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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

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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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# STATE OF INPATIENT MEDICAL CARE PATIENTS WITH ACUTE PANCREATITIS

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## Abstract.

**Introduction:** Acute pancreatitis (AP) is one of the most common emergency pathologies of the abdominal organs. AP has a negative impact on the performance and quality of life of patients, determining the medical and social significance of the problem.

**Purpose of the study:** To study the state of inpatient medical care for patients with acute pancreatitis.

**Study design:** Retrospective cross-sectional study.

**Materials and methods:** A retrospective analysis of 333 medical records of inpatients with AP treated in the surgical department of the University Hospital of Semey Medical University in the period from 2019 to 2021 was carried out. To determine the medical and social factors influencing the results of treatment of AP, a copy card from the medical record of an inpatient was developed. Statistical analysis was performed using SPSS software version 20.0, and the results were considered statistically significant when $p<0.05$.

**Results:** Among inpatients with AP, women predominated (52.6%), pensioners-40.8%, unemployed-26.1%. Most patients were admitted to the hospital after 1 day (85.0%), with moderate severity of the condition (88.3%). The main reason for the development of AP was errors in diet (91.3%). Acute edematous pancreatitis was detected in 91.9%, various forms of pancreatic necrosis-8.7% of patients. The structure of concomitant diseases was dominated by cholelithiasis-42.6%; gastritis with DGR–45.0%.

In most cases (93.1%) conservative treatment was carried out with good effectiveness. Surgical activity-6.9%. Complications developed in 4.5% of cases with a predominance of multiple organ failure. The mortality rate was 4.2%.

**Conclusions:** Late hospitalization from the onset of the disease($p=0.001$), the severity of the patient's condition upon admission($p=0.001$), surgical interventions($p=0.0001$), and the development of multiple organ failure($p=0.0001$) significantly increases the duration of hospital treatment, negatively affect the outcome of the disease.

**Key words.** Acute pancreatitis, inpatient medical care.

## Introduction.

Acute pancreatitis (AP) is one of the most common emergency pathologies of the gastrointestinal tract [1,2]. Recent studies have noted an increase in the annual incidence of AP. Worldwide, these data range from 4.9 to 73.4 cases per 100,000 population [3-6]. In terms of frequency of occurrence in many regions of the Russian Federation (RF), AP ranks third after acute appendicitis and acute cholecystitis [7]. Obesity is recognized as one of the risk factors for the development of AP, therefore, with the increasing prevalence of obesity worldwide, the incidence of pancreatitis, especially of biliary etiology, is increasing [8]. In patients with acute biliary-dependent pancreatitis, obesity is a risk factor for the development of severe forms of AP. At the same time, obese patients with AP are significantly more likely to require intensive care and their hospitalization periods are significantly longer [9]. Hypertriglyceridemia (HTG) increases the risk of developing AP. In Taiwan, TG ranks third in the list of causes of AP, accounting for about 10-15% of patients with AP [10]. At TG levels of 5-10 mmol/l, the risk of developing AP is low, but it increases sharply at TG levels > 10 mmol/l, when TGs are mainly represented by chylomicrons [11,12]. It is believed that the increase in TG and chylomicrons leads to capillary obstruction and local ischemia. Local inflammatory damage leads to a cytotoxic "hit", which is aggravated by free fatty acids. The consequence of this inflammatory cascade is pancreatitis [12]. Free fatty acids are toxic and can promote the activation of trypsin, which in turn initiates AP [13]. The risk of developing AP increases with the presence of any factor in which the TG level may exceed 10 mmol/l, for example, when taking steroids [14], cholesterol-rich diet [15]. Several epidemiological studies have shown that the risk of developing pancreatitis is increased in smokers compared to non-smokers [16,17] and the degree of risk increases with the number of cigarettes smoked [18]. Currently, among the many causes of pancreatitis, alcoholism accounts for 40-90% of cases [19-21]. At the same time, the incidence of alcoholic pancreatitis is growing worldwide: in the United States, this figure has increased by 52% and 63%, respectively, for acute and chronic alcoholic pancreatitis [22]. According to many researchers, 75–85% of people with AP have a mild degree of disease severity with a favorable outcome. In another part of patients, in addition to damage to the pancreas, multiple organ failure, various complications of an infectious nature, pancreatic necrosis are detected, which causes a significant increase in fatal outcomes, reaching 80% [1,23-25].

Due to the fact that AP mainly affects people of working age, this pathology has a negative impact on the performance and quality of life of patients, determining the significance of both the medical and social aspects of the problem [4].

**Purpose of the study.** To study the state of inpatient medical care for patients with acute pancreatitis.

## Materials and Methods.

A retrospective analysis of 333 inpatient medical records was conducted with AP, treated in the surgical department of the University Hospital of the NCJSC "Semey Medical University" (UH NCJSC "SMU") in the period from 2019 to 2021.

The program and tools for conducting the study were approved by the Local Ethics Committee (LEC) of the NCJSC "SMU", protocol No. 4 dated 20.12.2021. The management of the UH NCJSC "SMU", where the study was conducted, is familiar with the progress of the study and has no objections to the publication of data in the open press. In order to determine the state of the organization of inpatient medical care, medical and social factors affecting the results of treatment of AP, we have developed a copy card (CC) from the inpatient medical record (IPMR). The CC includes 25 open-ended and closed- ended questions. The validity of the CC was assessed in a pilot study on 30 IPMRs of AP [26,27]. The sample of patients for the study was selected in the period from 2019 to 2021 based on the data of the surgical department of the UH NAO "MUS": for 2019 - 80, for 2020 - 145, for 2021 - 108 patients.

The copying was done by filling out a paper version of the CC in Russian. Filling out the card took up to 30 minutes. For various reasons, 10 CC were damaged.

During the statistical analysis of the research material, the following indicators of variation statistics were determined: arithmetic mean (M), standard error (±m), standard deviation (SD). For statistical analysis of nominal data, the Pearson Chi2 criterion was used, and for expected frequency less than 5, the Fisher criterion. Statistical analysis was performed using SPSS version 20.0 software, with $p<0.05$ the results were considered statistically significant.

## Results.

Medical and social characteristics of patients with acute pancreatitis are presented in Table 1.

We studied the data of the IPMR of 333 patients with acute pancreatitis who were treated in the surgical department of the adult hospital of the UH NCJSC "SMU" from 2019 to 2021: for 2019 - 80 (24.1%), for 2020 - 145 (43.5%) and for 2021 - 108 (32.4%). The patients were predominantly female (52.6%).

The age of patients ranged from 18 to 75 years, the average age was 51±1.5 years.

By nationality, Kazakh predominated – 73%, Russian – 24.3%. Also, the majority of patients were from the city – 83.5%.

In terms of social status, the most common were pensioners - 40.8%, unemployed - 26.1%, and workers - 17.7%.

The majority of patients were delivered to the hospital by an ambulance team (55.0%). It should be noted that only 50 (15.0%) patients were delivered to the clinic within 24 hours from the onset of the disease.

Upon admission to hospital, the condition of patients in most cases was assessed as moderate – 88.3%. The clinic uses a system of integrated assessment of the severity of the condition and prognosis according to the Ranson scales to assess the condition of patients. APACHE II, according to the current clinical protocol for the OP of the Ministry of Health of the Republic of Kazakhstan (2018). Ranson scale scores of 3 or more and APACHE II scores of more than 6 points are signs of a severe form of OP (pancreatic necrosis) and a severe course of the disease. Rating by APACHE II more than 13 points indicate fatal development of the disease. The use of these scales is strongly recommended by leading experts in Great Britain (2005) as the main systems for objectively assessing the severity of the patient's condition with acute pancreatitis [28].

The main clinical manifestations of the disease were pain syndrome - 99.7%; nausea - 99.4%; vomiting - 92.5%. The following data were obtained on the localization of pain syndrome: pain in the epigastrium - 82%; pain in both hypochondriums - 46.8%; in the left hypochondrium - 15%; in the right hypochondrium - 20.1%. Patients most often noted distending pain - 95.2%. Among the studied patients, the main cause of the development of OP was dietary errors (eating fatty, fried foods) - 91.3%. Eating fatty, fried foods leads to excessive production of hormones that stimulate the function of the pancreas - cholecystokinin and pancreatic enzymes, which leads to thickening of pancreatic juice, disruption of the outflow of secretions and the development of pancreatitis [15,20].

The following final diagnoses were established: acute edematous pancreatitis – 91.9%; acute fatty pancreatic necrosis – 3.9%; acute hemorrhagic pancreatic necrosis – 3.6%; acute purulent pancreatic necrosis – 0.6%.

In the structure of concomitant diseases, the most common were cholelithiasis (GSD) – 42.6%; gastritis with duodenogastric reflux (DGR) – 45%.

In most cases (93.1%), complex conservative treatment was performed, according to the current clinical protocol for the AP of the Ministry of Health of the Republic of Kazakhstan (2018) [28].

At the same time, 23 (6.9%) patients underwent the following surgical interventions:

1. laparotomy, sanitation and drainage of the abdominal cavity in pancreatic necrosis complicated by the development of infected enzymatic peritonitis. A total of 4 cases.

2. laparotomy, cholecystectomy, drainage of the abdominal cavity in destructive biliary pancreatitis in combination with destructive cholecystitis. A total of 3 patients.

3. laparotomy, cholecystectomy, choledocholithotomy, drainage of bile ducts in destructive biliary pancreatitis, destructive calculous cholecystitis, biliary hypertension against the background of choledocholithiasis. A total of 8 patients.

4. laparotomy, necrectomy, dissection of the pancreatic capsule, abdominization of the pancreas in case of infected pancreatic necrosis in combination with abscess of the lesser omentum, phlegmon and necrosis of the retroperitoneal space, infected enzymatic peritonitis. A total of 8 patients (Table 2).

The following complications developed: peritonitis – 4; multiple organ failure (MOF) – 9; disseminated intravascular coagulation syndrome (DIC syndrome) – 1; pancreatic pseudocyst – 1.

In terms of the duration of inpatient treatment, most patients stayed in the clinic for up to 10 days – 96.1%. The majority of patients were discharged with improvement – 93.7%. 14 (4.2%) patients died.

We studied the factors affecting the duration of inpatient treatment of patients with AP (Table 3). It was found that the time of admission of patients from the onset of the disease

significantly affects the duration of inpatient treatment. When patients with AP were admitted within 1 day from the onset of the disease, the duration of inpatient treatment in most cases (98.0%) did not exceed 10 days. Among patients admitted to the hospital after 5 days, there were cases of exceeding the duration of inpatient treatment to 30 days and longer (p = 0.001). The severity of the patient's condition upon admission also negatively affects the duration of inpatient treatment (p = 0.001). With conservative treatment, patients stayed in the hospital mainly for up to 10 days (98.4%). Surgical intervention significantly increases the duration of inpatient treatment. Among the operated patients, the duration of inpatient treatment was up to 10 days in 65.2%, and up to 20 days in 21.7% (p = 0.0001). The development of MOF significantly prolongs the duration of inpatient treatment (p=0.0001).

A study of the influence of the patient's gender and age, social status, channels of admission, concomitant diseases, and duration of preoperative preparation on the duration of inpatient treatment did not reveal statistically significant differences (p>0.05).

It was found that the outcome of the disease is significantly affected by the time of admission of patients to the hospital from

***Table 1.*** *Medical and social characteristics of patients with acute pancreatitis.*

| **Indicators** | | **N (%)** |
|---|---|---|
| Total number of patients | | 333 |
| Floor | Men | 158 (47.4%) |
| | Women | 175 (52.6%) |
| Age (years, M ±m) | | 51±1.5 years. |
| Place of residence | City | 278 (83.5%) |
| | Village | 55 (16.5%) |
| Nationality | Kazakh | 243 (73%) |
| | Russian | 81 (24.3%) |
| | Tatar | 5 (1.5%) |
| | German | 2(0.6%) |
| | Ukrainian | 2(0.6%) |
| Social status | Student | 8 (2.4%) |
| | Worker | 59 (17.7%) |
| | Employee | 38 (11.4%) |
| | Pensioner | 136 (40.8%) |
| | Disabled person | 5 (1.5%) |
| | Unemployed | 87 (26.1%) |
| Channels of entry | EC | 183 (55.0%) |
| | FMOC (GMP) | 13 (3.9%) |
| | Gastroenterologist | 1 (0.3%) |
| | Surgeon | 96 (28.8%) |
| | Doctors of other specialties | 30 (9%) |
| | Transfer from another hospital | 10 (3%) |
| Duration of the pre-hospital stage | Up to 1 day | 50 (15.0%) |
| | 1-3 days | 142 (42.6%) |
| | 4-5 days | 84 (25.2%) |
| | 6-10 days | 24 (7.2%) |
| | Later than 10 days | 33 (9.9%) |
| General condition of patients upon admission | Satisfactory | 3 (0.9%) |
| | Medium level | 294 (88.3%) |
| | Heavy | 36 (10.9%) |
| The cause of the disease | Alcohol intake | 27 (8.1%) |
| | Breaking the diet | 304 (91.3%) |
| | Taking medications | 2 (0.6%) |
| Final diagnosis | Acute edematous pancreatitis | 306 (91.9%) |
| | Acute hemorrhagic pancreatic necrosis | 12 (3.6%) |
| | Acute fatty pancreatic necrosis | 13 (3.9%) |
| | Acute purulent pancreatic necrosis | 2 (0.6%) |
| Associated diseases | Cholelithiasis | 142 (42.6%) |
| | Gastritis with DGR | 150 (45.0%) |
| | Fatty hepatosis | 45 (11.7%) |
| | DM | 45 (13.5%) |
| | AH | 80 (24%) |
| | CAD | 40 (12%) |

***Table 2.*** *Indicators of inpatient care for patients with acute pancreatitis.*

| **Indicators** | | **N (%)** |
|---|---|---|
| Type of treatment | Conservative | 310 (93.1%) |
| | Surgical | 23 (6.9%) |
| Duration of preoperative preparation | 1-3 days | 14 |
| | 4-7 days | 8 |
| | More than 7 days | 1 |
| Complications | Peritonitis | 4 (1.2%) |
| | MOF | 9 (2.7%) |
| | DIC syndrome | 1 (0.3%) |
| | Pseudocyst of the pancreas | 1 (0.3%) |
| | No | 318 (95.5%) |
| Duration of inpatient treatment | up to 10 days | 320 (96.1%) |
| | up to 20 days | 9 (2.7%) |
| | up to 30 days | 3 (0.9%) |
| | over 30 days | 1 (0.3%) |
| Treatment outcome | Recovery | 6 (1.8%) |
| | Improvement | 312 (93.7%) |
| | Translated | 1 (0.3%) |
| | Died | 14 (4.2%) |

***Table 3.*** *Factors influencing the duration of hospital treatment of patients with acute pancreatitis.*

| **Indicator** | | **Duration of inpatient treatment** | | | | **p** |
|---|---|---|---|---|---|---|
| | | 10 days | 11-20 days | 21-30 days | over 30 days | |
| Terms of admission to the hospital | Up to 1 day | 98,0% | 2,0% | 0 | 0 | p=0,001 |
| | 1-3 days | 99,3% | 0,7% | 0 | 0 | |
| | 4-5 days | 96,4% | 3,6% | 0 | 0 | |
| | 6-10 days | 83,3% | 8,3% | 4,2% | 4,2% | |
| | over 10 days | 87,9% | 6,1% | 6,1% | 0 | |
| Admission status | satisfactory | 100,0% | 0 | 0 | 0 | p=0,001 |
| | moderate severity | 99,0% | 0,7% | 0,3% | 0 | |
| | serious condition | 72,2% | 19,4% | 5,6% | 2,8% | |
| Type of treatment | Conservative | 98,4% | 1,3% | 0,3% | 0 | p=0,0001 |
| | surgical | 65,2% | 21,7% | 8,7% | 4,3% | |
| Duration of pre-treatment preparation | 1-3 days | 71,5% | 14,3% | 7,1% | 7,1% | p=0,333 |
| | 4-7 days | 25,0% | 50,0% | 25,0% | 0 | |
| | over 7 days | 0 | 100,0% | 0 | 0 | |
| Complications | None | 97,8% | 1,6% | 0,6% | 0 | p=0,0001 |
| | Peritonitis | 100,0% | 0 | 0 | 0 | |
| | DIC syndrome | 100,0% | 0 | 0 | 0 | |
| | MOF | 44,4% | 33,3% | 11,1% | 11,1% | |
| | Pseudocyst of the pancreas | 100,% | 0 | 0 | 0 | |

the onset of the disease (p = 0.001), the condition of patients upon admission (p = 0.001), the type of treatment (p = 0.001), the development of multiple organ failure (p = 0.001), and the duration of inpatient treatment (p = 0.001). A study of the impact of the patient's gender and age, social status, admission channels, concomitant diseases, and duration of preoperative preparation on the outcome of treatment did not reveal any statistically significant differences (p> 0.05) (Table 4).

## Discussion.

Among the patients studied, females predominated (52.6%); by social status, pensioners prevailed - 40.8%, unemployed - 26.1%. Most patients were admitted to the hospital after 1 day (85.0%), with a moderate severity of the condition (88.3%). The main cause of the development of AP was dietary errors (91.3%). Acute edematous pancreatitis was found in 91.9%, various forms of pancreatic necrosis - in 8.1% of patients. In the structure of concomitant diseases, cholelithiasis prevailed - 42.6%; gastritis with DGR - 45.0%.

In most cases (93.1%), comprehensive conservative treatment was performed within the framework of the current clinical protocol with good efficiency. 23 (6.9%) patients with signs of pancreatic necrosis underwent various surgical interventions. In the structure of complications, MOF prevailed. The majority of patients were discharged with improvement - 93.7%. Mortality was 4.2%.

The time of admission of patients from the onset of the disease (p=0.001), the severity of the patient's condition upon admission (p=0.001), the performance of surgical interventions

***Table 4.*** *Factors influencing the outcome of inpatient treatment of patients with acute pancreatitis.*

| **Indicator** | | **The outcome of inpatient treatment** | | | | **p** |
|---|---|---|---|---|---|---|
| | | Recovery | Improvement | Transferred | Died | |
| Terms of admission to the hospital | Up to1 day | 4% | 86% | 0 | 10% | p=0,001 |
| | 1-3 days | 1,4% | 97,9% | 0 | 0,7% | |
| | 4-5 days | 2,4% | 96,4% | 0 | 1,2% | |
| | 6-10 days | 0 | 91,7% | 0 | 8,3% | |
| | over 10 days | 0 | 81,8% | 3% | 15,2% | |
| Admission status | satisfactory | 0 | 100% | 0 | 0 | p=0,001 |
| | moderate severity | 2% | 95,9% | 0,3% | 1,7% | |
| | serious condition | 0 | 75% | 0 | 25% | |
| Type of treatment | Conservative | 1,6% | 95,8% | 0,3% | 2,3% | p=0,001 |
| | surgical | 4,3% | 65,2% | 0 | 30,4% | |
| Duration of pre-treatment preparation | 1-3 days | 1,6% | 95,2% | 0,3% | 2,9% | p=0,001 |
| | 4-7 days | 7,1% | 71,5% | 0 | 21,4% | |
| | over 7 days | 0 | 75% | 0 | 25% | |
| Complications | None | 1,9% | 97,8% | 0,3% | 0 | p=0,001 |
| | Peritonitis | 0 | 100% | 0 | 0 | |
| | DIC syndrome | 0 | 100% | 0 | 0 | |
| | MOF | 0 | 66,7% | 0 | 33,3% | |
| | Pseudocyst of the pancreas | 0 | 100% | 0 | 0 | |
| Duration of inpatient treatment | 10 days | 1,9% | 94,4% | 0,3% | 3,4% | p=0,0001 |
| | 11-20 days | 0 | 88,9% | 0 | 11,1% | |
| | 21-30 days | 0 | 66,7% | 0 | 33,3% | |
| | over 30 days | 0 | 0 | 0 | 100% | |

(p=0.0001), the development of multiple organ failure (p=0.0001) significantly increases the duration of inpatient treatment and negatively affect the outcome of the disease.

According to Klindukhova M.O. and co-authors, in 2019, 163,763 patients with AP were hospitalized in the Russian Federation, 5,089 (3.11%) died, 14,900 (9.1%) underwent surgery, of which 2,600 (17.4%) died; in 2020, 134,765 were admitted, 5,737 (4.26%) died, 14,800 (10.9%) underwent surgery, of which 2,700 (18.2%) died; in 2021, 134,491 received inpatient treatment, 5,429 (4.04%) died, 14,300 (10.6%) underwent surgery, of which 2,700 (18.9%) died. Thus, the mortality rate in OP remains quite high, and postoperative mortality increases due to the increase in complicated forms of the disease [4].

Alekhnovich A.V. with co-authors the results of complex treatment of 30 patients with pancreatic necrosis were studied. Postoperative complications developed in all 30 patients. A total of 55 complications were noted, including 13 local and 42 general. The duration of inpatient treatment was 52.7±12.8 days. In all observations, multiple organ failure developed, and sepsis was diagnosed in 7 patients. The overall mortality rate was 26.7%. ancreatonecrosis refers to diseases for which the "golden hour" rule applies. It is in the first hours from the onset of the disease that the magnitude of structural and functional disorders and the possibility of their compensation are determined, and the mechanisms for the development of severe purulent-septic complications are launched. Timely diagnostics, advanced and comprehensive treatment are essential for pancreatic necrosis. This requires round-the-clock work of diagnostic services, the ability to provide highly qualified urgent surgical care and modern comprehensive therapy in the intensive care unit, and drug provision of the clinic. Treatment pancreatic necrosisis unprofitable and should be included in the list of high-tech medical care or have additional funding [29].

In the Sverdlovsk region RF study was conducted to improve the system of organizing medical care for patients with acute pancreatitis. It was found that from 2002 to 2006, the number of patients with acute pancreatitis, including fatal cases, increased by 27.4%. The estimated frequency of pancreatic necrosis was 18.9 per 100,000 population, and their share among patients with acute pancreatitis was 17.7%. A 24-hour work of the territorial center for emergency and emergency medicine and its branches, which began to act as interdistrict centers, was created and organized. As a result of the measures taken, the efficiency of the clinic, surgical treatment and intensive care of patients with severe pancreatitis increased. The number of treated patients in the surgical inpatient department of the clinic increased by 18%. The share of patients brought from the region increased to 76%. Surgical activity increased from 68% to 76%. The length of stay of patients in the intensive care unit has been reduced from 4 to 3.2 days, in surgical departments - from 11.9 to 10.9 days; mortality has decreased by 17.2%. Hospital mortality from severe pancreatitis has been reduced from 50% to 11.2%, disability - from 3.2% to 2.1%. To increase accessibility, ensure stage-by-stage and improve the quality of treatment for acute pancreatitis, it is necessary to improve the system of emergency anesthetic, resuscitation and surgical care by standardizing diagnostics and treatment tactics and the participation of leading clinics in the comprehensive treatment of the disease regardless of the patient's place of residence and providing assistance to doctors of municipal institutions [30].

The incidence of AP in Japan is increasing and ranges from

187 to 347 cases per million population. The mortality rate in Japan in 2003 was 0.2% for mild and moderate pancreatitis and 9.0% for severe AP. Early diagnosis and determination of the severity of AP using diagnostic criteria and a multifactorial scoring system are important. All patients diagnosed with AP should be treated in hospital. Patients with severe AP should be transferred to the intensive care unit as soon as possible for special measures, such as continuous regional arterial infusion of protease inhibitors and antibiotics, continuous hemodiafiltration [31].

In France, a group of investigators retrospectively analyzed the treatment outcomes of 187 patients (138 men; 74.0%, 49 women, 26.0%) with infected pancreatic necrosis (IPN). The most frequently identified microorganism was Escherichia coli (26.2%). 98 patients (52.4%) were admitted to the intensive care unit within the first 2 days of treatment. In 126 patients (67.4%), the outcome was unsuccessful: drainage for acute sepsis (62.0%), a course of antibiotics (47.1%), prolongation of the course of antibiotics (44.9%), and/or death from septic shock complicating IPN (8.0%). The unfavorable dynamics in two thirds of patients confirms the importance of determining the optimal timing of drainage and the choice of antibiotic therapy in the treatment of pancreatic necrosis [32].

## Conclusion.

Among inpatients, various forms of pancreatic necrosis were found in 8.1%. Most patients were admitted to the hospital after 24 hours (85.0%), with a moderate severity of the condition (88.3%). The main cause of AP development was dietary errors (91.3%). The structure of concomitant diseases was dominated by cholelithiasis - 42.6%; gastritis with DGR - 45%. Surgical activity was 6.9%. Various types of complications developed in 4.5% of patients. Mortality was 4.2%. Late hospitalization from the onset of the disease ($p = 0.001$), the severity of the patients' condition upon admission ($p = 0.001$), surgical interventions ($p = 0.0001$), the development of multiple organ failure ($p = 0.0001$) significantly increase the duration of inpatient treatment and negatively affect the outcome of the disease.

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