and / or for multifocal lesion remains to this day unexplored until the end. Preferred is an anatomic resection of the liver with the implementation of Pringle to minimize blood loss. [3-4, 9].

Target therapy

Sorafenib-oral tyrosine kinase inhibitor is the first and so far the only drug that increases the survival rate of patients with late stage HCC. It is indicated to patients with preserved liver function (Child-Pugh class A) and late stage of the tumor (C to BCLC), as well as tumors that progress after locoregional therapy. Patients with Class B in Child-Pugh cannot be given clear recommendations, although cohort studies report a similar safety profile and no decompensation [28-29].

The use of chemotherapy in HCC is problematic due to concomitant cirrhosis of the liver. Because of cirrhosis, the metabolism of chemotherapy drugs is changing and their toxicity is increasing. Systemic therapy with doxorubicin was evaluated in clinical trials in more than 1,000 patients and showed an objective response rate of about 10%. Systemic therapy with other drugs such as gemcitabine, oxaliplatin, cisplatin and capecitabine, in combination or as monotherapy, showed a different response in uncontrolled studies, ranging from 0 to 18% [30].

Discussion

Today, HCC is by far the most common tumor among primary malignant neoplasms of the liver; its frequency varies depending on geographical and ethnographic features. From a global perspective, the most urgent task is to prevent the development of HCC. The only effective strategy is the primary prevention of viral hepatitis, which in most countries is already carried out in the form of vaccination against the hepatitis B virus in newborns. Prevention of alcohol abuse and the spread of the hepatitis C virus (HCV), as well as metabolic syndrome, is also very important.

Screening for early detection of HCC is recommended for the following patients at high risk of developing the disease: patients with cirrhosis and patients with chronic viral infections.

The next aim is to increase knowledge among the population to identify risk groups and the possibility of establishing an early diagnosis, followed by resection or ablation of small tumors [1].

Accurate diagnosis of small nodes in the liver is very important. Until 2000, the diagnosis was made based on the results of a biopsy. This approach had a number of disadvantages associated with access to the foci and the risk of complications, such as bleeding and dissemination of the tumor along the needle pathway [31]. As to which imaging method should be used, it should be noted that the radiologic criterion of HCC is the vascular dynamics of tumor contrast. For non-invasive diagnosis of HCC, CT and MRI of the latest generation are recommended [21].

Treatment options mainly depend on liver function, tumor size and the presence or absence of metastatic lesions or vascular invasion. In most cases, such treatments as resection, radiofrequency ablation or liver transplantation are not feasible, leaving only palliative therapy. The main treatment for HCC is surgical. In well-chosen candidates, liver resection and transplantation provide the best outcomes (5-year survival rates reach 60-80%) and serve as a method of choice in patients with early tumor stage [32-33]. Liver resection is the method of choice in patients with cirrhosis (5% in Western countries, 40% in Asia) [32-33], who have a large resection possible with a low risk of life-threatening complications and acceptable outcomes (5-year survival of 30- 50 %). [4]

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DIAGNOSIS OF DISEASES OF THE HEPATOBILIARY SYSTEM IN THE PRACTICE OF A LABORATORY ASSISTANT

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Abstract

The work analyzes the data of biochemical studies of various parameters of liver function, isolated from the blood serum of patients treated and examined in the National Scientific Surgery Center under the name of A.N.Syzganov in 2017 The article is devoted to the diagnosis of liver pathology, since this is actual for today, which is caused by a large number of people suffering from liver diseases.

Keywords
liver, hepatobiliary system, biochemical studies.

Дәрігер-лаборант тәжрибесіндегі бауыр-өт жүйесінің ауруылдарын анықтау

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Аңдатпа

А.Н. Сызганов атындағы ұлттық ғылыми хирургия орталығында 2017 ж. емдеген және қаралған науқастардың биохимиялық зерттеулердың нәтижелеріне, бауырдың функциялық көсеткіштеріне, науқастардың қанынан бөлінген сарысуына талдау жүргізілген. Мақала бауырдың патологиясын диагностикалау мәселесіне арналған, себебі бұл бүгінгі күнге өзекті және бауыры ауыратын адамдардың санының көптігіне байланысты болып отыр.

Түйін сөздер
бауыр, бауыр-өт жүйесі, биохимиялық зерттеулер.

Диагностика заболеваний гепатобилиарной системы в практике врача-лаборанта

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Аннотация

В работе выполнен анализ данных биохимических исследований различных показателей функции печени, выделенных из сыворотки крови пациентов, лечившихся и обследовавшихся в ННЦХ им. А.Н. Сызганова в 2017 г. Статья посвящена вопросу диагностики патологии печени, так как это является актуальным на сегодняшний день, что обусловлено большим количеством людей, страдающих заболеваниями печени.

Ключевые слова
печень, гепатобилиарная система, биохимические исследования.

According to the latest information of the World Health Organization (WHO), there are more than 2 billion people with liver diseases worldwide, which is 100 times more than the frequency of HIV infection. Over the course of the current 20 years, a marked tendency to an increase in the number of diseases of the hepatobiliary system has been observed worldwide [1, 2]. So, for example, only in the CIS countries is annually fixed from 500 thousand to 1 million patients suffering from a particular hepatic pathology. There is an increase in the frequency of pathology of the hepatobiliary system at a young age, in women 4-7 times more often than in men. According to the WHO experts, every fifth woman and every 10th man in Europe has a pathology of the liver and bile ducts. Accordingly, diagnostics and treatment of diseases of the hepatobiliary system is one of the most urgent problems of modern medicine (1, 2).

The aim of the work was the analysis of biochemical studies of various indicators of liver function performed in 2017 in diagnostic laboratory of National Scientific Surgery Center under the name of A.N. Syzganov.

Material and methods

In the work, biochemical studies of various parameters of liver function, isolated from serum of 430 (225 women, 205 men), patients aged 18 to 78 years, treated and examined in the National Scientific Surgery Center under the name of A.N.Syzganov in 2017.

In total, the following number of parameters was studied: bilirubin total - 430; bilirubin straight - 430; asparagine aminotransferase (AST) - 430; alanine aminotransferase (ALT) - 430; alkaline phosphatase (APP) - 430; gamma-gamma-glutyltransferase (GGTP) - 430; lactate dehydrogenase (LDH) - 430; cholesterol - 430; albumin - 430; ammonia - 430. The analyzes were carried out on the device «COBAS INTEGRA 400/400 plus» company «Roche» (Germany), which is an automatic analyzer intended for the quantitative determination of various parameters in serum and blood plasma.

Results

In this article, we present the results of biochemical studies of various parameters of liver function, isolated from blood serum 430 (225 women, 205 men) from 18 to 78 years old, treated and examined at the National Scientific Surgery Center under the name of A.N.Syzganov in 2017 (Table 1).

Discussion

The term «liver» originates from the word «oven», since the highest temperature of all organs is characteristic for the oven. This is due to the fact that in the liver per unit mass, the greatest number of energy production is observed. Up to 20% of the mass of the hepatic cell is in the mitochondria - «power stations» cells, which constantly synthesize ATP, which spreads throughout the body.

The liver is the largest organ in the human body and animals; in an adult it weighs 1.2-1.5 kg. Its weight varies with age - about 50 years, the liver begins to atrophy, and by the old age its weight is only 0.8-1 kg. Despite the fact that the liver is 2-3% of body weight, it takes away 20 to 30% of the oxygen consumed by the body (4).

The structural-functional unit of the liver is a lobe of the liver. The area located between the hepatic cells is the bile ducts. On the central part of the lobule passes the vein, in the interlobular tissue - vessels and nerves. In the human liver there are about 500 thousand hepatic lobules. The liver has about 300 billion cells, 80% of which are hepatocytes.

The liver is a significant gland that maintains the constancy of the internal environment of the body. It is a unique and complex organ that takes a central place in the metabolism of proteins, carbohydrates, fats and plays a significant role in the metabolism of drugs.

Table 1.
Features of biochemical parameters in liver pathology

Biochemical indicator of blood	Patients (n=430)
Total bilirubin, μmol / l	294,0 (7,1 – 581,0)
Direct bilirubin, μmol / l	226,6 (1,2 – 485,0)
Aspartate aminotransferase, U / l	541,0 (10,0 – 1072,0)
Alanine aminotransferase, U / l	359,3 (7,6 – 711,0)
Alkaline phosphatase, U / l	240,5 (34,0 447,0)
Gamma-glutamyltransferase, U / l	451,5 (6,0 – 897,0)
Lactate dehydrogenase, U / L	2069,5 (17,0 – 4122,0)
Total cholesterol, mmol / l	3,91 (0,82 – 7,0)
Albumins, g / l	31,5 (16,0 – 47,0)
Ammonia, μmol / l	59,0 (10,0 – 108,0)

The liver provides the following functions. 1. Bile and biliary excretory functions. Liver cells release bile, which includes water, electrolytes, organic substances (bile acids and salts, cholesterol, conjugated bilirubin, cytokines, etc.) and heavy metals, in particular copper. The total amount of bile produced by the liver is an average of 600 ml / day. The physiological significance of bile includes the removal of lipophilic components from the body, which can not be disposed of and excreted in the urine; and also - the release of bile acids, which take part in the digestion of fat of food products and the absorption of products of its hydrolysis (1, 4).

2. Metabolic function. In the liver, the compounds necessary for the operation of other organs of the digestive system (stomach, pancreas and small intestine) are formed. The products of nutrient cleavage go to the liver from the gastrointestinal tract through the portal vein. In the liver, the exchange of proteins and amino acids, lipids, carbohydrates, biologically active substances (hormones, biogenic amines and vitamins), microelements, and regulation of water metabolism is observed. The liver promotes the synthesis of proteins, including blood plasma proteins, their accumulation; reamination and deamination of amino acids; urea formation and synthesis of creatinine; the synthesis of glycogen from monosaccharides and non-carbohydrate products; oxidation of fatty acids; the formation of ketone bodies and the synthesis of cholesterol. The main way of catabolism of cholesterol in the liver is the synthesis of bile acids; also on the basis of cholesterol all steroid hormones are formed: glucocorticoids, mineralocorticoids and sex hormones (estrogens, androgens and progesterone); vitamin D3, blood plasma lipids. To all steroid hormones, only 3% of cholesterol is consumed (1, 4).

3. Deposition function. In the liver, the carbohydrate is deposited in the form of glycogen; proteins, fats, hormones, vitamins (A, D, K, C, PP, B12) and minerals (iron, copper, manganese, cobalt, molybdenum) (1, 4).

4. Barrier function. The liver performs neutralization (biochemical transformation) of foreign and toxic substances coming with food or arising in the intestine, as well as toxic compounds of exogenous nature. Microorganisms are rendered harmless by macrophages (Kupffer cells) by phagocytosis and lysis. An increase in the level of environmental pollution, increased consumption of various preservatives, alcohol, uncontrolled use of drugs significantly increase the metabolic burden on the liver (1, 4).

5. Excretory function. From the liver, various compounds of endogenous and exogenous origin (more than 40 compounds) are sent to the bile ducts and are excreted with bile or enter the blood, where they are excreted by the kidneys. One of the characteristic features of the excretory function of bile is that it is able to remove from the body such substances that can not be isolated from the body in any other way.

6. Homeostatic function. The liver provides a constant composition of blood (homeostasis), performing the synthesis, accumulation and secretion into the blood of various metabolites, as well as carrying out the absorption, transformation and excretion of plasma components.

That is, the liver performs three main types of life: digestion, metabolism (energy supply, metabolism of proteins, fats, carbohydrates, hormones, vitamins, enzymes, water, electrolytes, trace elements, pigments) and detoxification, as well as blood circulation.

The hepatobiliary system, to which the liver itself belongs, the bile ducts and the gallbladder, is involved in many vital processes of the body. Its damage is determined by significant damage to metabolism, immune response, detoxification and antimicrobial protection (1, 2).

Quite often liver cells are disrupted under the influence of aggressive compounds - poisons, free radicals, bacterial and viral infections. In addition, damaging effects on the liver show stress, hormonal and metabolic disorders, poor-quality food, excessive enthusiasm for medicines and alcohol. Liver disorders are carried out through chemical and immunological mechanisms (3).

However, the liver refers to organs capable of regeneration after damage due to cellular cooperation, the presence of molecular mechanisms of the reaction of the acute phase and the synthesis of a number of substances of a protective nature (4).

Almost in all cases, regardless of the etiology of the disease, oxidative stress is the common pathogenetic link (5).

According to the results of experimental works, the dosage forms of antioxidants help suppress inflammatory necrotic reaction in the liver, inhibit the development of fibrosis, stimulate regeneration processes and reduce the risk of malignant transformation of hepatocytes. Based on these experiments, the use of antioxidants (including plant origin) in the treatment of various chronic liver diseases, taking into account the common pathogenetic features of their development (5) was suggested.

Conclusions

1. Leading syndrome with liver lesions is cytolytic, with laboratory criteria being the increase in ACAT activity and, to a greater extent, ALT, an increase in serum iron content, and in massive cytolysis with hepatocellular insufficiency, the

decline in the synthesis of prothrombin, other coagulation factors and albumin, and cholesterol esters. Cytolysis is caused by a change in the permeability of hepatocyte membranes and the release of intracellular contents into the intercellular matrix and blood.

2. Mesenchymal inflammatory syndrome is manifested by an increase in the levels of α2-, β- and γ-globulins, immunoglobulins of all classes, changes in colloidal samples (decrease in the sulfate titer and increase in timolveronal test).
3. With cholestatic syndrome, blood levels of bound bilirubin, bile acids, cholesterol, copper, alkaline phosphatase activity, 5-nucleotidase (5-NAA), gamma-glutamyltranspeptidase (GGTP) increase; bilirubinuria is noted.

Thus, the examined patients had biochemical signs of all the above syndromes, which determine the development of the pathology of the hepatobiliary system, which, in turn, is a predictor of the progression of other diseases.

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SOME PROBLEMS AFFECTING THE PATIENTS AFTER TRANSPLANTATIONS OF RENALS

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Keywords
Chronic kidney disease, chronic renal failure, kidney transplantation, endocrine problems.

Abstract

In the this work, regular endocrine problems, biochemical profile, quality of life and sexual function have been studied regularly after renal transplantation (RT) during the 5th year In assessing the etiology of the primary disease, although there were no differences in some laboratory indicators of the 5 year, sexual activity and general health quality (between live and dead RT), the number of RTN decreased, and pathological changes in the level of sex and thyroid hormones were not determined. The amount of urea and creatinine is high in comparison with the basal level.

Бүйректі алмастырудан кейінгі науқастардың кейбір проблемалары

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Түйін сөздер
созылмалы бүйрек ауруы, созылмалы бүйрек жетіспеушілігі, бүйректі алмастыру, эндокриндік проблемалар.

Аңдатпа

Бұл жұмыста бүйректі алмастырудан кейін 5 жыл ішінде жиі кедесетін эндокриндік проблемалары, биохимиялық профилі, өмір сүру сапасы мен жыныстық қатынастық функциясы зерделенген. Бастапқы аурудың этиологиясына баға беру кезінде, 5-ші жылындағы кейбір зертханалық көрсеткіштерінде айырмашылықтары (тірі мен өлі БТ арасындағы), жыныстық қатынастың белсендігін және жалпы денсаулығының сапасындағы айырмашылықтары көрсетілмегендгіне қарамастан, РТН саны азайған, ал жыныстық пен тиреоидты гормондары деңгейінің патологиялық өзгерістері анықталмаған. Несепнәрінің және креатининнің саны базалық деңгейімен салыстырғанда жоғары болып шықты.

Некоторые проблемы, появляющиеся у пациентов после трансплантации почек

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Ключевые слова
Хроническая почечная болезнь, хроническая почечная недостаточность, трансплантация почек, эндокринные проблемы.

Аннотация

В настоящей работе изучены регулярные эндокринные проблемы, биохимический профиль, качество жизни и половая функция в течении 5 лет после трансплантации почек (ТП). При оценке этиологии первичного заболевания хоть и не были установлены отличия в некоторых лабораторных показателях 5-го года, активности половой жизни и качества общего здоровья (между живым и мертвым ТП), количество РТН уменьшилась, а патологические изменения уровня половых и тиреоидных гормонов не установлены. Количество мочевины и креатинина по сравнению с базальным уровнем, высокое.

Introduction

All over the world chronic kidney disease (CKD) has posed several serious problems for men. Also kidney transplantation (TP) continues to be a serious problem for men at the present stage [1,12]. The last time CKD cases occurred more and more [13]. This disease has lead to disability among young people, and with the developing of disease to the death. Patients with CKD regularly use the artificial dialysis, TP are indicated to them [9,11]. In these patients, TP along with other methods of treatment (hemodialysis, peritoneal dialysis), gives better results and prolongs life expectancy approximately 2 times [11]. TP is considered to be the most appropriate, radical treatment to patients, which most affected by chronic kidney disease. This type of treatment is especially important for children, because they have suffered from hemodialysis.

Nowadays, the most commonly used option is a kidney transplant from one person to another, which is characterized as a reversible process in very rare cases. Also in comparison with other types of treatment, this operation has long-term indicators of life and quality of life [9,11]. If the tissue matching of the donor and the recipient are close, the frequency of postoperative complications, rejection reactions, cases of kidney transplantation failure, provides better life quality of life, and exactly the same organ lives longer. [1.12]. To determine the conformity of the donor and the recipient, the following three characteristics are recognized as the main ones: blood group consistency, tissue match and Cross-match (Cross-match is the determination of the antibody level in the patient and antigens in the donor) [6,10]. Whether the patient is suitable for TP or not, becomes known through several tests. First of all, doctors need to select the appropriate living donor (from family members), the donor cadavers (the person whose brain died, but the rest of the organs are functioning normally) [6,10].

KF Wolf and co-authors have found that, in comparison with patients on hemodialysis and patients with TP mortality rates decreased by 68%, and recovery rates increased many times at the end of the fourth year. [14]. Depending on the severity of the pathology in the kidneys, other organs also produce changes. Every fifth person who lost life due to CRF in the world, have had enlarged parathyroid gland [4,5,8]. The tests have revealed the osteopathy and deformities that have spread to the bone. In some cases, changes occurring in the bones may be associated with hyperparathyroidism in CKD [4, 5,7].

In this research work, the main goal was a retrospective comparative assessment of demographic characteristics, endocrine problems, quality of life and sexual activity with basal functions in 40 men who were regularly monitored for 5 years after kidney transplantation (TP).

Materials and methods

The study retrospectively has evaluated demographic features, functional kidney tests, endocrine problems, biochemical markers, general health (quality of life), and sexual function of 40 male patients who received kidney transplant from a live donor in the hospital of the Medical Faculty of the University of Yege (Izmir) and the corpse, which for 5 years after transplantation were under regular control in the clinic of nephrology-transplantation of this hospital. The protocol of work is approved by the Ethical Council of the Medical Faculty of the University of Yege. According to the Helsinki notification, all patients have received signed consent forms. The necessary data regarding patients after TP were obtained from the archive - the electronic database of the clinic of nephrology-transplantation of the University Hospital. 31 kidneys were transplanted from live donors, and 9 from a corpse. According to the nature of the planned study, patients who underwent TP surgery were not involved in the study.

The distribution of donors by age group was as follows: 20; 20-29; 30-39; 40-49; 50-59; > 60. Type of donor - live / corpse-31/9; donor sex - m / f-24/16; donor category - mother - 10, father - 4, spouse - 6, brother - 9, not related - 1, others - 10; foreign donor - 4; the age of donors is -45.5±11.9; donor incompatibility -3,8±1,6; surgical venous complication -1; surgical problems of the urinary canal - 1. One patient was also simultaneously transplanted pancreas. Diabetes mellitus was detected in only one patient. Etiological causes of CRF (primary renal disease) -unknown cause-14 patients, diabetes mellitus-1 patient; glomerulonephritis - 11 patients; primary chronic kidney disease - 3 patients; vesicourethral reflux - 1 patient; amyloidosis - 1 patient; others - 9 patients. All patients are transplanted for the first time. In the distribution of live donors, the parameters of the general population are the same: in about 40% of patients, parents acted as donors. Demographic and transplant patient data are presented in Table 1.

The IBM SPSS (Statistical Package for Social Sciences) version 19.0 was used for statistical evaluation of the results obtained during the study. The statistical evaluation of the results was carried out using the Chi-Square test.

Results and discussion

The age of the live donor and corpse was not 20 years and below - 0. But the number of donors by

Table 1.
Demographic and transplant patient data

Total number of patients	40
Men / women	40/0
Age	45,7±11,9
Weight	61±1,4
With diabetes is / no	1/39
Number of transplants	
1	40
2	0
> 2	0
Type of dialysis before transplantation was done	
Preemptiv	4
Hemodialysis	33
Peritoneal dialysis	2
Term of dialysis before transplantation was done (months)	35,8±50,2
HBsAg (+) before transplantation was done	0
Positivity of anti-HCV before transplantation was done	3

age group had the following picture: 20-29 years - 5 donors; 30-39 years old - 9 donors; 40-49 years - 9 donors; 50-59 years 8 donors; 60 years and older - 9 donors. After transplantation, in the 5th year, the last control examinations in connection with the joint venture were conducted and their results were studied. Patients after transplantation had a decrease in PTH (PTH to 307 pg / ml before TP, 204 pg / ml after TP) (Table 2). In comparison with the basal amount, in the 5th year the amount of HbA1c rises authentically from 5.12% to 5.74% -ə (p <0.05) [5,10,12]. Between the steroid preparation, the Ca ion inhibitor, the mTOR inhibitor included in the arsenal of patient treatment and the amount of HbA1c, a significant difference is not determined. And in some research works it is indicated that in more than 50% of patients after 6 months the elevated PTH level remains [4]. For this reason, it is indicated that, in 1.3-20% of patients after TP, there is a need for parathyroid ectomy [4]. In our study, the levels of PTH before and after TP significantly decreased. In 50% of patients in the 5th year, the number of PTH decreased from 307 pg / ml to 204 pg / ml (p <0.05).

Along with this, after transplantation, the basal functions of the kidneys were evaluated according to the indices during 5 years. On the 5th year, the final examinations of functional tests of kidneys, functional tests of thyroid glands, levels of biochemical markers in patients in connection with TP were conducted and their results were investigated. In assessing the etiology of primary disease in the results of laboratory indicators of the 5th year, the indicators of sexual activity and the quality of general health, a significant difference was not established. In the amount of urea and creatine, in comparison with the basal index, a progressive increase is established. In patients with kidney transplantation from live donors, the urea and creatine levels (urea 56 mg / dl, creatinine 1.46 mg / dl) decreased significantly in the fifth year compared to patients who had kidney transplants from the corpse (urea 59 mg / dL, creatinine 1.72 mg / dL).

There was no statistically significant difference between kidney transplantation from live donors and dead bodies in terms of sexual activity indicators and overall vital quality. In 1 patient, with which a surgical vein was damaged in the perioperative period, urea and creatine levels are highly reliable in the fifth year. (p <0.01), in the parameters of another patient who underwent surgical damage to the urinary duct, there were no significant differences in these indicators. In both patients, statistically significant differences between the assessments of functional tests of another kidney, sex hormones, globulin levels and PTH, thyroid gland and HbA1c thyroid function tests have not been established [3].

The PTH level was low compared to the pre-transplant rate. But after a successful transplantation, a significant increase was established (p <0.05). the fifth year after TP, the effect of using mTOR inhibitors was evaluated

Table 2.
Change in the number of PTH PTH and hemoglobin before and after TP

Datas	before TP	after TP
PTH, g / mL	307,3±35,3	204±10,2
Hb, unit	5.12±1.0	5,74±1,1

Datas	Alive ТП	ТП from dead body
urea, mg / dL	56±3,3	59±7,2
creatinine, mg / dL	1,46±0,1	1,72±0,1

Table 3.
The level of urea and creatinine for the 5th year in patients who underwent renal transplantation from a living donor and corpse (M ± m)

as positive when the effects of other drugs were compared to the results of laboratory and questionnaires[2.7]. MTOR inhibitors do not exert vasostructural effects on the kidneys as Ca inhibitors. The use of antimetabolitics (azathiopurine, MMF, MPA) among immunosuppressive (IS) drugs had no statistically significant effect on renal function tests, lipid profile, PTH levels, HbA1c, sex hormones, sexual activity and general health ($p > 0.05$) in the 5th year. Compared to patients who received Ca inhibitors during the postoperative period, the amount of creatine decreased in patients taking mTOR inhibitors ($p < 0.05$). The overall health level in these patients was better, but lipid profiles were not statistically significant authentic. On the contrary, the scores of the sexual activity of these patients were of higher significance ($p < 0.05$). As the age of the donor increased, there was an increase in the number of creatinine in the 5th year ($p < 0.05$).

In our study, there were no significant differences in the quality of life in patients who received kidneys transplantation over 60 years of age. But as the age of the donor increases, the functional parameters of the transplanted kidney increase. Although the increase the age of the donor and the increase urea and creatine is determined, only in donors over 60 years of age, statistical reliability is revealed. In patients who took IP drugs and Ca inhibitors, this amount was even greater. But in patients who were treated with mTOR inhibitors, the increase was minimal. It has been established that mTOR inhibitors have a significantly lower level of predisposition to impaired renal function tests. But inhibitors of Ca, performing vasoconstriction in the arterioles of the kidney, lead to a serious increase in the level of creatine. Also, basal assessments in patients treated with mTOR inhibitors were relatively satisfactory. In patients receiving antithymocyte globulin as induction treatment, even better results were obtained in the 5th year. For this reason, in these patients, the results of the 5th year were significantly lower.

The 5th year, statistically significant pathological changed in the levels of sexual and thyroid hormones were not established in patients after TP. There was no association between the drugs used before and after TP, their doses and timing of application and the etiology of PN. Therefore, we did not encounter such serious problems as insufficiency of the pituitary gland. Patients did not undergo thyroid surgery and no information was received regarding the hormone replacement treatment in connection with this gland. But the 5th year after TP in the results of thyroid functional tests, serious pathological changes were not revealed. Changes in the hormone metabolism in peripheral blood in patients, disorders that occur due to the connection in the carrier proteins, changes in tissue-hormone exchange, in conditions of an increase in the amount of iodine in the thyroid tissue, leads to serious changes in the amount of thyroid hormones. A half decrease in the number of nephrons and a low glomerular filtration rate of up to 80 ml / min leads to a decrease in free T3 and free T4 in blood serum. In some patients, despite the overall decrease in T4, the level of free T4 remains within the normal range. A level of thyroid stimulating hormone (TSH) in patients with CRF does not reach the normal level. Presumably this is due to the termination of the feedback mechanism in the thyroid-pituitary chain. Removal of TSH from the body through the kidney is one of the main reasons for its normal level.

Thus, the kidney is one of the target organs of the PTH, which occupies an important place in the balance of Ca, P, Mg and the synthesis of vitamin D [8]. On the other hand, the important role of kidneys in the utilization of RTN [8] is indicated. From this perspective, impaired renal parenchyma functions are also reflected in general metabolic changes. Symptoms of pain in the area of kidney transplantation, in the first place, can be signs of rejection of the donor kidney. Increase in creatine or blood pressure can also be indicators of rejection of the transplanted kidney. The viscosity of PTH, compared with the indicators before transplantation, is low. But after a preemptive transplantation, a significant increase is determined ($p < 0.05$). Compared to the kidney of a corpse, after a kidney transplant of a living donor, there was a decrease in the amount of creatine. TP obtained from a living donor, in comparison with kidney transplantation of

Datas	pre-operational	before TP	after TP	the 5th year
urea, mg / dL	150±15,7	307,3±35,3	300±16,4	204±10,2
Hb, unit	5,82±1,0	5,12±0,9	4,99±0,8	5,7±0,9

Table 4.
Change in the amount of PTH and hemoglobin before and after TP

a corpse, has important advantages [6,10]. In the present work, endocrine problems, quality of life and sexual functions are retrospectively evaluated.

Conclusions

1. At the 5th year after kidney transplantation in 50% of patients, the viscosity of PTH in the blood significantly decreases compared to the basal level.
2. In patients with CRF, the level of thyroid-stimulating hormone (TSH) does not go beyond the normal level. Removing TSH from the body through the kidney is one of the main causes of its normal level. Reduction in half the number of nephrons and a low glomerular filtration rate of up to 80 ml / min leads to a decrease in free T3 and free T4 in serum. In some patients, despite a general decrease in T4, the level of free T4 remains within normal limits.
3. At the fifth year after TP, the consequences of using mTOR inhibitors in comparison with the effects of other drugs, with laboratory and questionnaire results, are assessed as positive. Rational use of these drugs after TP leads to an increase in the quality of sexual life.

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THREE CASES OF CECAL PERFORATION, SIMULATING ACUTE APPENDICITIS

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Abstract

This article presents three cases that happened in different years of surgical practice in which patients were delivered in emergency to the surgical department of railroad hospital with primary diagnosis of acute appendicitis, and clinic of acute appendicitis was established at the moment of delivery of every patient. However, during surgery in one case perforation of cecum by fishbone (sharp edge of spine) was discovered [1, 2]. In the second case perforation was caused by sewing needle, and in the third – by excrement stone. All three patients were operated and discharged in a satisfactory condition.

Except for the 3 described clinical observations, no more perforations of cecum that simulated acute appendicitis, have been discovered in surgical department. According to archive materials (disease history, etc.) of the surgical department of railroad hospital, o such cases took place before.

According to A.A. Dubrovskiy and co-authors (1977) [5], perforation by alien objects takes place more commonly in large intestine (33,8 %) than in stomach (15,5 %). According to foreign authors, perforation of gastrointestinal tract forms 0,04–0,2 % [9] of the whole number of cases with acute surgical diseases in organs of stomach cavity and happens to men more frequently.

Keywords
the cecum, acute appendicitis, perforation

Жедел аппендицитті ширатқан бүйеннің тесілуі бойынша үш оқиға

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Аңдатпа

Бұл мақалада аурулар шұғыл түрде жедел жәрдем арқылы теміржол ауруханасындағы хирургиялық бөлімшесіне жедел аппендицит диагнозымен жеткізілген кезінде үш аурудың әрқайсысында жіті аппендицит клиникасы анықталып, хирургиялық тәжірибедегі әр жылдары орын алған үш оқиға сипатталады. Бірақ операция жасау кезіндегі бір оқиғада балық талшығымен (1,2) (омыртқаның өткір жетімен) бүйен күмбезінің перфорациялауы, екінші оқиғада тігін инесімен перфорациялау, үшінші оқиғада нәжіс құмалағымен перфорациялауы анықталған. Пациенттердің үшеуіне де ота жасалып, олар қанағаттанарлық ахуалды ауруханадан шыққан.

Хирургиялық бөлімше бойынша осы көрсетілген 3 клиникалық байқаудан басқа, жедел аппендицитті ширататын бүйеннің перфорациялау жайты кездеспеді. Соңғы 30 жылында теміржол ауруханасының хирургиялық бөлімшесінде мұрағаттық материалдар бойынша (сырқатнама және т.б.) ұқсас оқиғалар болмаған.

А. А. Дубровский мен оның қосалқы авторларының деректері бойынша (1977), [5] бөгде заттармен асқазанды перфорациялауға (15,5%) қарағанда, жуанішекті перфорациялау оқиғалары (33,8) көбірек кездеседі. Шетел авторларының мәліметтері бойынша ішперде қуысы органдарының жіті хирургиялық ауруларға шалдыққан аурулардың санынан асқазан-ішек жолдарын тесілу 0,04%-0,2% [9] құрайды және де ерлер арасында жиі кездеседі.

Түйін сөздер
бүйен, жедел аппендицит, тесілу

Три случая перфорации слепой кишки, симулировавшие острый аппендицит

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Аннотация

В данной статье излагается три случая в разные годы хирургической практики, когда больные экстренно доставлены по скорой помощи в хирургическое отделение железнодорожной больницы с направляющим диагнозом острый аппендицит и при поступлении у каждого из этих больных была клиника острого аппендицита. Но во время операции в одном случае обнаружены перфорация купола слепой кишки рыбьей костью (острым краем позвоночника), [1,2]. во втором случае перфорация швейной иглой, в третьем случае перфорация каловым камнем. Все 3-ое больных оперированы, выписаны в удовлетворительном состоянии.

Кроме наших 3-х клинических наблюдений по хирургическому отделению больше не встретились перфорации слепой кишки, симулировавшие острый аппендицит. По архивным материалам (истории болезни и т.д.) хирургического отделения железнодорожной больницы за последние 30 лет доказано, что больше подобных случаев не было.

По данным А. А. Дубровского и соавторов (1977), [5]. перфорация инородными предметами встречается чаще толстой кишки (33,8%), чем желудка (15,5%). По сведениям зарубежных авторов перфорация желудочно-кишечного тракта составляет 0,04%-0,2% [9]. от числа больных с острыми хирургическими заболеваниями органов брюшной полости и чаще встречается у мужчин.

Ключевые слова
слепая кишка, острый аппендицит, перфорация

Urgency

According to the law of Laplas, cecum is the most exposed to damage – perforation, as it is located intraperitoneally and is the widest part of large intestine with diameter of 7,5–8,5 cm [9]. Cecum is a place that connects small and large intestine (where iliac intestine falls into large bowels), and where appendicular sprout is located. Cecum is blood-supplied from higher mesenteric artery with branches of iliac-colon, right colon, and middle colon. From there begins mesenteric vein that connects with vessels of spleen and forms portal vein of large intestine

According to statistic data, 40 % of all pathological changes of intestine happen in cecum [6] that is a place of the most frequent localization of inflammations, innocent and malignant formations. Moreover, they develop slowly, especially cancer of cecum. Cecum is surrounded by peritoneum from all sides and can be moved from its place quite easily. It simplifies surgical interventions. Symptoms of disease can be different depending on size of inflammatory formation in cecum and also on presence of complications that can be linked to perforation of cecum wall. The following signs indicate the mentioned complications of cecum: stomach pains, tachycardia, vertigo. In cases of emergency it is difficult to distinguish perforation of cecum from acute appendicitis. All symptoms, typical for acute appendicitis, such as those of Schetkin-Blumberg, Sitkovskiy-Rovzing, Voskresenskiy, Obraztsov, etc. are positive for cecum perforation. During differential diagnostics of this pathology with perforation of cecum it is necessary to consider the most common complaint of patients – presence of blood in dejection. These symptoms are often attended by continuous pains that are localized in right iliac area of stomach. Due to frequent bleedings, anemia can be observed among patients, and patients themselves might feel sickness, caused by anemia – vertigo, constant weakness, disturbance of eyesight, unnatural skin color. Therefore, establishing such diagnosis as anemia is a reason to suspect internal bleedings that can also be caused by cecum cancer. Since dejection blood is often recognized by patients as a beginning of haemorrhoids, they don't hurry to receive medical assistance and undertake treatment of non-existing disease. At the same time precious time is lost that can help to accelerate the recovery. As until cancer has discharged metastasis, chances of recovery are relatively high. Constipations are not typical for cecum cancer [3] as the spacing of intestine remains wide, and dejection are not yet formed at this stage of intestine and are not an obstacle for normal intestine discharge. Meteorism and sickness emerge, patient lose interest in food. In this case so-called «cancer intoxication» can take place – yellow shade of skin, insignificant growth of liver, weight loss. In case when tumor reaches significant size, edema can happen due to the

pressure, placed upon the surrounding organs. When a patient is sent for roentgen examination [8], a large defection is found in the picture, and it has no clear contour. In order to verify inflammation of cecum by tumor genesis, a doctor refers to irrigoscopy, colonoscopy, US, CT, and MRT.

Goals and objectives

Specific observations of the practice on problems of removing alien objects from gullet, stomach, sigma-like and straight intestinal have been published. In these cases objects were removed from patients via FGDS and colonoscopy. Rarely have been presented cases of operative treatment in regard to complications, caused by perforation of cecum by alien objects, that simulated acute appendicitis [7]. Our objective is to share experience of rare complications caused by perforation of cecum by fishbone, sewing needle, and fecal bolus that simulated clinic of acute appendicitis.

Materials

In different years three male patients were delivered to surgical clinic of railroad hospital, two of them of young age. The elder patient (participant of the Great Patriotic war), due to his inserted teeth, obviously, didn't notice a fishbone (vertebra) and swallowed it during meal, typical clinic of acute appendicitis was discovered during anamesis and examination. After ECG and examination by cardiologist, the patient was taken to surgery under local anaesthesia, as one month ago he had experienced myocardium infarction. After anaesthesia of mesentery root, during revision of stomach cavity, cupola of cecum was withdrawn. Serous sweat, present in small quantity, was dried off. On the cupola of cecum, 5–6 cm away from appendicular sprout, that was intact, was discovered an inflammatory wave in diameter of 2–3 cm with perforated whole in its center, from which sharp edge of fish vertebra projected. Removal and toilet was undertaken along with refreshment of inflammatory wave edges in cupola of cecum, unbroken purse-string suture was placed, then second row of stitches, and then peritonization. Closed layered stitches were placed upon the surgical wound (according to cut of Volkovich-Diakonov) up to the drainage. The patient was discharged on days 10–12 in satisfactory condition after removal of drainage from stomach cavity and skin stitches, control ECG and examination by therapeutist.

The two patients of the same young age, delivered with emergency indications were received with diagnosis of acute appendicitis. Typical clinical symptoms of acute appendicitis were obvious. During surgery of the first patinet via access of Mack-Burney under potentiated narcosis and local anaesthesia no inflammatory processes were found in appendicular sprout, but perforated whole of size 0,8x0,8 cm was found on lateral wall of cecum with a small outpouching. In the center of this «saccular» outpouching from the perforated whole was seen a sharpened edge of facal bolus, surgery of cecotomy with cutting off the «saccular» outpouching of mucous membrane was carried out, removal of fecal bolus sized 3–4 cm, round shape, was removed, stomach cavity drained. Stitches were placed on cecum wall according to the accepted rules of surgery. The patient was discharged on days 12–14 (after removal of skin stitches) to ambulatory observation by surgeon.

The third patient was a serviceman, he was also delivered by emergency carriage with a directed diagnosis acute appendicitis. Clinic of cute appendicitis was clear. In his anamnesis the patient denied the fact of swallowing dewing needle. The patient was operated under local anaesthesia with exponentiation. During revision of stomach cavity cupola of cecum was withdrawn, and from the perforated point was visible 1,5 cm of black sewing needing with «eye without a string». Around it insignificant hyperaemia was observed. It was impossible to palpate the shrap end of needle, therefore, soft clamp was used to grab the visible edge of the rusty needle and remove it completely from cecum cavity. In this case purse-string suture was placed around the inflamed point of injury, and above it – peritonization. The sprout was not removed in all three cases. As small amount of serous sweat was found in stomach cavity, drainage-microirrigator was left for introduction of antibiotics, layered stitches were placed on the wound of stomach wall and then removed on days 7-8, healing took place due to initial strain. The patient was provided with active immunization against tetanus, and he was discharged on days 9-10 to ambulatory treatment by surgeon. No signs of typhlitis or appendicitis were observed among these three patients, therefore, appendectomy was not undertaken.

Conclusion

Thus, three cases of practice in clinical observations with perforations of cecum that simulated acute appendicitis, present a certain practical interest as alien objects of large intestine happen quite often and treatment tactic, according to other reports, is developed separately for each individual case.

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PREVENTIVE “BEFORE AND AFTER” SURGICAL TREATMENT OF AORTIC ANEURYSMS AND PERIPHERAL ARTERIES. LITERATURE REVIEW

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Abstract

The article provides an overview of the literature data containing information about aortic and peripheral artery aneurysms. The emphasis is shifted towards preventive measures carried out in the provision of medical care to such patients. Preventive measures are considered «before» and «after» operational intervention. This division was made not from the standpoint of comparative analysis, but in order to determine the congruence significance of these concepts.

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Keywords
prophylaxis, aneurysm, peripheral arteries, endovascular treatment of aneurysms, hybrid techniques, aortic prosthesis, review.

Перифериялық артериялар жане қолқа аневримасын хиругиялық жолмен емдеуге «дейінгі» және «одан кейінгі» алдын алу. Әдеби шолу.

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Аңдатпа

Мақалада перифериялық артериялар жане қолқа аневримасы туралы ақпараттан әдеби шолу келтіріледі. Осындай науқастарға медициналық көмек көрсету кезінде алдын-алу шараларына баса назар аударылады.

Алдын-алу шаралары ота жасауға «дейінгі» және «одан кейінгі» ұстанымы бойынша қарастырылады. Осылай бөлу салыстырмалы талдау ұстанымы ушін емес, бұл ұғымдардың конгурентті маңыздылығын алдын-алу анықтау мақсатында өндірілді.

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Түйін сөздер
алдын-алу, аневризма, перефериялық артериялар, аневризманы эндоваскулярлы емдеу, гибридті әдіс, аортыны протездеу, шолу.

Превентивность «до и после» хирургического лечения аневризм аорты и периферических артерий. Обзор литературы.

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Аннотация

В статье приводится обзор литературных данных, содержащих информацию об аневризмах аорты и периферических артерий. Акцент смещен в сторону профилактических мероприятий, проводимых при оказании медицинской помощи таким пациентам. Превентивные меры рассматриваются с позиций «до» оперативного вмешательства и «после» него. Такое разделение было произведено не с позиций сравнительного анализа, а с целью предопределения конгруэнтной значимости этих понятий.

ОБ АВТОРАХ

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Ключевые слова
профилактика, аневризма, периферические артерии, эндоваскулярное лечение аневризм, гибридные методики, протезирование аорты, обзор.

Aneurysms of the aorta and peripheral arteries are a common variant of the pathology of the cardiovascular system. According to the World Health Organization, cardiovascular diseases (CVD) are the leading causes of death worldwide (mortality is 17.7 million people per year). The main causes of CVD are atherosclerosis and chronic inflammation of the vascular wall. It is with these causes associated with the development of another common vascular disease - an aneurysm. According to statistical data of foreign authors, aneurysms of the abdominal aorta (AAA) affect from 2 to 8% of older people [1].

Publications of Russian scientists show that AAA occurs in 0.6-3.5% of deceased people in a sectional study and is 5-10 times more common in men than in women. After anemia diagnosis of an aneurysm, mortality occurs within 1-2 years in 50-60% of cases. A dangerous complication is the stratification of AAA, which occurs during autopsy of 0.1-2.2% of deaths [2].

Aneurysms of the popliteal artery (an increase in popliteal artery more than 50% of the original diameter) constitute the most common form of aneurysm of the peripheral vascular system with a control of 70-80%. In 50% of cases, the condition is bilateral, and up to 50% of cases can occur in connection with aneurysms of other large vessels (for example, the abdominal aorta) [3].

Aneurysms of the aorta and peripheral vessels are high, clinical prevention of aneurysms is difficult, since the disease often occurs asymptomatically and remains untreated before the vessel ruptures. At break, the total mortality is from 80% to 90% [1].

As the landscape of medical imaging and diagnosis changed dramatically with the discovery of X-rays by German physicist Wilhelm Conrad Roentgen in 1895, there was a constant search for better resolution and contrast images [4]. However, the results of the early day of an aneurysm are not reassuring, early detection is at a low level, and massive preventive measures, a refusal to prevent the development of aneurysms, do not have proper attention.

In addition, there remains a need to develop new therapeutic strategies to prevent the progression of aneurysms. Even with the timely and qualitatively performed emergency resection of the aneurysm of the abdominal aorta, the results remain unsatisfactory, which is associated with severe postoperative complications detected at a minimum in every second patient. All this determines the relevance of the ongoing research.

Already for almost seventy years, open surgical techniques are the main option for surgical intervention on the aorta. In comparison, the advantages and disadvantages of open and endovascular methods are many adherents of this or that method. Now, however, increasingly in their debate, supporters prefer to come to interact, and offer hybrid techniques, all the more so that the common efforts are aimed at preserving the life and health of the patient. Hybrid techniques allow for reintervent intervention, if necessary. It was established that it is possible to reduce the incidence of complications and postoperative mortality in the provision of medical care in specialized vascular centers [5].

The indication for the transition to open surgery is an aneurysm of type I, type III, endolac type II and endotonium. The transition from endovascular technique to open surgery is often unpredictable [6]. The radical method of open surgery is resection of an aneurysm and replacement of a defect with an allograft [7].

American researchers from Texas conduct a comparative analysis of endovascular interventions and open surgery, the average loss of blood is 500 ml (300-700 ml) in the absence of pre-operative risk factors and 30-day mortality. In patients who underwent open interventions, the average blood loss was 800 ml (600-1200 ml), and they acquired the ability to move independently 4 days on average throughout the cohort (2-7 days), whereas for endovascular operations, these on average 2 days (1-3 days). During endovascular surgery of the postoperative period, it is more favorable than in patients undergoing open surgery [8-10].

It was revealed that the operation has more prognostically favorable characteristics. Furthermore, the volume rate with a surgical procedure scheduled endovascular technique can be limited, allowing to avoid open surgery [11].

In acute dissecting aortic aneurysm syndrome its transformation «shaggy aorta» and posttraumatic false aneurysm can be «frozen elephant trunk» with implantation of hybrid stent-graft «E-vita open plus» [12].

In addition, endovascular treatment can be applied in the treatment of aneurysms of the carotid artery bifurcation aneurysms, which often occur at a younger age. It is proved that this method of treatment is safe and acceptable [13-15].

However, percutaneous femoral vascular access is most often used in endovascular aortic surgery. If the patient has a calcified femoral artery, an operation is performed with open access or through the upper limbs (axillary artery) along the catheter-conductor. At the same time, many anatomical limitations arising from transfemoral access are overcome [9, 16]. In addition, access to the upper extremities significantly reduces the risk of stroke [16, 17].

Traditionally, when performing operations on the peripheral arteries of the lower limbs, open op-

tions of intervention are used [18, 19]. However, endovascular surgical techniques have become very popular with surgeons and patients, since modern stent designs have been used to replace those vessels that undergo physiological conditions of constant flexion-extensor deformation [18, 20].

Thus, surgical intervention on aneurysmally dilated vessels should be performed using preoperative diagnostic training, including instrumental examination, to determine the extent of intervention, access, stratification of operational risk.

Continuous postoperative observation is recommended after all types of aneurysm interventions. Although its goal is to prevent and / or identify early complications. In endoscopic interventions, the early postoperative period proceeds more safely [21].

Among all isolated early postoperative complications (death, dialysis) and late (myocardial ischemia, respiratory insufficiency, acute renal damage, chylothorax, disturbance of the spinal cord, neurological complications, hemorrhagic anemia, ischemic colitis left half of the colon, and others.). Severity of complications and their combination predetermine postoperative intensive therapy and length of stay of the patient in a hospital [2, 22-24].

Different outcomes of surgical intervention are mortality, repeated hospitalization, complications and others [25]. Stratification of postoperative risk should be carried out before the operation, and, taking into account the personified information about the variant anatomy of the vessels of a particular patient [26].

In the case of inflammatory etiology of aneurysms, including immune aneurysms [27, 28], giant cell arteritis associated with a permanent inflammatory syndrome of the entire aorta and brachiocephalic arteries can be a postoperative complication [29].

According to the literature, the 30-day mortality rate ranges from 8.5% to 30%, and mortality after 3 months after surgery - 44%. On mortality affects AAA rupture, preoperative shock, intraoperative cardiopulmonary resuscitation (CPR), the use of balloon occlusion of the aorta, intraoperative massive blood transfusion, the development of abdominal compartment syndrome, aortokovalnye fistulas, and other peripheral artery disease. However, the anamnestic information about the previous operation is related to favorable prognostic signs. Mortality in the performance of open operations is comparable to that of endovascular techniques [30-32].

Domestic scientists have developed a special evaluation scale of risk of exfoliating aortic aneurysm. This scale allows, at the pre-hospital stage, to help patients identify those clinical factors and symptoms that can lead to the disease [33].

The prevalence of spinal cord ischemia followed by paraplegia after endovascular surgery in the thoracic aorta and thoraco-abdominal segment is estimated at 2.5% and 8%. On average, paraplegia is detected in 4.2% of patients undergoing surgery for aneurysms. It is believed that the age, sex, urgency of the operation are independent risk factors for 30-day mortality [34].

Complications that occur in the area of access to vessels during endovascular interventions arise in 5% - 16% of cases [16]. It is known that the configuration of the stent does not lead to postoperative complications [35].

Preventative and preventive medical care for patients with aortic aneurysms that are susceptible to surgical treatment is based on the timely detection and prevention of complications and / or adverse consequences after surgery.

It has been established that the sex of the patient exerts a protective effect on the development of aneurysms. Thus, women are less prone to developing aneurysms due to the anti-inflammatory effect of estrogen. However, to ensure this effect, the presence of both ovaries and extragonadal / peripheral aromatase is necessary, which explains the increase in the frequency of aneurysms among age-related women [36].

The most susceptible to the development of aneurysms are men aged 65-75 years. Prophylactic prevention of aneurysm development in all patients, but especially in this group of patients, should be aimed at identifying additional risk factors: smoking, carotid artery disease or other peripheral vessels, overweight, hypertension and others [37].

In 2014, due to preventive services of the target group (AAA screening), the death rate of patients suffering from this disease has almost halved. Despite the simplicity of the study, studies show that there is poor adherence to the AAA screening guidelines [38]. This can strengthen and improve compliance with screening programs by creating an electronic medical system, in particular electronic medical records.

The increased use of AAA screening will lead to a significant increase in life expectancy. Expansion of screening also has potential for patients with aneurysms [40-44]. In an integrated health care system, using electronic medical records, screening can not be realized with a sharp reduction in patients [43].

A genetic risk factor for an aneurysm is the mutations in the genes TGFBR1 and TGFBR2, which were found in families, guardian members by one of the types of aneurysms: intracranial, abdominal or thoracic aorta [45]. Genetic analysis of family and sporadic cases of aortic aneurysm and its dissection, possibly, to aneurysm mortality due to early, preclinical diagnosis of genetically determined diseases among patients and their family members. All

this stimulates the adoption of new, more justified management decisions [46].

The risk of neurologic impairment in patients with distally located aneurysms of cerebral vessels is quite high [47]. To prevent some neurological disorders, for example, when performing operations on cerebral vessels, solutions of magnesium sulfate for irrigation of the wound [48]. You can also use auxiliary tools, for example NeuroForm Atlas Stent [49]. It is also justified to use selective drainage of cerebrospinal fluid in patients with high postoperative risk. It is necessary to avoid perioperative hypotension and treat when necessary. The use of moderate hypothermia is promising in small groups, but requires further evaluation [50].

The ultimate goal of preventive treatment is to improve the number of years of life with a high level of satisfaction with life. It was revealed that the satisfaction of life in the recovery period after the treatment of unexploded aneurysms. Number of fans, about one patient. These effects should be considered when considering an aneurysm [51].

[52, 53]. Correctly and correctly planned algorithm of medical care with aneurysms, associated not only with the well-being of patients, but also with economic benefits for health [52, 53].

Perioperative prophylaxis of radiation load on the patient with endovascular operations on the aorta and peripheral femoral artery can be performed using modern technologies. And then the principle «as low as reasonably achievable» should act. This is especially important, since a decrease in radiation load predetermines the prospects, volume and complexity of endovascular and hybrid operations [54, 55].

Thus, high statistical rates of aneurysm prevalence among the population, surgical options and stratification of postoperative treatment require close attention in providing medical and preventive care to this group of patients. Preventive measures can be divided into subgroups «before surgery» and «after surgery.» The first group of measures aimed at preventing complications of an aneurysm, including a close clinical study aimed at identifying the risk of developing an aneurysm. Genetic history, bad habits, gender identity, the presence of concomitant diseases, etc. D. D. The second group of preventive measures aimed at alleviating perioperative complications.

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LAPAROSCOPIC NEPHROPEXY FOR SYMPTOMATIC NEPHROPTOSIS: FIRST EXPERIENCE. CASE REPORT

МРНТИ 76.29.36

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Abstract

Laparoscopic nephropexy for symptomatic nephroptosis in 28 year old female with recurrent urinary tract infection and flank pain. Postoperative 6 months follow with no signs of recurrent infection or pain.

Keywords
nephroptosis, laparoscopy, nephropexy.

Симптоматикалық нефроптоз бойынша жасалған лапароскопиялық нефропексияның алғашқы тәжирибесі

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Аңдатпа

Бел ауруы және рецидивті несеп жолдарының инфекциясы бар 28 жасар науқасқа симптоматикалық нефроптоз бойынша жасалынған лапароскопиялық нефропексиядан кейінгі 6 айлық бақылауда бел ауруы немесе инфекция белгілері табылмады.

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Первый опыт проведения лапароскопической нефропексии при симптоматическом нефроптозе

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Аннотация

Лапароскопическая нефропексия при симптоматическом нефроптозе у пациентки 28 лет с рецидивной инфекцией мочевых путей и болевым синдромом в пояснице. Наблюдение в послеоперационном периоде в течение 6 месяцев без признаков рецидива инфекции или болевого синдрома.

Ключевые слова
нефроптоз, лапароскопия, нефропексия.

Introduction

Nephroptosis, also known as a floating kidney and renal ptosis, is a condition in which the kidney descends more than 2 vertebral bodies (or >5 cm) during a position change from supine to upright. The condition is often treated with nephropexy, a surgical procedure that secures the floating kidney to the retroperitoneum [1].

The mobile kidney was first described in the literature by Franciscus de Pedemontanus in the 13th century. Throughout the years, the condition was often left untreated. In 1864, Dietl first characterized the symptoms of acute nephroptosis as episodes of acute abdominal pain and vomiting when the patient was upright. [2,3] Throughout the 1870s, nephrectomy was used as a treatment option, but it was soon abandoned owing to its excessive morbidity. In 1881, Hahn in Berlin described the first nephropexy in which he affixed the ptotic kidney to the retroperitoneum via the perirenal fat using a lumbar incision. [4] In 1882, Bassini began using fascial sutures through the renal capsule to affix the ptotic kidney to the retroperitoneum–a procedure that is still in use today. [3]

Fig.1
In prone position right kidney at the level of L1-L3.

Fig. 2.
Patient in upright position and the kidney is at the level of L3-S1

The term nephroptosis was first coined by Glenard in 1885. Since then, more than 170 various treatments have been developed for the condition. [5] Following the developments of anesthesia and antisepsis in the late 19th century, enthusiasm for renal surgery drastically increased; at the end of the 19th century, nephropexy was the most common treatment used to manage nephroptosis by urologists. Many symptoms, including renal pain, lower urinary tract infections, weight loss, gastrointestinal tract issues, anxiety, palpations, and even hysteria were attributed to nephroptosis. [5] However, because of the inconsistency of diagnosis and symptoms, nephroptosis fell out of favor as an accepted medical diagnosis.

Nephroptosis is a fairly rare condition, and the number of radiological diagnoses exceeds the number of patients with symptoms attributable to the condition. Many studies have estimated that nearly 20% of women have nephroptosis revealed by routine intravenous urography, but far fewer (10%-20%) actually present with symptoms attributable to the condition. [6]

Symptomatic nephroptosis is more common in females, with a female-to-male ratio of 5-10:1. In addition, it is more common on the right side (70% of cases).

Of interest, nearly 64% of patients with fibromuscular dysplasia of the renal artery also have ipsilateral nephroptosis. [3]

Case presentation

28 years-old woman was admitted to the hospital with flank, during the physical activity, and recurrent pyelonephritis. Previously she was prescribed antimicrobials with temporary remission. She also underwent several times double J stents placement with the recurrence of symptoms after the removal of stent-catheter. On intravenous pyelography right kidney on prone position it was at the level of L1 - L3 (Fig. 1), but in upright position it was at the level of L3 - S1 (Fig. 2).

She underwent laparoscopic nephropexy of the right kidney in our department. Patient was on lateral decubitus position.

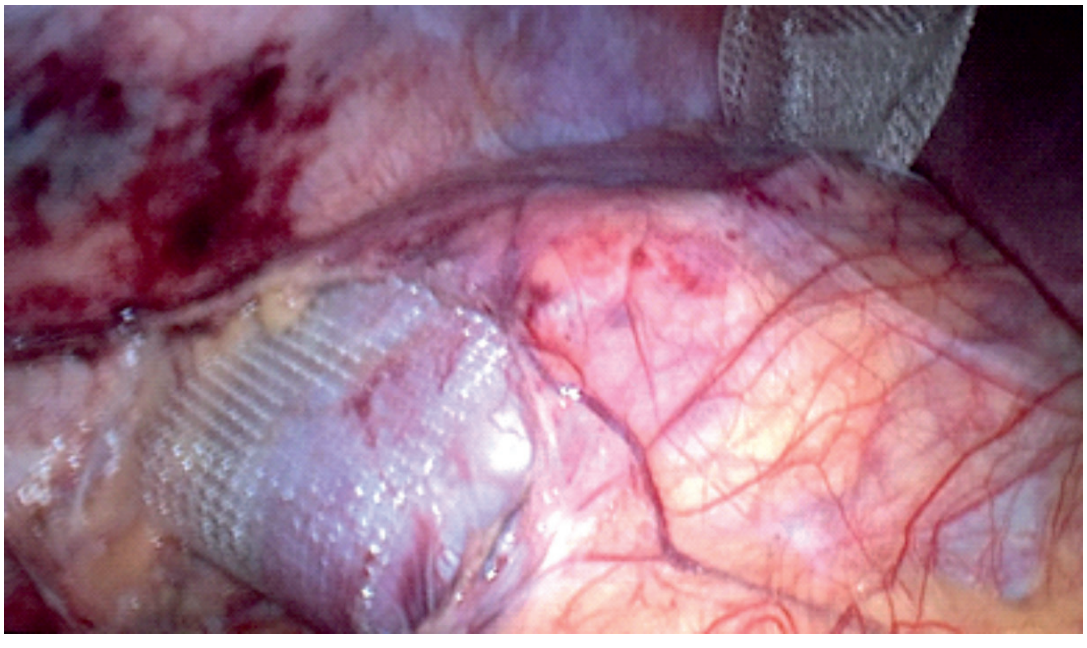

Fig. 3
Biomesh sutured to the lower pole and extended to the upper pole by posteriorly

Port placement: camera troacar (10mm) was placed in paraumbilical area, working troacars (2 – 5 mm) were placed on midclavicular line subcostally and on iliac area on the right, respectively. One additional troacar (5mm) was placed on midclavicular line subcostally on the left to abduct the liver. Peritoneum and Gerota's fascia were transected in the areas of lower and upper poles of right kidney. Kidney was dissected on it's lateral and posterior aspects subfascially. Then 3 cm wide and 10 cm long biomesh was sutured to the lower pole of kidney (Fig. 3) and traversed by posterior aspect of kidney to the upper pole. The proximal end of biomesh was sutured to the triangular ligament of liver and to the abdominal wall laterally.

Postoperatively patient was on bed regimen for up to 10 days. She was discharged on 11th postoperative day. She was on follow-up up to 6 months and within this period no recurrent flank or infection occurred. On control check-up intravenous pyelography repeated to the patient and the right kidney was at the level of L1 - L3 (Fig. 4).

Fig. 4
Three month after the surgery. In upright position, kidney is in normal level

Conclusion

Nephroptosis occurs in many young female patients due to multiple parturitions or quick weight loss, but in rare cases it causes such symptoms as pain or infection. But in case of treatment we consider laparoscopic nephropexy as safe, effective and minimal invasive surgical option.

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МРНТИ 76.29.41

WAYS OF IMPROVING THE MICROSURGICAL TECHNIQUE OF TREATMENT WITH LONG-TERM CONSEQUENCES INJURIES OF FLEXOR TENDONS OF THE HAND

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Abstract

The peculiarities of surgical technique are presented, the analysis of treatment of patients with long-term consequences injuries of flexors tendons hand. The results were monitored within 3 months. The above procedure is a relatively simple, highly effective method of surgical treatment, which allows for a complete restoration of the function of the hand.

Keywords
trauma, wrist, flexor tendon, plastic, implant.

Қол саусақтарының бүккіш сіңірлерінің жарақаттан кейінгі салдарының микрохирургиялық емінің тәсілін жетілдіру жолдары

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Аңдатпа

Саусақ бүккіштерінің жарақаттан кейінгі салдарын силиконды имплантат және алдын алу анастомозы арқылы хирургиялық жолмен қайта қалпына келтіру тәсілін жетілдіру жолдары және хирургиялық ем-шаралардың ерекшеліктері сипатталған, науқастардың отадан 3 айдан кейінгі емдеу нәтижелері талқыланған. Сиатталған оталық ем-шарасы саусақ сіңірлерін қайта қалпына келтіру жолындағы қолдануға қолайлы және тиімді әдістердің бірі болып табылады.

Түйін сөздер
жарақат, бүккіш сіңірлер, пластика, имплантат.

Пути усовершенствования микрохирургической методики лечения при отдаленных последствиях травм кисти

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Аннотация

Усовершенствован способ лечения повреждений сухожилий сгибателей пальцев кисти с использованием силиконового имплантата и наложения проксимального превентивного анастомоза.

Представлены особенности хирургической техники, проведен анализ лечения больных с отдаленными последствиями травм сухожилий сгибателей кисти. Контроль результатов проведен в сроки до 3 месяцев. Вышеуказанная методика является относительно простым, высокоэффективным методом хирургического лечения, которая позволяет обеспечить полное восстановление функции кисти.

Ключевые слова
травма, кисть, сухожилия сгибателей, пластика, имплантат.

Introduction

Damage to flexor tendons ranges from 1.9 to 18.8% of all brush injuries [1]. Of these, 32% are injuries to the flexor tendons of the fingers flexor [2].

Positive outcomes of operations with long-term consequences of traumatic damage of tendons of flexor flexors do not exceed 25-30% and in 12.1% of cases, the use of autoplastic material is required [3,4]. At the same time, the unsatisfactory functional results of these operations range from 7 to 30%. The main reason, according to the majority of authors, is the formation of adhesions of tendons with surrounding tissues in the I, II anatomical zones of the hand and development of cicatricial changes of the osteo-fibrous canal [5]

The aim of study

To improve the result of treatment of patients with posttraumatic defect of flexor tendons of the fingers flexors in the critical zone, by endoprosthetics of the tendon channel of the fingers and the formation of preventive proximal autosoonal anastomosis.

Materials and methods

On the basis of the NSCS A.N. Syzganov, in the department of reconstructive-plastic microsurgery the technique of two-stage plastic surgery for surgical treatment was improved, with the long-term consequences of injuries to the tendons of the finger flexors with the long-term consequences of brush injuries.

Indication for the operation of flexor tendon plastic surgery is the presence of diastasis between the tendons, the formation of tendon ligaments with the surrounding tissues in the I, II anatomical zones of the wrist and the development of cicatricial changes in the osteo-fibrous channel of the fingers. Contraindication to plastic surgery of the tendon should be considered the presence of patients with skin diseases and purulent infection in the zone of the forthcoming operation due to the possibility of rejection of the prosthesis and development of purulent complications.

Taking into account that, with the classical technique of secondary tendon plasty, with the implantation of a silicone implant in the osteo-fibrous canal, tendon grafts detachments are found in 15.6%, in the first 2-3 weeks, swelling of the ends on the primary tendon joints, which contributes to its reduction strength [6,7,8]. At the first stage, we preferred to use preventive proximal anastomosis between the tendons of the superficial and deep flexors with primary prosthetics of the osteo-fibrous canal (Figure 1). The second stage after 2-3 months of "autoplasty": after removal of the endoprosthesis, the tendon of the superficial flexor of the finger is excised, respectively, in diastase, with the formation of the tendon canal in the proper formation and filing of the latter to the distal end of the tendon or to the nail phalanx

Preventive proximal anastomosis between tendons of superficial and deep flexors with prosthetics of the osteo-fibrous canal.

Clinical case

The patient S. 41 years old, entered the clinic of the NNTSH them. A.N. Syzganova in the department of plastic and reconstructive microsurgery with the diagnosis: The long-term consequences of traumatic damage of flexor tendons of the IV fingers of the right hand.

Complaints on admission to infringement of flexion movements of the fourth finger of the right hand.

At admission, the general condition is on admission of moderate severity. Skin and visible mucous membranes of normal color, clean. Peripheral lymph nodes are not enlarged. Patient normostenic constitution, moderate nutrition. In the lungs, the breath is vesicular, there is no wheezing. Heart tones are clear, the rhythm is the right pulse 89

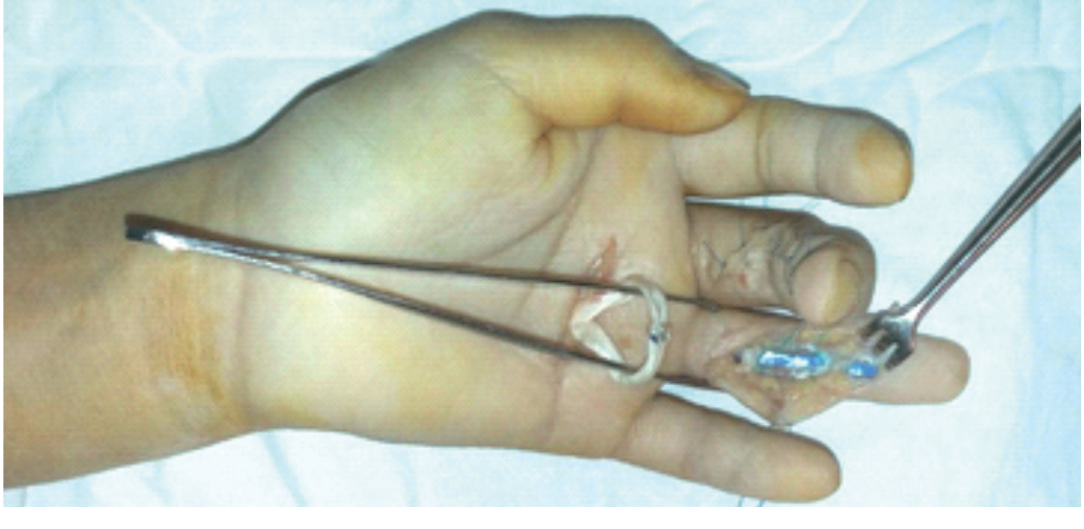

Fig. 1

beats. in minutes, AD = 120/70 mm Hg. Tongue moist, clean. The abdomen is soft, painless. The liver and spleen are not enlarged. Physiological functions are not violated.

Locally: III, IV fingers of the right hand in the extension position. On the palmar surface at the level of middle phalanxes III, IV fingers there are oblique transverse scars on the width of the phalanges, which are welded to the underlying tissues. Active flexion of the third, fourth fingers of the right hand is absent.

After the patient's consent, the operation was performed in the first stage - prosthetics of the osteo-fibrous canal, preventive proximal anastomosis of the tendons of the superficial and deep flexors of the fourth finger of the right hand.

The protocol of the operation: Conduction anesthesia. The position of the patient on his back. Treatment of the right upper limb with Povidone 3-D solution. III, IV fingers of the right hand in the extension position. On the palmar surface at the level of the middle phalanx of III, IV fingers, there are oblique transverse scars on the width of the phalanx, soldered to the underlying tissues, Z is the image of the skin exposed to the tissue. When the audit revealed: pronounced cicatrical and adhesive process, complete anatomical break of tendons of flexors III, IV fingers. The diastase between the ends of the tendons was 8 cm. Under 2.5x magnification: preventive proximal anastomosis was applied between the sinews of the superficial and deep flexors with primary prosthesis of the fibular canal IV of the right hand. Hemostasis during the operation. Stitches on the wound, drainages, aseptic bandage.

In the postoperative period the patient received antibacterial anti-inflammatory therapy. Postoperative wound healed by primary tension. It is discharged in a satisfactory condition with recommendations.

The patient was examined 2 months after the first operation.

"Autoplasty" is performed: after removal of the endoprosthesis, the tendon of the superficial flexor of the finger is excised correspondingly to diastase, with the formation in the properly formed tendon duct and filing of the latter to the distal end of the tendon. The length of the tendon graft was determined in the same way as for the primary tendon plasty.

The operation resulted in the application of a back gypsum longus to the injured limb, in the position of flexion of the fingers, in which there is no tension of the tendon joints. The period of immobilization was 3 weeks with the subsequent functional rehabilitation of the patient.

Results

The results of treatment according to the method of evaluation of the restoration of the function of the fingers after repair operations on the tendons after 2-3 months by the method of J.N. Boyes - an average of 1 inch - well, according to the method of VI. Rozova - 4 points.

The parameters of restoration of the function of the fingers of the hand after the application of the developed method were mostly excellent (75%) and good (25%), which indicates the expediency of its application and the continuation of a detailed study of this technique in the treatment of patients with damage to the flexor tendons of the fingers.

Conclusion

Advantage of the method is the technical prostate, which can be proposed for wide use for the surgical treatment of patients with long-term consequences of flexor tendon injuries. The main advantage of the method is: the formation of anastomosis of superficial and deep flexors at the level of the proximal end of the tendons. So, as a preventive stitching of tendons by the developed method helps to improve the slip of the restored tendon in the osteo-fibrous canal (in the I, II anatomical zones of the hand), and the formation of adhesions.

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RETROGRADE ENDOSCOPIC TREATMENT OF MECHANICAL JAUNDICE SYNDROME

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Abstract

Despite the development of medical technologies, the elaboration of international clinical guidelines and the improvement of surgical technique for biliary tree, the management of mechanical jaundice is still relevant. The causes of this syndrome are bile duct and gallbladder stones, tumor compression and strictures of the biliary tract, developed as a result of surgery (cholecystectomy, liver transplantation) and radiation therapy. Unrelieved compression of the biliary system leads to severe disruption of coagulation system and internal organs which can quickly lead to mortality. This article reflects the analysis of the results of treatment of jaundice.

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Keywords
ERCP, PTBD, SEMS, common bile duct, endoprothesis, mechanical jaundice.

Механикалық сарғаю синдромындағы эндоскопиялық ретроградты емдік шаралар

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Аңдатпа

Медицина технологиясының дамуы, халықаралық клиникалық нұсқаулардың дамытуына және хирургиялық оталарды жетілдіруіне қарамастан, механикалық сарғаю синдромының клиникалық менеджменті әлі актуальді болып саналады. Бұл синдромның негізгі себептері өт жолдарының кез-келген механикалық әсерден (тас, оталардан кейінгі тыртықтар, обыр әсерінен қысылу) түзілген кедергі болып табылады. Емделмеген механикалалық сарғаю ауыр коагулопатияға және ішкі ағзалардың жеткілісіздігіне әкеліп, тез арада науқастарды өлімге әкеліп соқтырады. Бұл мақалада механикалық сарғаю синдромындағы емінің нәтижелері көрсетілген.

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Ретроградное эндоскопическое лечение при синдроме механической желтухи

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Аннотация

Несмотря на развитие медицинских технологий, разработки международных клинических руководств и совершенствование хирургических вмешательств на билиарную систему, проблема лечения синдрома механической желтухи остается актуальной. Причинами данного синдрома являются камни желчных протоков и желчного пузыря, опухолевые сдавления и рубцовые стриктуры желчных путей, развившиеся в результате хирургических вмешательств (холецистэктомия, трансплантация печени) и лучевой терапии. Неразрешенная обтурация желчных протоков приводит к выраженной коагулопатии и полиорганной недостаточности, и без оказания своевременной медицинской помощи приводит больных к смерти в краткие сроки. В данной статье отражен анализ результатов лечения при синдроме механической желтухи.

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Ключевые слова
РХПГ, ЧЧХС, СРМС, общий желчный проток, эндопротез, механическая желтуха.

Introduction

The mechanical jaundice is one of the leading diseases in surgical and oncological practice. The causes of this syndrome may be caused by benign etiology (bile duct stones, stricture of the biliary tract), and malignant etiology (tumor of pancreato-biliary system). Unresolved obstruction of the bile duct leads to severe disorders of the hepatorenal system and hepatic encephalopathy. Without providing treatment in time, the patient's death occurs in the short time.

At the same time, the frequency of development of mechanical jaundice according to different authors is from 12,0 to 45,2%. And with benign diseases this level varies from 4,8 to 22,5%, and for malignant lesions - from 36,6 to 47,0%.

Objective. Analysis of the outcome of endoscopic retrograde intervention of patients with mechanical jaundice.

Material and methods

In the Department of Endoscopy and Functional Diagnostics of the NSCS named after A.N. Syzganov for the period from 2014-2018, retrograde interventions were performed in 809 patients with jaundice of different etiology. Women were 688 (85%), men 134 (15%). The age of patients was from 18 to 75 years, more than 60% of patients were over 60 years old. Benign genesis: 512 (63,3%) patients, while jauindice associated with choledocholithiasis - 196 (24,2%) patients and postcholecystectomy syndrome with choledocholithiasis was in 191 (23,6%) patients. At the same time, in 146 (76,4%) patients the size of stones was more than 1.0 cm. Benign strictures of common bile duct (CBD) after previously operations were 44 (5,4%) patients. Among which, anastomotic strictures of CBD after liver transplantation were in 17 (38,6%) patients, and high strictures after cholecystectomy in 27 (62,4%) patients. The stricture of the terminal part of CBD was in 79 (9,8%) patients. Malignant etiology was present in 297 (36,7%) patients. Of these, 67 (22,5%) have a proximal block and 230 (77,5%) have a distal tumor block.

Endoscopic treatment of obstruction of the biliary tract depended on the genesis of jaundice. Out of 397 patients with choledocholithiasis, 376 (97,2%) patients underwent EST with stone extraction and in the case of technical difficulties associated with extraction of large stones from CBD, 11 (2,8%) patients underwent temporary plastic stent placement to resolve jaundice. Later, the patients went for surgery. In cases of detection of benign strictures of the terminal part of CBD, EST was performed by all 79 (100%) patients, and to 15 (19%) patients was supplemented by stenting of the CBD in the long strictures. With benign anastomotic strictures of CBD after liver transplantation, 15 (88,2%) patients underwent stenting of the bile duct with plastic stents. Of these, 7 (41,2%) patients underwent stenting in several time every 3 months. 2 (11,8%) patients underwent percutaneous external bile withdrawal.

In 27 (100%) patients with proximal benign strictures, endoprothesis of the biliary tract with plastic stents was performed to 22 (81,5%) patients. 5 (18,5%) patients underwent an open reconstruction surgery of bile dict.

297 (36,7%) patients has a proximal and distal blocks due to tumor growth. To 213 (71,7%) plastic and SEMS 84 (28,3%) were placed. In proximal block (Klatskin tumor, lymph node shrinkage of the lymph nodes or HCC), 67 (82%) stenting were performed in 67 patients, of which 4 (6%) patients underwent bilateral endoprothesis. Technical success was 82%. The remaining 12 (18%) patients underwent PTBD. Of 230 (28,4%) patients with distal block: 184 (80%) patients had pancreatic head formation and 46 (20%) jaundice patients were caused by tumor of main papillae. At the same time, endoprosthesis of CBD to 225 (75,7%) patients with distal block had succeeded in, thus the technical success was 97,8%. In some cases, a combined method (antegrade and retrograde methods) of drainage was performed. In cases of development of cholangitis, patients primarily performed external decompression of infected bile. After the inflammatory subsided, the second stage of the patient was carried out the final retrograde stenting of the CBD for palliative purposes.

Results and their discussions

The complications in the early postoperative period: bleeding - 29 (3,6%) patients, post-catheterization pancreatitis - 38 (4,7%) patients, cholangitis - 13 (1,6%) patients, stent disposition - 70 (8,6 %) patients. Bleeding was noted from the zone of the main duodenal papilla after EST. The dislocation of stents in the early periods (up to 2 weeks) often occurred when using plastic prostheses. In these cases, we carried out the restenting. Cholangitis was resolved by additional external removal of the infected bile to the outside via an antegrade method, or through a nasobiliary stent. In the early postoperative period, 9 (1,1%) patients died. Death occurred as a result of cholangitis with the development of sepsis in 5 (0,6%) patients, of pancreonecrosis in 2 (0,2%) cases and 3 (0,4%) of the patient died due to hepatico-renal failure. It should be noted that all patients were taken to the operation with the initial severe condition due to the underlying disease and coagulopathy. In the late postoperative period, complications were observed such as:

cholangitis - 24 (2,9%) patients, migration or occlusion of stent - 32 (3,9%) patients. The bed-stay from 2 to 14 days, the average stay of the patient in the hospital was 3.8 days. The average term of functioning of plastic prosthesis ranged from 2 to 7 months. Therefore, plastic stents were used as a temporary treatment before radical surgical treatment. The most effective and long-term drainage of the bile ducts is provided by the metal nitinol stents. It showed a good results in the case of inoperable tumors of the biliopancreatoduodenal zone. SEMS patency is more than a year and a half years.

Conclusions

The effectiveness of retrograde decompression of the biliary tract reached almost 100% of all cases. When the lithoextraction of large stones was unsuccessful, we recommend installation of a plastic stent to reduce the jaundice. What it says, is that endoscopic methods should be the first line of treatment.

As our experience shows, the overwhelming number of patients with post-cholecystectomy syndrome, complicated by choledocholithiasis, the size of the stones was more than 1,0 cm. This circumstance may indicate that the stones in the CBD already presense before the cholecystectomy. In this connection, we recommend patients with stone of gallbladder to carry out advanced diagnostic measures, including MRI in M-RCP mode.

It should be noted that the choice of treatment and the method of drainage of the bile should be determined strictly according to the indications. If the patient has signs of a high block on the M-RCP, accompanied by the cholangitis, it is necessary to conduct an external tap of the infected bile as a first stage. After the inflammatory process subsides, a planning retrograde endoprosthesis should be performed. As we see, both decompression methods are complementary. Patients with mechanical jaundice require a multidisciplinary approach.

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УЧАСТИЕ НА ЕЖЕГОДНОМ КОНГРЕССЕ МЕЖДУНАРОДНОГО ОБЩЕСТВА ПО ТРАНСПЛАНТАЦИИ ПЕЧЕНИ (ILTS 2018), ЛИССАБОН, ПОРТУГАЛИЯ

Название мероприятия: ежегодный конгресс международного общества по трансплантации печени – International Liver Transplantation Society 2018 (ILTS 2018).

Дата, время и место проведения мероприятия: с 23 по 26 мая 2018 года в городе Лиссабон, Португалия. Конференция проходила в Лиссабонском конгресс-центре.

Цель поездки - обмен опытом и знаниями между лучшими центрами мира по трансплантации печени, обсуждение вопросов хирургических проблем трансплантации печени, определение перспектив развития трансплантации печени, что будет способствовать улучшению оказания высокотехнологичной медицинской помощи в Казахстане.

На конгрессе обсуждались актуальные вопросы по трансплантации печени: определение показаний и противопоказаний к трансплантации печени пациентов с колоректальными метастазами печени, оперативная техника и послеоперационное ведение реципиентов, влияние противовирусной терапии на рецидив опухолей печени, анализ проблем послеоперационных осложнений и другие.

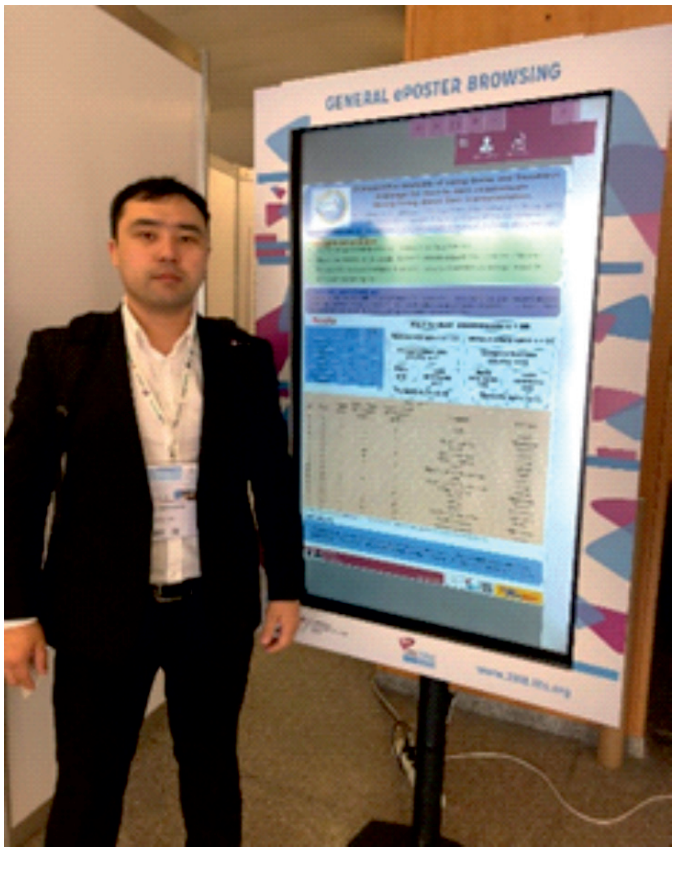
В работе конференции приняли участие более 700 человек из 15 стран (Англия, Германия, США, Норвегия, Россия, Украина, Испания, Южная Корея, Япония, Казахстан и другие).

Список участников из Казахстана:

Председатель правления АО «ННЦХ им. А.Н. Сызганова», д.м.н., профессор Баймаханов Б.Б., главный научный сотрудник отделения ГПБХиТП, MD, PhD Баймаханов Ж.Б., врач-хирург отделения ГПБХиТП, м.н.с. Скакбаев А.С.

На Конгрессе были доложены 3 постерных доклада на следующие темы:

1. Liver transplantation in Kazakhstan: single center experience of 100 cases;
2. The study of virological and immunologic factors of the progression of chronic viral hepatitis Delta in Kazakh population;
3. Comparative analysis of using frame and frameless biliary anastomosis during LDLT.



УЧАСТИЕ В МЕЖДУНАРОДНОЙ КОНФЕРЕНЦИИ ЕВРОПЕЙСКОГО ОБЩЕСТВА СЕРДЕЧНО-СОСУДИСТЫХ И ЭНДОВАСКУЛЯРНЫХ ХИРУРГОВ (EUROPEAN SOCIETY OF CARDIOVASCULAR AND ENDOVASCULAR SURGERY), СТРАСБУРГ, ФРАНЦИЯ

12-14 апреля 2018 года руководитель отдела менеджмента научной, инновационной деятельности и международного сотрудничества, д.м.н. Сагатов Инкар Ергалиевич принял участие в 67-ой международной конференции Европейского общества сердечно-сосудистых и эндоваскулярных хирургов (ESCVS), которая проходила в г. Страсбурге (Франция).

Сагатовым И.Е. сделаны 4 постерных докладов на следующие темы:

1. Sagatov I.Ye. Analysis of the probability of hospital lethality in cardiosurgical patients.
2. Sagatov I.Ye., Taimanuly O., Ualieva A.Ye., Ongarbayev K.O. The course of the early postoperational period in cardiosurgical patients with decreased ejection fraction of the left ventricle.
3. Sagatov I.Ye., Taimanuly O., Anartayev S.M. Analysis of reasons of the coronary arteries stent thrombosis in patients with acute coronary syndrome.
4. Kvashnin A.V., Sagatov I.Ye., Dosmailov N.S., Ongarbayev K.O., Koshkinbayev Zh.B., Imammyrzaev U.Ye. Preventive tricuspid annuloplasty in adults patients with septal heart defects.

Абстракты докладов опубликованы в Journal CardioVascular Surgery, имеющий импакт-фактор по базе Web of Science за 2017 год – 2,17.

УЧАСТИЕ В РАБОТЕ 4-ГО КОНГРЕССА АЗИАТСКО-ТИХООКЕАНСКОЙ ФЕДЕРАЦИИ ОБЩЕСТВА ПО РЕКОНСТРУКТИВНОЙ МИКРОХИРУРГИИ (APFSRM) И 8-ГО НАЦИОНАЛЬНОГО КОНГРЕССА ТУРЕЦКОГО ОБЩЕСТВА РЕКОНСТРУКТИВНОЙ МИКРОХИРУРГИИ (TSRM), АНТАЛИЯ, ТУРЦИЯ

В работе 4-го Конгресса Азиатско-Тихоокеанской федерации общества по реконструктивной микрохирургии (APFSRM) и 8-го Национального конгресса Турецкого общества реконструктивной микрохирургии (TSRM), которые проходили 9-13 мая 2018 года в г. Анталия (Турция), активное участие приняли сотрудники отделения реконструктивно-пластической микрохирургии ННЦХ им. А.Н. Сызганова Мухамедкерим Канат Базарбекулы с устным докладом на тему: «Tactical options for surgery of defects and deformations of the cover tissues of the hand», и младший научный сотрудник Казантаев Кымбат Ерикулы с постерным докладом на тему: «Minimally invasive approaches of flexor-tendon injuries of hand fingers in microsurgery».

ПРОФЕССОР
САДЫКОВ УМИРХАН САДЫКОВИЧ

27.04.2018г. после непродолжительной болезни на 66 году жизни скончался профессор КазНМУ Садыков У.С.

Садыков Умирхан Садыкович, родился 04.04.1952 году в Казалинском районе Кызылординской области.

В 1969 году поступил в Алматинский государственный медицинский институт, по специальности – «Лечебное дело», квалификация - врач. После окончания Алматинского государственного медицинского института прошел интернатуру в районной больнице Амангельдинского района Костанайской области (01.08.1975-01.08.1976г.).

В период с 10.11.1976 года по 24.07.1989 года работал врачом хирургом в хирургическом отделении ЦРБ Уйгурского района, Алматинской области.

С 26.07.1989 года принят в Алматинскую областную клиническую больницу на должность врача хирурга- эндоскописта в консультативную поликлинику в порядке служебного перевода.

С 28.06.1991г. по 17.06.1995г работал ассистентом кафедры общей хирургии Алматинского Государственного медицинского иститута, где защитил кандидатскую диссертацию.

С 28.06.1991г. по 17.06.1995г работал доцентом кафедры общей хирургии Алматинского Государственного медицинского иститута.

С 28.10.2005 года по настоящее время работал врачом эндоскопистом по совместительству в отделение УЭФД ГКП на ПХВ «Алматинская многопрофильная клиническая больница». В 2012 году присвоено звание профессора.

С 01.10.2012 года по настоящее время работал профессором кафедры общей хирургии РГП на ПХВ «Казахский Национальный медицинский университет им. С.Ж.Асфендиярова»

Имеет высшую квалификационную категорию по специальности хирургия.

Ответственность и сострадание умение принимать решения, стремление совершенствоваться в выбранной профессии пронес он через весь свой жизненный путь. Умирхан Садыкович органично сочетал практическую работу вместе с научной и педагогической деятельностью. Регулярно участвовал на заседаниях общества хирургов.

Большое внимание У.С.Садыков уделял воспитанию и повышению мастерства молодых хирургов, интернов и субординаторов.

На высоком уровне производил традиционные и эндоскопические вмешательства на органах брюшной полости.

За свой вклад в научное и практическое здравоохранение награжден многими грамотами, значками и медалями.

Светлая память о Умархан Садыковиче навсегда останется в сердцах коллег, многочисленных учеников и тысяч спасенных им пациентов.

**Редколлегия журнала «Вестник хирургии Казахстана»,
Казахстанское общество хирургов,
коллективы ННЦХ им.А.Н.Сызганова и
областной клинической больницы
выражают глубокие соболезнования родным и близким
Умархан Садыковича**

ТРЕБОВАНИЯ
ДЛЯ АВТОРОВ ЖУРНАЛА
«ВЕСТНИК ХИРУРГИИ КАЗАХСТАНА»

Уважаемые авторы!

С 1 апреля 2018 года все статьи на публикацию принимаются на государственном или русском языках с обязательным переводом всей статьи на английский язык. Статьи без версии на английском языке будут отклонены.

Также учитывая требования Консультативной Комиссией (CSAB) Scopus об интернационализации авторов и аудитории редколлегия журналов рекомендуют публиковать статьи в соавторстве с учеными дальнего и ближнего зарубежья.

В журнале публикуются научные статьи и заметки, экспресс-сообщения о результатах исследований в различных областях естественно-технических и общественных наук.

Решение о публикации принимается редакционной коллегией журнала после рецензирования, учитывая научную значимость и актуальность представленных материалов. Статьи, отклоненные редакционной коллегией, повторно не принимаются и не рассматриваются. Рукописи, оформленные не по правилам, возвращаются авторам без рассмотрения.

Рукопись направляется на отзыв члену редколлегии и одному из указанных рецензентов; в спорных случаях по усмотрению редколлегии привлекаются дополнительные рецензенты; на основании экспертных заключений редколлегия определяет дальнейшую судьбу рукописи: принятие к публикации в представленном виде, необходимость доработки или отклонение. В случае необходимости рукопись направляется авторам на доработку по замечаниям рецензентов и редакторов, после чего она повторно рецензируется, и редколлегия вновь решает вопрос о приемлемости рукописи для публикации. Переработанная рукопись должная быть возвращена в редакцию в течение месяца после получения авторами отзывов; в противном случае рукопись рассматривается как вновь поступившая. Рукопись, получившая недостаточно высокие оценки при рецензировании, отклоняется как не соответствующая уровню или профилю публикаций журнала.

Авторы несут ответственность за достоверность и значимость научных результатов и актуальность научного содержания работ. Не допускается **ПЛАГИАТ** – умышленно совершаемое физическим лицом незаконное использование чужого творческого труда, с доведением до других лиц ложных сведений о себе как о действительном авторе.

Редакция принимает на рассмотрение рукописи на казахском, русском и английском языках, присланные через официальный сайт журнала **www.vhk.kz.**

Материал статьи – текст, включая резюме на казахском, русском и английском языках, список литературы, рисунки, подписи к рисункам и таблицы, оформляется одним файлом; дополнительно каждый рисунок оформляется в виде отдельного файла. Если пересылаемый материал велик по объему, следует использовать программы для архивирования. Все страницы рукописи, в том числе таблицы, список литературы, рисунки и подписи к ним, следует пронумеровать.

Представленные для опубликования материалы должны удовлетворять следующим требованиям:

1. Содержать результаты оригинальных научных исследований по актуальным проблемам в области физики, математики, механики, информатики, биологии, медицины, геологии, химии, экологии, общественных и гуманитарных наук, ранее не опубликованные и не предназначенные к публикации в других изданиях. Статья сопровождается разрешением на опубликование от учреждения, в котором выполнено исследование.
2. Размер статьи 7-10 страниц (статьи обзорного характера – 15-20 стр.), включая аннотацию в начале статьи перед основным текстом, которая должна отражать цель работы, метод или методологию проведения работы, результаты работы, область применения результатов, выводы (**аннотация** не менее **20** предложений (150»300 слов) - (на английском языке) через 1 компьютерный интервал), таблицы, рисунки, список литературы (через 1 компьютерный интервал, размер шрифта – 14), напечатанных в редакторе Word, шрифтом Times New Roman, поля – верхнее и нижнее – 2 см, левое –3 см, правое –1,5 см. Количество рисунков – 5-10.

Структура должна соответствовать международной формуле IMRAD, где I – introduction (вступление), M – Methods (методы), R – Results (исследование), A – и, D – conclusion+ discussion (заключение, обсуждение результатов и выводы).

Название · Отображает суть работы · Краткое · Без аббревиатур.

Необходимо официально закрепить название организации на английском и сокращение

Резюме · Структурировано · Без аббревиатур · Передает структуру статьи – Зачем (актуальность) – Какими методами? – Что получено – Как это изменило картину знаний. Именно его читают в первую очередь, только хорошее резюме может привлечь внимание!

Вступление · Актуальность работы · Какая задача поставлена · Почему

Методы · Перечисление · Если известные - дать ссылку · Если модифицировали – указать как · Описывать так что б могли повторить · Статистика!

Результаты · Допускается не хронологическое, а логическое повествование · Основные, а не все что были сделаны ·

Иллюстрируются минимально необходимыми сводными данными (исходные могут быть в дополнительных материалах)

Обсуждения • Не повторять результаты • Сопоставить полученные данные с имеющимися • Обсудить возможные причины и следствия

Функции списка литературы: • Аргументировать идею • Сопоставить с существующими аналогами • Обозначить место данного исследования • Избежать плагиата • Для журнала и ученого = признание • Часто указаны только собственные работы или очень старые (самоцитирование допускается только 10-15% от общего списка литературы) • Кочующие ошибки

Различайте • Ссылки • Список литературы • Библиография

Что могут цитировать • Книги, (монографии, главы) • Статьи научных журналов • Материалы конференций • Патенты • Диссертации • Неопубликованные данные • СМИ • Веб ресурсы (протоколы, веб странички) Источник должен быть надежным и легко доступным.

Статья начинается на английском языке. В начале, посередине страницы, идет название статьи прописными жирными буквами, название статьи должно быть коротким и емким, согласно проведенного анализа около 30-40 символов на английском языке.

Далее на следующей строчке – инициалы и фамилии авторов обычным жирным шрифтом, затем на следующей строчке – название организации(ий), в которой выполнена работа, город, страна, затем на новой строчке – адреса E-mail авторов. С красной строки идут ключевые слова **(Key words),** а на новой строчке – сама аннотация (**Abstract** – не менее **150** и более **300 слов**).

Далее, после отбивки одной строки, начинается на русском языке. В начале статьи вверху слева следует указать индекс **УДК, МРНТИ.**

Затем, посередине страницы, пишется: 1) название статьи; 2) авторы; 3) название организации; с красной строки – **Ключевые слова,** затем – **Аннотация** (оформление шрифтов, как на английском языке).

Отбиваем одну строку и начинается сама **статья.** Следом за статьей идет список **Литературы.** Ссылки на литературные источники даются цифрами в прямых скобках по мере упоминания (не менее 20).

Для каждой статьи обязателен DOI (Digital Object Identifier) - это цифровой идентификатор документа. DOI выполняет функцию гиперссылки, которая всегда помогает найти нужный документ, даже если сайт, где он находился ранее, был впоследствии изменен. Благодаря этому индексу поиск научной информации в Интернете стал проще и эффективнее. Каждое издание, журнал размещает на своих веб-страницах в интернете, как текущие, так и архивные номера, и материалы. Таким образом, в открытом доступе можно увидеть резюме, которые включают в себя название статьи, фамилию, имя, отчество автора, аннотацию и ключевые слова, место выполнения работы, а также выходные данные опубликованных статей (название журнала, год издания, том, номер, страница).

Список литературы оформляется следующим образом:

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Статья в международном журнале:

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Статья в русскоязычном журнале, не имеющая англоязычной версии:

2. Ivanova TV, Samoilova NF (2009) Electrochemical Energetics [Elektrohimicheskaya energetika] 9:188-189. (In Russian)

Книги:

Timrat TA (2008) Soil pollution: origins, monitoring and remediation, second edition. Springer, Germany. ISBN: 978-3-540-70777-6

Материалы конференции:

Monin S.A. (2012) Treatment techniques of oil-contaminated soil and water aquifers. Proceedings of International Conference on Water Resources and Arid Environment, Riyadh, Saudi Arabia. P.123.

Патенты:

Barin AB, Mukamedzhan NT (2000) A method for determination of 1,1-dimethylhydrazine and nitrosodimethylamine [Metodopredeleniya 1,1-dimetilgidrazina initrosodimetilamina]. Preliminary Patent of the Republic of Kazakhstan [Predvaritelnyi patent Respubliki Kazakhstan]. (In Russian)

Стандарты, ГОСТы:

RMG 61-2003. Indexes of accuracy, precision, validity of the methods of quantitative chemical analysis, methods of evaluation [GSI.Pokazatelitochnosti, pravilnosti, retsizionnosti metodik kolichestvennogo himicheskogo analiza. Metodyiotsenki]. Moscow, Russia, 2003. (In Russian)

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