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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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No 12 (357) 2024

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PREVENTION AND TREATMENT OF PANCREATITIS AFTER ENDOSCOPIC SURGERY ON THE BILE DUCT

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Abstract.

Up-to-date endoscopic correction methods for obstructive diseases of the pancreatic-biliary system occupy a leading position among the arsenal of methods to treat mechanical jaundice.

Purpose: The purpose of the paper is to verify the mechanisms and factors promoting pancreatitis development after endoscopic retrograde cholangiopancreatography (ERCP) and to summarize the efforts to prevent and treat this complication.

Materials and methods: A detailed analysis of the structure of nosological units resulting in frequent development of mechanical jaundice was made by the results of treatment of 1214 patients.

Results and discussion: The role and place of possible factors promoting development of post-ERCP pancreatitis are determined. The causes of development of intra- and post-ERCP complications are studied. Attention is focused on finding ways to prevent the development of post-ERCP pancreatitis. The therapeutic tactics of management of patients with post-ERCP pancreatitis were carried out according to the recommendations of the European Association of Endoscopic Surgeons (EAES). It should be noted that the algorithm of patient management who during surgery presented technical preconditions of development of post-ERCP pancreatitis is not finally formulated. The experience of administration of pharmacological prevention found in literature is indicative of the fact that it does not provide favorable course of the postoperative period in all cases. First of all, it refers to the patients with high risks who develop severe development followed by unfavorable results. Despite a recognized effectiveness of non-steroidal anti-inflammatory drugs, 2% patients develop severe post-ERCP pancreatitis.

Key words. Endoscopic retrograde cholangiopancreatography, complications, post-ERCP pancreatitis, mechanical jaundice.

Introduction.

Endoscopic retrograde cholangiopancreatography (ERCP) is gaining more and more importance in the treatment of diseases of the bile and pancreatic ducts. Nevertheless, this invasive procedure is associated with a number of specific complications including acute pancreatitis which is the most frequent and prognostically unfavorable one. It occurs in 2-9% patients (in 2-4 % patients with low risk and 7-30% patients with high risk) [1-5]. The recent meta-analysis of 108 randomized controlled studies informed about general morbidity of 9,7% with lethal outcome of 0,7%. It causes considerable sickness rate, occasional mortality and unpredictable costs associated with treatment [6-8]. In recent decades, the ways to prevent the occurrence of post-ERCP pancreatitis or decrease of its severity have been searched for. Meanwhile, only certain therapeutic tactics have proven to be effective and introduced into the clinical practice. Several approaches are introduced to decrease the frequency of this complication. First of all, it is a careful selection of patients in order to avoid unnecessary influence of ERCP-stipulated factors and concomitant risks. Less invasive diagnostic-therapeutic methods are applied instead when it is possible. Second, it is the use of epidemiological information to find the most important risk factors stipulating development of post-ERCP pancreatitis. Finding high risk factors promoting post-ERCP pancreatitis can help refer patients to highly specialized medical institutions. In cases of high risk of post-ERCP pancreatitis, preventive endoscopic stenting of the main pancreatic duct is advisable. The studies aimed at identifying pharmacological agents to provide effective prevention of post-ERCP pancreatitis are still ongoing. Non-steroidal anti-inflammatory drugs (NSAID) to prevent post-ERCP pancreatitis are rather promising [9,10].

The purpose of the paper is to verify the mechanisms and factors promoting pancreatitis development after endoscopic retrograde cholangiopancreatography and summarize the efforts to prevent and treat this complication.

Materials and Methods.

The results of treatment of 1214 patients were analyzed. They were treated from 2016 to 2023 at the Center of Endoscopic Surgery of Bukovinian State Medical University with clinical signs of mechanical jaundice. The observation group included 481 males and 733 females. The age of patients ranges from 21 to 87 years, being on an average 63,5. An average period of jaundice before admission to the hospital was 23,9 days. A long term before admission to the hospital was stipulated by asymptomatic aggravation of clinical signs in patients with neoplasms of the pancreatic-biliary area, and in certain cases – by a long period of diagnostic search. Attempts of endoscopic correction of jaundice were unsuccessful in 26 patients (2,14%). It was caused by the deformity of the postbulbar duodenum with underlying invasions of the pancreatic neoplasms or Billroth 2 stomach resection in the past history.

Results and Discussion.

Clinical signs of post-ERCP pancreatitis (PEP) were considered to be the appearance of pain in the projection of the pancreas, inflammatory changes in the pancreas during sonographic examination, and a 4-fold increase in serum amylase levels after surgery. Serum amylase or lipase values less than 1,5 and 4 times the ULN, respectively, obtained at 2-4 hours post-ERCP have a very high negative predictive value for post-ERCP pancreatitis [3]. General amount of post-ERCP pancreatitis occurring after surgery was 68 cases (5,61%). In order to more objectively assess the causes of the development and nature of the course of post-ERCP pancreatitis, all the patients were divided into two groups depending on the character of pathomorphological causes of the disease – benign and malignant. Analysis of the nosological structure of benign causes in 654 patients asking for medical aid (63,78%) allowed finding the most frequent causes of hospitalization (Table 1).

Table 1. *Distribution of patients according to the nosological causes of mechanical jaundice.*

Causes of mechanical jaundice	Number of patients	Percentage
Benign		
Choledocholithiasis	677	55,7
Cicatricial strictures of the choledoch	37	3,04
Acute pancreatitis	34	2,88
Dysfunction of the sphincter of Oddi	13	1,07
Malignant		
Tumors of the head of the pancreas	271	22,32
Tumors of the bile ducts	86	7,08
Metastatic compression of the porta hepatis	45	3,7
Tumors of the major duodenal papilla	37	3,04
Total	**1214**	**100**

Table 2. *Post-ERCP pancreatitis risk factors.*

Risk Factor	Number of patients	Number of patients with post-ERCP pancreatitis
Dysfunction of the sphincter of Oddi	13	2 (15,38%)
Cicatricial strictures of the papilla Vateri	141	13 (9,22%)
Younger age (21 to 44 years)	136	10 (7,35%)
Needle sphincterotomy	318	19 (5,97%)
Balloon dilatation	247	23 (9,31%)
General cohort	1214	68 (5,61%)

Choledocholithiasis, as a cause of mechanical jaundice, appeared to be the most common diagnosis including 677 cases (55,7%) of patients who suffered from cholecystolithiasis with calculous cholecystitis associated with choledocholithiasis (538 cases) and those who underwent cholecystectomy in the past history (open or laparoscopic surgery) followed by residual choledocholithiasis (129 cases). A mechanical block of bile flow in 37 patients was caused by cicatricial strictures of the extrahepatic bile ducts, mostly due to inflammatory processes after experienced surgery in this area or long-term bile fistulas.

A debatable issue is whether to include a group of 34 patients with biliary pancreatitis who were operated on within the first day of the onset of the disease, since it is impossible to differentiate changes caused by the main nosological factor from those caused by provoking agents, and the suprapapillary needle choledochoduodenostomy and balloon dilatation.

The second large group of diseases associated with mechanical jaundice were neoplasms in the pancreatic-biliary area including 453 cases (37,31%). Tumors of the pancreas in our studies were verified in 271 cases (22,32%). Cholangiocarcinoma was a cause of the disease in 86 patients (7,08%), and metastatic affliction of the lymph nodes in the porta hepatis resulted in disturbance of normal bile passage in 45 patients (3,7%). The group of patients with neoplasms of the major duodenal papilla was the least numerous including 37 cases (3,04%). At the same time, it was this group of patients with the longest term of pre-hospital course of the disease. To our opinion, it is connected with a slow progress of choledoch obturation and substantial ability of the extrahepatic bile ducts to dilate. It should be noted that in our study frequency of post-ERCP pancreatitis in patients with neoplasms of the pancreatic-biliary system was minimal – only 16 cases (1,32%), despite of the similar tactics of endoscopic manipulations and methods of approach to the necessary portion of the bile ducts. We also admitted more favorable course of post-ERCP pancreatitis in this group of patients, in those cases when to verify the cannulated duct a contrast agent was used.

A careful retrospective analysis of our own results enabled to distribute all the patients according to the recommendations of the European Association of Endoscopic Surgeons (EAES) [9] depending on the risk factors of occurring post-ERCP pancreatitis. Dysfunction of the sphincter of Oddi was among the most probable causes found in 13 patients. PEP was present in 2 patients from this cohort. This is 15,38% cases, that is much bigger comparing to 5,61% in the general cohort (Table 2).

The own experience of endoscopic procedures enabled to determine more pronounced cicatricial deformities of papilla Vateri in 141 patients, who experienced cholecystectomy in the previous history. In its turn, it complicates performing typical cannulation and is a precondition for the development of intra- and post-surgical complications. We observed more pronounced changes when the term after surgery on the organs of the biliary system was longer. PEP was present in 13 patients from this cohort. This is 9,22% cases, that is bigger comparing to 5,61% in the general cohort.

There were 136 patients of the young age from 21 to 44 years. PEP was present in 10 patients from this cohort. This is 7,35% cases, which is slightly higher compared to the total cohort. Among additional factors promoting development of post-ERCP pancreatitis, there is pancreatitis in the past history, excessive body weight, lack of changes in the bile ducts, normal indices of bilirubinemia.

The patients who developed difficulties with cannulation of the major duodenal papilla during more than 5 minutes, constituted a separate group. There were 26 patients (10,94%) from this group that had PEP in whom cannulation lasted more than 5 minutes. Special attention is required by the cases of repeated cannulation with a conductor for more than 5 attempts of the main pancreatic duct. Indicated complications of cannulation of the duct stipulated the use of Pre-cut method in 68 patients and performing suprapapillary needle choledochoduodenostomy in 250 patients. PEP developed in 19 patients (5,97%) in the needle sphincterotomy group, which is practically no different from the general group.

The use of atypical needle sphincterotomy is not only a factor provoking the development of post-ERCP pancreatitis, but it can be associated with ampular bleeding. This complication occurred in 41 patients during surgery (3,37%). The use of high frequency diathermocoagulation, brought to the site of the dissected ampula with the help of endoscopic hot biopsy forceps, enabled to stop bleeding. Intravenous injection of 1000 mg of tranexamic acid should be admitted as a quick and rather effective method to achieve hemostasis. There was an episode in one case of delayed bleeding from the papillotomy site, which was diagnosed by means of the control endoscopy 24 hours after surgery.

Another provoking factor is performing balloon dilatation after sphincterotomy. 247 patients involved in our research underwent this kind of intervention due to verification of large stones in

the choledoch. We did not find any dependence on the size of dilatation, occurrence and severity of post-ERCP pancreatitis. PEP developed in 23 patients (9,31%) in the balloon dilatation group, which is higher than in the general group. No relationship was found between the type of a contrast agent, the speed of its injection and its amount. At the same time, ESGE recommends using minimally informative contrast doses, paying attention to the speed of injecting and temperature.

To our opinion, occurrence of post-ERCP pancreatitis due to injection of a contrast agent into main pancreatic duct should be highlighted separately. In this case, pancreatitis occurs in 78-85% patients, associated with increasing the level of blood amylase more than three times during the first 24 hours, increasing pain intensity in the projection of the pancreas. At the same time, transient increase of blood amylase level is observed without clinical signs of pancreatitis. Nevertheless, pain syndrome occurring after endoscopy is not always associated with development of pancreatitis. Bretthauer M. et al. explain this phenomenon due to air insufflation during the procedure [2]. At the same time, pain decreases when carbon dioxide is used during endoscopy.

Other causes of abdominal pain after endoscopy on the bile ducts should be considered as well, such as perforation of the duodenum in the intra-abdominal or retro-duodenal parts, perforation of choledochal wall.

The criteria developed by the European Society of Gastrointestinal Endoscopy are used with the aim to standardize the definition, classification and treatment of post-ERCP pancreatitis.

Clinical recommendations of ESGE, developed in 2015, recommend mandatory rectal administration of 100 mg of diclofenac or indomethacin before and after ERCP for all the groups of patients without contraindications. Non-steroidal anti-inflammatory drugs produce a marked anti-inflammatory effect. Their action is stipulated by cyclooxygenase-2 inhibition, which disturbs synthesis of prostaglandins as central mediators of inflammation. Intramuscular diclofenac injection before surgery was mandatory. It decreased considerably occurrence of post-ERCP pancreatitis. Administration of NSAID is confirmed to considerably decrease occurrence of severe forms of pancreatitis after endoscopy. In our research we used repeated injections of diclofenac after surgery in the dose of 75 mg twice a day. Considering ulcerogenous effect of all NSAID, their administration required gastroprotection with proton pump inhibitors of pantoprazole group in the dose of 40 mg twice a day during the whole period of treatment. Reasonability of administration of proton pump inhibitors is explained by their ability to inhibit stomach secretion and create functional rest for the pancreas.

Octreotide is the most studied and common drug used to prevent post-ERCP pancreatitis. Somatostatin inhibits exocrine function of the pancreas, directly decreases secretion of digestive enzymes, and indirectly – at the expense of decreased production of secretin and cholecystokinin. It decreases proteolysis and pressure in the ducts. The use of somatostatin was studied in various doses, methods and ways of administration.

A. Andriulli et al. suggested the pattern of somatostatin administration in the single dose of 750 mcg 30 minutes before the surgery and 600 mcg during 2 hours after ERCP. In this case, occurrence of pancreatitis was 11,5%. W. Uhl et al. studied the efficacy of octrestatin administration for prevention and treatment of post-ERCP pancreatitis in the dose of 100 and 200 mg three times a day during 7 days. They came to a conclusion that the drug was ineffective. Lethal outcome in the main group was 15%. According to our data, effective prevention of post-manipulation pancreatitis with the use of octreotide is possible with large doses – 0,5-1 mg [4,6,7].

According to the EAES data, octreotide administration does not influence of general occurrence of post-endoscopic pancreatitis. This drug is not recommended for prevention.

All the patients, who developed post-endoscopic pancreatitis after surgery, received gordox as a protease inhibitor in the dose of 200 000 UN in the form of intravenous long infusion every 8 hours during 5 days. The dose and duration of gordox was corrected by the level of hyperamylasemia.

Prophylactic stenting of the main pancreatic duct was mandatory for the patients from the risk group, and in case of performing needle sphincterotomy, balloon dilatation of the sphincter or introduction of a contrast agent into Virsung duct. For this purpose, pancreatic stents 5Fr were applied 5 cm long, which allowed decreasing occurrence of post-ERCP pancreatitis [1,3].

In our practical work, we used intensive hydration with Ringer lactate solution, which appeared to be an effective constituent in prevention and treatment of post-ERCP pancreatitis. Its administration can prevent progression of acidosis, which activates enzymatic activity of the pancreas. The infusion was given in the dose of 3 ml per 1 kg of the body weight per hour.

Infectious complications aggravate the course of post-endoscopic pancreatitis. Therefore, we considered administration of 2 g cefepime mandatory with the aim of antibiotic prevention before surgery. If necessary, antibiotic therapy with the drugs of this group continued after surgery during 5 days.

Analyzing the above, it becomes clear that despite the continuous study of the issue concerning the prevention of post-ERCP pancreatitis, the world medical community does not present indisputable data on the effectiveness of certain means and methods. The suggested algorithms of prevention and treatment of post-endoscopic pancreatitis in the patterns of pre-surgical preparation are not ambiguous. The literature describes various approaches to surgery on papilla Vatteri in patients from different risk groups. Meanwhile, the algorithm of patient management is not completely determined, especially when in the course of surgery technical preconditions for the development of post-ERCP pancreatitis appeared. The experience of medical prevention found in the literature does not ensure a favorable course in all cases of the post-operative period. First of all, it refers to the patients from high-risk groups, where a severe course of the disease with unfavorable outcome is observed. Despite the recognized effectiveness of non-steroidal anti-inflammatory drugs, 2% of patients develop severe post-ERCP pancreatitis.

Conclusion.

1. Occurrence of post-ERCP pancreatitis does not have a substantial tendency to decrease, despite distribution of patients depending on the risk factors, the use of pharmacological agents and endoscopy performed by experts.

2. Strict keeping to ESGE recommendations in combination with stenting of the main pancreatic duct allows decrease severity of post-ERCP pancreatitis and improve the results of treatment.

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РЕЗЮМЕ

ПРОФИЛАКТИКА И ЛЕЧЕНИЕ ПАНКРЕАТИТА ПОСЛЕ ЭНДОСКОПИЧЕСКИХ ОПЕРАЦИЙ НА ЖЕЛЧНЫХ ПРОТОКАХ

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Современные методы эндоскопической коррекции обструктивных заболеваний панкреато-билиарной системы занимают ведущее место среди арсенала методов лечения механической желтухи.

Цель статьи – уточнение механизмов и факторов, способствующих развитию панкреатита после эндоскопической ретроградной холангиопанкреатографии (ЭРХПГ), а также обобщение усилий по профилактике и лечению этого осложнения.

Материалы и методы. Проведен подробный анализ структуры нозологических единиц, приводящих к частому развитию механической желтухи, по результатам лечения 1214 больных.

Результаты и обсуждение. Определены роль и место возможных факторов, способствующих развитию пост-ЭРХПГ панкреатита. Изучены причины развития интра- и пост-ЭРХПГ осложнений. Особое внимание уделено поиску путей профилактики развития пост-ЭРХПГ панкреатита. Лечебная тактика ведения больных с пост-ЭРХПГ панкреатитом проводилась в соответствии с рекомендациями Европейской ассоциации эндоскопических хирургов (EAES). Следует отметить, что алгоритм ведения больных, у которых во время операции имелись технические предпосылки развития пост-ЭРХПГ панкреатита, окончательно не сформулирован. Имеющийся в литературе опыт применения фармакологической профилактики свидетельствует о том, что она не во всех случаях обеспечивает благоприятное течение послеоперационного периода. В первую очередь это касается пациентов с высоким риском развития тяжелого течения с неблагоприятными результатами. Несмотря на признанную эффективность нестероидных противовоспалительных препаратов, у 2% пациентов развивается тяжелый пост-ЭРХПГ панкреатит.

Ключевые слова. Эндоскопическая ретроградная холангиопанкреатография, осложнения, пост-ЭРХПГ панкреатит, механическая желтуха.