FEATURES OF RENDERING DENTAL CARE TO PATIENTS WITH MALIGNANCIES DURING CHEMOTHERAPY

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Abstract. Today in Ukraine, 800,000 people have oncologic diseases. According to the forecast by 2020, the number of those who first felt ill with cancer could reach 200,000 per year, and the total number of cancer patients will significantly exceed one million people. In Zaporozhe region 2012-2014, for every 100 thousand people, about 450 cases of manifestation of oncological diseases were registered annually. Chemotherapy is rapidly changing on the basis of protocols of evolution and quality improvement, and the introduction of new therapeutic approaches.

Dental treatment before, during and after anticancer chemotherapy requires specialist knowledge. The purpose of a dental examination before chemotherapy is to determine an existing or potential infection of the oral cavity. Control of infection of the oral cavity should be prescribed before the start of chemotherapy, because preventing complications is much easier than then to deal with its consequences.

Object and methods. In this article, we decided to highlight the most common dental complications that were the purpose of our study. There was a comprehensive search of the PubMed-Medline, Cochrane Library and Scopus databases that crossed the key words «oral mucositis», «prevention» and «treatment» with the terms «oncology» «chemotherapy» and «radiation therapy», «xerostomia», «dysgeusia» 368 articles were received, of which 136 corresponded to the inclusion criteria.

Results. Major complications in the oral cavity and side effects of chemotherapy are associated with such conditions as existing intrauterine pathology, depolymerized teeth, severe periodontal diseases and inflammations of the mucosa caused by chemotherapy. Indeed, mouth infection with dental caries, intraosseous pathology, such as cysts or pronounced periodontal diseases can lead to the development of life-threatening infections and feverish conditions in chemotherapy-dependent patients. Such infections may create the need to interrupt chemotherapeutic treatment, and therefore, it can make a compromise outcome of the treatment of a cancerous tumor.

Inflammation of the mucosa associated with chemotherapy leads to partial rejection of the epithelium of the oral cavity, resulting in mild infections of the open wounds of the mucosa may be a bacterial, viral or fungal infection.

A dental examination before chemotherapy is an important factor in detecting existing or potential oral cavity infections. The control of infection of the oral cavity must be performed before chemotherapy begins.

During chemotherapy, patients are often immune-deficient, so dental infection or treatment can have serious consequences. The dentist should use an atraumatic technique. Surgical dentistry should be completed before the start of chemotherapy, with the priority of temporary or permanent restoration of major carious lesions.

Tooth extractions must be completed before chemotherapy appointment. Based on the patient's blood clotting status, the oncologist can determine how soon chemotherapy can begin after the withdrawals. Patients who have already started chemotherapy and absolutely necessary removal are shown careful tissue management, suitable for suturing and control of local bleeding. Chemotherapy is usually delayed until the dentist and oncologist have determined whether the patient's blood clotting status is satisfactory. The healing of the extraction area is monitored by the dentist for at least 3 days after surgery.

Conclusions. Dental care for patients with malignant neoplasms is a very topical and important aspect in the complex treatment of cancer patients. This article highlights the relationship between dentistry and oncology. There should be a multidisciplinary approach, the interaction of the dentist and oncologist in the prevention and treatment of dental complications of chemotherapy.

Key words: oral mucositis, prophylaxis and prevention with the terms «oncology», «chemotherapy», xerostomia, dysgesia.

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APPLICATION OF CRYPRESERVED PLACENTA PREPARATIONS IN THE SMALL INTESTINE PATHOLOGIES IN RATS FOR THEIR FURTHER USE IN EXIGENT CONDITIONS

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Bowel diseases, their diagnosis and treatment have been a significant problem throughout the historical period, and remaining a pressing issue up to the present. The urgency of the problem is based on an analysis of the digestive system diseases (DSD) incidence among the population of Ukraine.

General analysis of the gastrointestinal tract diseases among the population of the world and Ukraine.

The above diseases are widespread all over the world, including in Ukraine, where the mentioned pathology is found in the majority of the adult population. A particular problem is the fact that the gastrointestinal tract diseases most frequently affect people of working age and their treatment often requires sickness certificates registration and certain material costs of the state, which indicates the socio-economic importance of this

problem [1,2]. According to statistics, gastrointestinal tract pathologies occupy the 3rd place in the prevalence in Ukraine. Up to 90% of urban population suffer from a particular stomach or intestinal disease. The most common pathologies are: esophagitis, gastritis, duodenitis, gastric and duodenal ulcer, biliary dyskinesia, cholecystitis, pancreatitis [3].

Of even greater concern is the fact that digestive diseases are widespread among Ukraine's child population. This is stated in the MOH of Ukraine Order No. 438 of May 26, 2010 "On approval of protocols for the diagnosis and treatment of digestive diseases in children" [4]. In the structure of the general incidence in our country their frequency is more than 140 per 1000 children according to official data and tends to grow. Thus, for the last 10 years the prevalence of gastroenterological pathology in children has increased by more than 20%.

Gastroesophageal reflux disease (GERD).

Gastroesophageal reflux disease (GERD) is also becoming widespread in Ukraine, as stated in the MO H of Ukraine Order No. 943 of October 31, 2013 "Unified Clinical Protocol of Primary, Secondary (Specialized) Medical Care" [5]. Gastroesophageal reflux disease (GERD) as an independent nosological unit was officially recognized in October 1997 at the Interdisciplinary Congress of Gastroenterologists and Endoscopists in Genval (Belgium). GERD is recognized by the World Organization of Gastroenterologists as a disease of the 21st century, affecting 20% to 50% of the world's population. GERD is a leading cause of impaired life and performance quality causing development of numerous complications, such as Barrett's esophagus [5]. In Ukraine, the statistical registration of GERD has started since 2009, and unfortunately, the data is not yet complete, the incidence is 10 cases per 1000 population. There are reports that the prevalence of GERD in Ukraine ranges from 11.1% to 30% [6]. According to other data, the actual prevalence of GERD may be much higher, since about 25% of GERD patients do not seek medical treatment, and some patients have asymptomatic progress [7].

Chronic inflammatory bowel diseases (CIBD).

Digestive organs diseases (DOD) also include numerous chronic inflammatory bowel diseases (CIBD), which include nonspecific ulcerative colitis (NUC) and Crohn's disease (CD). CIBD are a group of idiopathic multisystemic diseases characterized by specific clinical and pathological features, the presence of nonspecific inflammation in the intestine and the possibility of extraintestinal manifestations and complications [8,9,10,11]. Continuous, recurrent course of these diseases with progressive impairment of the intestinal mucosa structure and function is accompanied by a significant decrease in the quality of patients' life, which ranks chronic intestinal diseases to important medical and social problems and provides for the search of new directions for the study of ethiology and pathogenesis and improvement this pathology prevention and treatment [12]. For unknown reasons, the incidence of nonspecific ulcerative colitis (NUC) and CD is increasing worldwide. The incidence of NUC in different geographical areas ranges from 0.5 to 24.5 cases per 100,000 population, CD ranges from 0.1 to 16/100,000, and the prevalence of inflammatory bowel diseases (CIBD) reaches 396/100,000. Almost 1.5 million people in the US and over 2 million in Europe suffer from these diseases [13,14].

Traditionally, CIBD were considered to be the most widespread in the West, where their incidence increased sharply during the second half of the twentieth century. Thus, in developed countries, one person per 1000 is affected by the CPA [15]. For comparison, low prevalence and incidence rates have been reported in other parts of the world, including Eastern Europe, South America, Asia, and the Pacific region, until the last decade. However, the epidemiology of CIBD has recently changed: while in Western Europe and North America the picture has stabilized or there is a slight increase in indices, in the regions where the incidence was low earlier, its progressive growth is observed [16,17]. Additional epidemiological studies are needed to better understand the causes of the CIBD occurrence, their mechanisms of association with environmental factors. Unfortunately, there is no data on the incidence and prevalence of CIBD in Ukraine.

Diseases of the small intestine.

The small intestine consists of three divisions: the duodenum, the jejunum and the ileum. The length of the entire small intestine in a person is individual and ranges within 3-10 m. The most characteristic diseases of the small intestine are: peptic duodenal ulcer, diverticula of the duodenum, enteritis, terminal ileitis (Crohn's disease) or granulomatous colitis, intestinum tenue tuberculosis, tuberculosis, duodenum adenocarcinoma.

Peptic duodenum ulcer.

World statistics show that peptic duodenal ulcer (PDU) remains one of the most common diseases of the internal organs and is a major social problem, solution of which requires further development of early prevention, diagnosis and treatment of this pathology. Peptic duodenal ulcer disease (PDU) remains one of the important problems of modern medicine. It affects 6.0-10.0% of the population in developed countries, and mortality ranges from 6 to 9.7 per 100 thousand population. Ukraine is characterized by high morbidity and recurrence rates (20-25%), compared to European countries.

It is newly diagnosed in 70,000 people, with every second patient being treated in a hospital. The number of patients, including those of working age, needing prevention, medical care, rehabilitation in outpatient, inpatient and follow-up care is increasing [18]. Although considerable progress has recently been achieved in the various aspects study of the etiology, pathogenesis and treatment of duodenal ulcer (the term "peptic ulcer" is more commonly used in Europe), the problem remains relevant and attracts the attention of leading gastroenterologists, general practitioners, family physicians and pediatricians, as the proportion of children suffering from peptic duodenum ulcer is constantly growing [19].

Crohn's disease.

Crohn's disease (CD) is a chronic inflammatory disease that affects mainly the gastrointestinal tract. Currently, at least 115,000 people in the UK suffer from Crohn's disease. The causes of Crohn's disease are widely discussed. Smoking and genetic predisposition are two important factors that are likely to play a role. The number of patients suffering from Crohn's disease in Ukraine is unknown, since no registry has been created. The existing system of statistical coding of diseases does not permit to distinguish between different nosological forms of bowel diseases. According to experts, the esti-

mated number of patients with CD in Ukraine is 13,800 (30.33 per 100,000 population), including patients with moderate and severe activity – 6.6 thousand (48%) [20].

Intestinal lesions tend to alternate. According to the literature, the incidence of the small intestine lesions is only 30-35%; the small intestine only – 25-35%; combined pathology of the small and large intestine – 30-50%, stomach and duodenum – 5% [7,1,2,3].

Application of cryopreserved placenta preparations for correction of GIT inflammatory processes.

Despite the rapid pace of medicine development, it should be noted that the total mass of pharmacological drugs do not solve the primary task – restoration of the cellular composition in the damaged homologous organ. In addition to the development and use of synthesized pharmacological drugs for the gastrointestinal tract pathology correction, there is an ever growing focus on the treatment of various human pathological conditions – cell and tissue transplantation and regeneration therapy, based on the use of allo- and xenogenic tissues and cells of embryo-fetoplacental complex.

Due to the transplantation (minitransplantation) of placental and fetal cells and tissues, new possibilities have been used in the treatment of intractable conditions, particularly in cases of dystrophic processes, metabolic pathology, endocrine insufficiency, exigent conditions, injuries caused by combat actions and catastrophes. Literature sources report on two main mechanisms of cellular and tissue products action, although no clear boundary can be drawn between them: the specific nature of the effect, i.e. the introduction of a biological components (cells, tissues, tissue extracts) to the recipient, which compensate for specialized functions and perform substitution therapy functions; nonspecific effect on the organism, which is manifested by the increase of the immune-biological status and stimulation of the tissues reparative properties and, consequently, maintenance of the cellular, tissue and body homeostasis [19].

Placenta provides growth and development of the fetus and is characterized by active metabolism. This is due to the fact that it contains biologically active substances in high concentration – proteins that perform hormone-producing and enzymatic functions, as well as polypeptides related to growth factors. In the placenta, peptides homologous to gonadotropins and lactogen, which acts as a somatotropic hormone (STH) during fetal development, are found. Placental tissues synthesize insulin-like factors IGF-1 and IGF-2, which belong to somatomedins and mediate STG action. The human placenta extract contains transforming growth factor (TGF) with m.m. 6000 to 20000 Da. These peptides have been reported to stimulate renal cell proliferation and compete with epidermal growth factor (EGF) for binding to its receptors. Nerve growth factor (NGF) and fibroblast growth factor (NGF) were isolated from the placenta and characterized, their synthesis regulation being carried out by cytokines. It is suggested that the method of such synthesis regulation can be used in the treatment of neurodegenerative diseases. The placenta is a source of the factor that stimulates vascular endothelial growth (VEGF), all components of the renin-angiotensive system are found in it. These data permit to consider the placenta a multifunctional organ capable of actively influencing metabolic processes in the body. The use of drugs derived from placental tissue is designed to stimulate nonspecific resistance of the organism, as well as to enhance the reparative properties of damaged cell populations [19].

It is known from the literature that the use of two dosage forms of certified placental drugs (injection – placenta extract and grafting of the cryopreserved fragment of placental tissue) contributes to the restoration of hormone-producing activity in experimental animals on the third day. Comparing the results of the both biologicals application we can conclude that the injectable form of the placenta extract leads to normalization of the rat internal organs structure and function almost immediately after use. Long-term aftereffects are characterized by a more prolonged effect of placental fragments themselves. Thus, transplantation of cryopreserved placental tissue exhibits a less dynamic but more prolonged effect [7].

Currently, positive evidence has been obtained on the effective use of cryopreserved placental tissue transplantation, which affects the function of the injured organ due to the complex of biologically active substances [21,22].

In connection with the above, the methods of correcting inflammatory processes of the intestine with administering drugs of biological origin, namely the cryopreserved placenta, as a strong immunostimulant and tissue containing biologically active substances, become relevant [5,8,23,24].

A whole cohort of researchers at the Ukrainian Stomatological Academy, Poltava, worked in this field:, Bilash S.M. [25], Yeroshenko G.A. [26], Shepitko K.V. [27-29], Shepitko V.I. [30-31], Stetsuk Ye.V., Kapustyanska A.O. and others.

The purpose set for this group of researchers was to establish changes in the morphometric parameters of the duodenum wall in rats with administration of cryopreserved placenta for further application in medical emergency cases and exigent conditions.

The study of changes in the morphometric parameters of the duodenum wall's different layers after administration of cryopreserved placenta is an urgent problem of modern experimental medicine, and can serve as a key for the proper treatment and prevention of bowel diseases.

The object of the experimental study was the duodenum wall sampled from 60 mature Wistar male rats. The experiment was carried out in compliance with the "Rules for the Use of Laboratory Experimental Animals" (2006, Annex 4) and the Helsinki Declaration of Human Welfare [32,4].

Animals were divided into three groups: group I – intact animals (5); group II – control, which was made incision on the outer thigh and sutured afterwards (10); group III (45) – animals that were singly administered cryopreserved placenta subcutaneously (Platex-placental medical immunobiological product, state registration certificate No. 73408-30020000 of July 09, 2008). Fragments of the duodenum were embedded into paraffin and epoxy, according to conventional methods, and histological sections were made and stained with: hematoxylin-eosin, van Gieson's stain, Hart's stain (paraffin sections), polychromic stain, methylene blue (semifine sections and plastinated in epoxy resin total preparations of the duodenal wall).

Measurements were made of: total wall thickness, thickness of mucous, submucous, muscular and serous (adventitious) membranes of the duodenum, ileum and jejunum wall of rats. The Olympus C 3040-ADU digital microscope with photomicrographic attachment was used using the Olympus DP – Soft, and BIOREX 3 software. The mathematical processing of the material was carried out using standard variational statistics methods: calculations of mean values (M), errors of the mean (m), the Student test (t). Differences at p <0.05 were considered reliable.

In a series of experiments, the following results were obtained.

Analysis of morphometric parameters: total wall thickness, thickness of mucous, submucous, muscular and serous (adventitious) membranes of the duodenum, ileum and jejunum wall of rats in the control group (group II) showed that these indices were not statistically different during all the study periods. The difference reliability is not significant at p> 0.05. Comparison of these indices with those in the intact rats group also showed that the difference reliability was not significant (p> 0.05). This fact permits further comparison of the studied morphometric parameters in the group of animals that had been administered cryopreserved placenta (group III) only with similar indices of the intact group, without taking into account the control group (group II) data.

During the 7-21 days of the experiment, a decrease in the submucosa thickness was detected, but this decrease was not significant. On the 30th day, the value of this parameter was within the same index of the intact group.

Morphometric analysis of the muscular membrane thickness showed that already on 1st-2nd days the maximum reliable increase of this parameter was revealed. On the 3rd day, this index decreased slightly, but remained quite high (p <0.01). Since that time, the thickness of the muscular membrane was decreasing. If on the 7th day the reduction of the muscular membrane thickness was significant compared to the intact group, then by the 10th-21st days its reduction was not significant. On the 30th day, this index was within the intact group value.

The serous (adventitious) duodenum membrane also responded to the cryopreserved placenta administration. Statistical analysis showed that on the 1st-3rd days the index of its thickness was smaller than the similar one in the intact group, but the difference reliability was not significant at p> 0.05. On the 5th day, the serous membrane thickness was as larger as possible than that in the intact group, but the difference was not significant at p> 0.05. On the 7th-21st days, this figure decreased slightly, approaching the intact group values at p> 0.05. On the 30th day it was within the intact group's values.

Morphometric indices of the ileum wall were not significantly different between the intact and control groups of animals.

Single subcutaneous administration of cryopreserved placenta caused changes in the studied morphometric parameters, which were manifested in their maximum increase of values on the 3rd day of the study, and in their restoration to the values of the intact group on the 30th day, both when comparing between the study terms and when compared to the intact group animals.

A single administration of a cryopreserved placenta fragment causes an increase in the parameter of the jejunum wall total thickness, which manifests itself from the 1st to the 5th days. It should be noted that the reliable difference between these terms was not significant p> 0.05. From the 7th day there is a decrease in this parameter, but comparing it to the 5th day this decrease was not significant p> 0.05. From the 10th to the 30th day the total thickness of the jejunum mucous membrane tended to decrease slightly, but the differences reliability between the terms was not significant p> 0.05.

Metric index of the muscular membrane thickness was growing reliably from the1st to the7th day with restoration to the control values on the 30th day.

The serous membrane thickness responded by a reliable increase on the 5th day of observation. From the 7th to the 30th day it has recovered to the limits of the intact group.

Thus, a single subcutaneous administration of cryopreserved placenta (medical immunobiological drug "Platex-placental") causes changes in the metric parameters of the duodenum, jejunum and ileum in rats. This method contributes to the restoration of the affected tissues histological structure, has an active effect on metabolism, improves the reparative properties of tissues and, thereby, supports the cellular, tissue and the body homeostasis [30,31,33].

Prospects for further research in this field lie in applying the method of cryopreserved placenta preparations transplantation in emergency situations and exigent conditions due to combat actions and catastrophes.

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ЗАСТОСУВАННЯ ПРЕПАРАТІВ КРІОКОНСЕРВОВАНОЇ ПЛАЦЕНТИ ПРИ ПАТОЛОГІЯХ ТОНКОЇ КИШКИ У ЩУРІВ ДЛЯ ПОДАЛЬШОГО ЇХ ВИКОРИСТАННЯ ЗА НЕВІДКЛАДНИХ СТАНІВ

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Резюме. Статтю присвячено проблемам застосування методу лікування патологій тонкого кишечника шляхом трансплантації препаратів кріоконсервованої плаценти. Актуальність проблеми грунтується на аналізі захворюваності населення хворобами органів травлення. Наведено загальний аналіз захворюваності ШКТ серед населення України. Загальна маса фармакологічних препаратів не вирішують першочергової задачі – відновлення клітинного складу пошкодженого гомологічного органу. Окрім розробки і використання синтезованих фармакологічних препаратів для корекції патологій ШКТ все більшу увагу привертають до себе клітинна і тканинна трансплантація та регенераційна терапія, які базуються на використанні біопрепаратів з ало- та ксеногенних тканин та клітин ембріофетоплацентарного комплексу. Завдяки застосуванню методу трансплантації плацентарних і фетальних клітин та тканин було використано нові можливості в лікуванні важко виліковних та невідкладних станів, особливо у випадках дистрофічних процесів, обмінної патології, ендокринної недостатності, за бойових уражень внаслідок бойових дій та катастроф. Метою роботи групи дослідників УМСА було встановлення змін морфометричних параметрів стінки 12-палої, порожньої та клубової кишки у щурів при введенні кріоконсервованої плаценти для подальшого застосування даного методу за невідкладних станів. Вивчення змін морфометричних параметрів різних шарів стінки тонкого кишечника після введення кріоконсервованої плаценти є актуальною проблемою сучасної експериментальної медицини, та може слугувати ключем для правильного лікування і профілактики хвороб кишечника та у надзвичайних ситуаціях за невідкладних станів.

Ключові слова: захворювання тонкого кишечника, невідкладні стани, кріоконсервована плацента, морфологічні показники, дванадцятипала, порожня та клубова кишка.

ПРИМЕНЕНИЕ ПРЕПАРАТОВ КРИОКОНСЕРВИРОВАННОЙ ПЛАЦЕНТЫ ПРИ ПАТОЛОГИЯХ ТОНКОЙ КИШКИ КРЫС ДЛЯ ДАЛЬНЕЙШЕГО ИХ ИСПОЛЬЗОВАНИЯ ПРИ НЕОТЛОЖНЫХ СОСТОЯНИЯХ

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Резюме. Статья посвящена проблемам применения метода лечения патологий тонкого кишечника путем трансплантации препаратов криоконсервированной плаценты. Актуальность проблемы основывается на анализе заболеваемости населения болезнями органов пищеварения. Приведен общий анализ заболеваемости ЖКТ среди населения Украины. Основная масса фармакологических препаратов не решает первоочередной задачи – восстановления клеточного состава поврежденного гомологического органа. Помимо разработки и использования синтезированных фармакологических препаратов для коррекции патологий ЖКТ все большее внимание привлекает к себе клеточная и тканевая трансплантация и регенерационная терапия, основанные на использовании биопрепаратов из алло- и ксеногенных тканей и клеток эмбриофетоплацентарного комплекса. Благодаря применению метода трансплантации плацентарных и фетальных клеток и тканей были использованы новые возможности в лечении трудноизлечимых и неотложных состояний, особенно в случаях дистрофических процессов, обменной патологии, эндокринной недостаточности, при боевых поражениях, вследствие боевых действий и катастроф. Целью работы группы исследователей УМСА было установление изменений морфометрических параметров стенки 12-перстной, тощей и подвздошной кишки у крыс при введении криоконсервированной плаценты для дальнейшего применения данного метода при неотложных состояниях. Изучение изменений морфометрических параметров различных слоев стенки тонкого кишечника после введения криоконсервированной плаценты является актуальной проблемой современной экспериментальной медицины и может служить ключом для правильного лечения и профилактики болезней кишечника, а также в чрезвычайных ситуациях при неотложных состояниях.

Ключевые слова: заболевания тонкого кишечника, неотложные состояния, криоконсервированная плацента, морфологические показатели, двенадцатиперстная, тощая и подвздошная кишка.

APPLICATION OF CRYOPRESERVED PLACENTA PREPARATIONS IN THE SMALL INTESTINE PATHOLOGIES IN RATS FOR THEIR FURTHER USE IN EXIGENT CONDITIONS

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Abstract. The article is devoted to the problems of using the method of treating the small intestine pathologies by means of cryopreserved placenta products transplantation. The urgency of the problem is based on an analysis of the digestive diseases incidence among the population. A general analysis of the gastrointestinal diseases incidence among the population of Ukraine is presented. The total bulk of pharmacological drugs do not solve the primary task – restoration of the cellular composition in the damaged homologous organ. In addition to the development and use of synthesized pharmacological drugs for the gastrointestinal tract pathology correction, there is an ever growing focus on the cell and tissue transplantation and regeneration therapy, based on the use of allo- and xenogenic tissues and cells of embryo-fetoplacental complex. Due to the transplantation of placental and fetal cells and tissues, new possibilities have been used in the treatment of intractable and exigent conditions, particularly in cases of dystrophic processes, metabolic pathology, endocrine insufficiency, in combat injuries as a consequence of combat actions and in catastrophes. The purpose set for a group of UMSA researchers was to establish changes in the morphometric parameters of the duodenum, jejunum and ileum wall in rats with administration of cryopreserved placenta for its further use in medical emergency cases. The study of changes in the morphometric parameters of the small intestine wall's different layers after administration of cryopreserved placenta is an urgent problem of modern experimental medicine, and can serve as a key for the proper treatment and prevention of bowel diseases and in exigent conditions caused by emergency situations.

Key words: diseases of the small intestine, exigent conditions, cryopreserved placenta, morphological parameters, duodenum, jejunum and ileum.

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