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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.

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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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Abstract.

Objective: Explore the effectiveness of ultrasound-guided percutaneous catheter drainage (PCD) combined with somatostatin in the treatment of severe pancreatitis (SAP) patients.

Methods: A retrospective study method was adopted to select 95 patients with SAP who were treated in our hospital from January 2018 to June 2022 for clinical research. Among them, 48 patients received routine treatment+somatostatin (control group), and other 47 patients received ultrasound guided PCD treatment on the basis of the control group (research group). The differences in the peripheral white blood cells (WBC), procalcitonin (PCT), interleukin-6 (IL-6), and Tumor Necrosis Factor- α(TNF- α), prostacyclin I2 (PGI2), plasma thromboxane 2 (TXA2), blood amylase, serum albumin (ALB), acute physiological function and chronic health score (APACHE II), sequential organ failure score (SOFA), and clinical efficacy were compared. The ICU treatment time, hospital stay, and incidence of complications were also recorded for the two groups of patients.

Results: Before treatment, there was no statistically significant difference in APACHE II score and SOFA score between the research group and the control group (P>0.05); The APACHE II scores of the research group after 14 days of treatment and 28 days of treatment were lower than those of the control group. The SOFA scores of the research group after 28 days of treatment were lower than those of the control group, and the differences were statistically significant (P<0.05); Before treatment, there was no statistically significant difference in WBC, PCT, IL-6, TNF-α, PGI2, TXA2, blood amylase, and ALB levels between the research group and control group (P>0.05); PCT, IL-6, TNF-α, TXA2 and blood amylase levels in the research group after 28 days of treatment were lower than that in the control group, and the differences were statistically significant (P<0.05); The ICU treatment time and hospitalization time of the research group were lower than those of the control group, and the differences were statistically significant (P<0.05); After 28 days of treatment, clinical efficacy evaluation was conducted, and the overall efficacy of the research group patients was better than that of the control group, with statistically significant differences (P<0.05); The complication rate of the research group was 27.66%, and that of the control group was 47.92%, which was significantly lower in the research group than in the control group (P<0.05).

Conclusion: Ultrasound guided PCD combined with somatostatin treatment for SAP patients can more effectively alleviate the degree of inflammatory response, effectively alleviate the severity of the patient's condition, reduce the occurrence of related complications, and improve clinical treatment effectiveness.

Key words. Ultrasound guidance, percutaneous catheter drainage, somatostatin, severe pancreatitis, acute physiological function and chronic health score, sequential organ failure assessment.

Introduction.

Severe pancreatitis (SAP) is a common clinical acute abdomen with a high fatality rate. It is a serious type of acute pancreatitis, accounting for about 10%~20% of acute pancreatitis [1]. At present, the clinical treatment of SAP is mainly gastrointestinal decompression, fasting, anti-infection, circulation improvement, fluid resuscitation, correction of water and electrolyte disorders, while somatostatin, proton pump inhibitors and other drugs are used to suppress the secretion of pancreatic juice [2]. SAP is often complicated by peripancreatic effusion, pseudocyst and even peripancreatic abscess. If not treated timely, it may lead to the spread of infection and cause systemic inflammatory response syndrome, septic shock and multiple organ dysfunction syndrome, which may have adverse effects on prognosis [3].

Basic research has proved that the timely removal of fluid containing pancreatic enzymes, digestive juice, necrotic tissue and its decomposition products can reduce the absorption of harmful substances, reduce the degree of systemic inflammation, and is conducive to the outcome of the disease [4,5]. Surgical removal of necrotic tissue and abscesses is relatively thorough, but the surgical trauma is relatively large, which is not conducive to the recovery of SAP patients [6,7]. Ultrasound-guided percutaneous catheter drainage (PCD) features precise drainage of peripancreatic abscess and necrotic tissue, which can avoid surgery [8]. This study investigated the effect of ultrasound-guided PCD combined with somatostatin in patients with SAP.

Materials and Methods.

General information: A retrospective study method was adopted to select 95 patients with SAP who were treated in our hospital from January 2018 to June 2022 for clinical research. Among them, 48 patients received routine treatment+somatostatin (control group), and other 47 patients received ultrasound guided PCD treatment on the basis of the control group (research group). There was no significant difference in the basic data between the two groups(P> 0.05) Table 1.

Inclusion criteria: (1) The diagnostic criteria for SAP patients included in this study refer to the Guidelines for the Diagnosis and Treatment of Acute Pancreatitis (2014) [9], the patients mainly showed severe clinical symptoms such as upper abdominal pain, nausea, vomiting, and fever; (2) the serum amylase and (or) lipase activities were more than three times the upper limit of normal with persistent organ failure; (3) the

Table 1. *Comparison of basic data between the two groups.*

Group	n	Age (year)	BMI (kg/m2)	sex (%)		Smoke (%)	Drink (%)
				Male	Female		
Research group	47	44.8±7.0	24.41±1.88	31(65.96)	16(34.04)	18(38.30)	24(51.06)
control group	48	42.4±6.6	24.63±1.92	27(56.25)	21(43.75)	22(45.83)	20(41.67)
t/χ^2		1.720	-0.564	0.941		0.553	0.843
P		0.089	0.574	0.332		0.457	0.385
Group	**n**	**APACHEII Score (score)**	**SOFA score (score)**	**Basic etiology (%)**			
				Bile origin	**Alcoholic**	**Hyperlipemia**	**Other reasons**
Research group	47	16.33±2.40	4.81±1.03	14(29.79)	8(17.02)	17(36.17)	8(17.02)
Control group	48	15.85±2.74	4.53±0.98	10(20.83)	12(25.00)	14(29.17)	12(25.00)
t/χ^2		0.908	1.358	2.547			
P		0.366	0.178	0.467			

age range was 19-75 years; (4) all the patients were treated in our hospital and the clinical data were complete; (5) the study protocol was approved by the medical ethics committee.

Exclusion criteria: (1) patients with severe arrhythmia and patients with pacemaker insertion; (2) patients with serious infectious diseases; (3) patients with malignancy; (4) patients with immune system diseases; (5) history of major surgery in the last 3 months; (6) patients with autoimmune diseases; and (7) patients with genetic diseases.

Treatment methods:

The control group used conventional treatment + somatostatin. Treatment of anti-infection, acid suppression, liquid resuscitation is given as usual, and somatostatin is also given at the same time. Add 3 mg somatostatin (Shenzhen Hanyu Pharmaceutical Co., LTD., specification: 0.75mg) for injection to 5% glucose injection 100 ml intravenously at the rate of 0.25mg / h, 1 time / d.

Patients in the research group received ultrasound-guided PCD on the control basis. Upper abdominal CT, abdominal color ultrasound to observe the peripancreatic effusion, effusion site and effusion, and the lowest position of volume and fluid level. Under the guidance of ultrasound, the puncture tube was performed at the lowest position of the liquid level. At the puncture site, 1% lidocaine was under local anesthesia. During the puncture, avoid large vessels and intestines, etc., place the guide wire, and then place the 8F pig tail drainage tube along the guide wire, and properly fixed and connected to the drainage bag. When the patient's condition is improved, the drainage fluid volume is <10 ml/d and it can be extubated.

Observation indicators and detection methods:

Compared the differences in peripheral white blood cells (WBC), procalcitonin (PCT), interleukin-6 (IL-6), tumor necrosis factor- α(TNF- α), prostacyclin I2 (PGI 2), plasma thromboxane 2 (TXA 2), blood amylase, serum albumin (ALB), acute physiological function and chronic health score (APACHE II) [10], sequential organ failure score (SOFA) [11], clinical efficacy between the two groups and recorded ICU treatment duration, hospitalization duration, and occurrence of complications in the two groups.

Clinical efficacy evaluation: Cure: By bedside ultrasound, the pancreatic inflammatory exudate of the patient has been fully absorbed, the patient's clinical symptoms of fever, abdominal pain, nausea and vomiting have completely disappeared, serum amylase has returned to normal levels; Improvement: After the treatment, the bedside ultrasound suggested that the patient was at least 50%, the patient's clinical symptoms, including fever, nausea, vomiting, and abdominal pain, were significantly relieved, blood amylase decreased (below 70% of the highest peak), but it did not return to normal levels. Ineffectiveness: the patient's pancreatic exudation was still evident by bedside ultrasound examination, basically failed to be absorbed, the patient's clinical symptoms including fever, nausea, vomiting, and abdominal pain were not effectively relieved or even aggravated, serum amylase did not decline or even increased.

Before and 5d after treatment, 8ml of peripheral blood samples of patients were collected and divided into three vacuum vessels, one of which was tested for white blood cells (WBC) by BC-5000 blood cell analyzer of Shenzhen Mindray Medical Electronics Co., LTD. One blood serum was centrifuged at room temperature for half an hour and centrifuged at 3000r/min for 10min. PCT, IL-6, TNF-α, PGI2 and TXA2 from the serum were detected by enzyme-linked immunosorbent assay (ELISA). The kit was made by Shanghai Zenske Biotechnology Co., LTD., and the instrument was Thermo Field MK3 enzyme-label instrument. Blood amylase and ALB were detected by Liasys200 automatic biochemical analyzer of ADM Company in Italy.

Statistical methods:

Data were analyzed by statistical software SPSS 21.0. Measurement data collected for WBC, PCT, IL-6, TNF-α, PGI 2, TXA 2, blood amylase and ALB were described by mean ± standard deviation ($\bar{x} \pm s$), repeated measurement data were compared by repeated measures, LSD-t test was used for pairwise comparisons between any time points; count data was described by rate (%), and data were compared by χ^2 test or rank sum test; $P < 0.05$ was considered statistically significant.

Results.

Trend analysis of APACHE score and SOFA score before and after treatment in both groups.

Before treatment, there was no statistically significant difference in APACHE II score and SOFA score between the research group and the control group (P>0.05). The APACHE II scores of the research group after 14 days of treatment and 28 days of treatment were lower than those of the control group. The SOFA scores of the research group after 28 days of treatment were lower than those of the control group, and the differences were statistically significant (P<0.05) Table 2 and Figure 1.

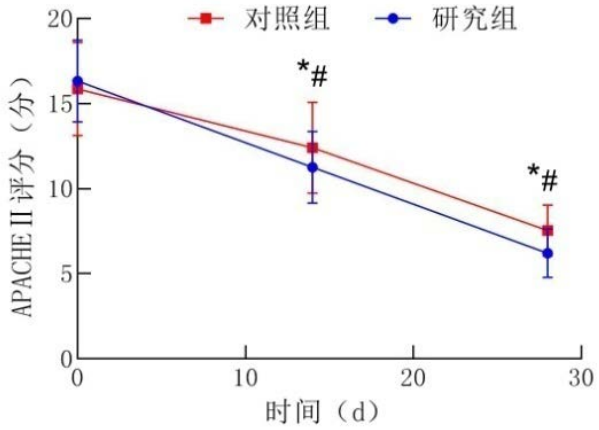

Figure 1. *Trend plots of APACHEII score and SOFA score before and after treatment in both groups.*

have poor tolerance to surgery. Although surgical removal of peripancreatic effusion and abscess is effective, they have many postoperative complications, resulting in a high fatality rate [19,20].

PCD is a percutaneous catheter drainage of peripancreatic fluid to reduce the pressure in the chest and abdomen and prevent the absorption of bacterial endotoxin into the blood. Compared with traditional surgery, it has the advantages of less trauma and high safety [21,22]. Punoperation under ultrasound guidance can help the operator avoid intestines and important large vessels and avoid retrograde bacteria [23]. Some studies have found that when SAP with obvious abdominal effusion, the best time for abdominal puncture and drainage is within 2d of admission, which is beneficial for the outcome and prognosis [24]. This study found that the APACHEII score of the research

Comparative analysis of laboratory indicators before and after treatment:

Before treatment, the differences in WBC, PCT, IL-6, TNF-α, PGI 2, TXA 2, blood amylase, and ALB between the two groups were not statistically significant (P> 0.05), PCT, IL-6, TNF-, TNF- α, TXA2, and blood amylase after 28d in the research group were lower than those in the control group, all of which were statistically significant (P <0.05) Table 3.

Comparison of ICU treatment duration and hospital stay between the two groups:

The ICU treatment duration and hospital stay of the research group were shorter than that of the control group, and the differences were statistically significant (P <0.05) Table 4.

Comparison of the efficacy between the two patient groups:

Clinical efficacy was assessed after 28d of treatment, and the overall efficacy of the research group was better than that of the control group, with statistically significant (P <0.05) Table 5.

Comparison of the complications between the two groups:

The occurrence of complications in the two groups were observed, the complication rate of the research group was 27.66% and that of the control group was 47.92%, which was significantly lower in the study group than in the control group (P<0.05) Table 6.

Discussion.

Acute pancreatitis is caused by a variety of causes of pancreatic enzyme activation, digestion of pancreatic tissue, causing pancreatic edema, bleeding and even necrosis, while biliary stones, hyperlipidemia, alcoholism, hypercalcemia, drugs, surgery, trauma and so on can induce this disease [12,13]. Most patients can be cured after early active treatment, but some patients with persistent organ failure have progressed to SAP, with the characteristics of rapid onset, variable disease, and rapid progression, etc. [14,15] Epidemiological studies have found that the early case fatality rate of SAP is as high as 20-30%, and it is even higher in later co-infected SAP patients [16]. As a large number of inflammatory mediators are produced during the digestion of the pancreas, various enzymes, inflammatory exudates and metabolites gather in the peripancreas, and endotoxin is absorbed into the blood, which can lead to the progression of the disease [17,18]. Therefore, attention should be paid to timely blocking the systemic inflammatory response syndrome caused by inflammatory mediators in the treatment of SAP. However, SAP patients are in critical condition and

Table 2. *Trend analysis of APACHEII score and SOFA score before and after treatment in both groups ($\bar{x} \pm s$, point).*

Group	n	APACHEII Score (point)				SOFA score (point)		
		Pretherapy	Treatment was performed for 14d	Treatment was performed for 28d		Pretherapy	Treatment was performed for 14d	Treatment was performed for 28d
Research group	47	16.33±2.40	11.25±2.11	6.20±1.43		4.81±1.03	3.10±0.96	2.13±0.78
Control Group	48	15.85±2.74	12.41±2.67	7.54±1.50		4.53±0.98	3.45±0.94	2.52±0.83
t		0.908	-2.346	-4.455		1.358	-1.795	-2.359
P		0.366	0.021	0.000		0.178	0.076	0.020

Table 3. *Comparative analysis of laboratory indicators before and after treatment in the two groups ($\overline{x} \pm s$).*

Group	n	WBC (×10⁹/L)		t	P	PCT (ng/mL)		t	P
		Pretherapy	Treatment was performed for 28d			Pretherapy	Treatment was performed for 28d		
Research group	47	18.43±2.20	10.61±1.77	19.108	0.000	5.58±1.30	0.77±0.16	25.441	0.000
Control group	48	18.11±2.43	11.24±1.83	15.587	0.000	5.25±1.26	1.03±0.30	22.562	0.000
t		0.672	-1.705			1.256	-5.254		
P		0.503	0.092			0.212	0.000		
Group	n	IL-6 (ng/L)		t	P	TNF-α (ng/L)		t	P
		pretherapy	Treatment was performed for 28d			Pretherapy	Treatment was performed for 28d		
Research group	47	87.44±12.30	37.17±7.53	24.081	0.000	58.39±9.30	16.50±3.84	28.802	0.000
Control group	48	89.60±11.58	44.02±8.91	21.528	0.000	56.50±11.29	19.14±4.41	21.327	0.000
t		-0.881	-4.043			0.890	-3.109		
P		0.380	0.000			0.376	0.002		
Group	n	PGI2 (pg/L)		t	P	TXA2 (pg/L)		t	P
		Pretherapy	Treatment was performed for 28d			Pretherapy	Treatment was performed for 28d		
Research group	47	90.73±16.20	194.32±26.20	-23.120	0.000	433.6±78.5	143.0±32.5	23.662	0.000
Control group	48	93.36±18.51	201.10±28.42	-21.845	0.000	426.1±83.8	161.8±39.8	19.701	0.000
t		-0.736	-1.208			0.450	-2.519		
P		0.463	0.230			0.654	0.013		
Group	n	Blood amylase (U / L)		t	P	AL (Bg/L)		t	P
		pretherapy	Treatment was performed for 28d			Pretherapy	Treatment was performed for 28d		
Research group	47	1432.8±220.7	478.1±97.5	27.369	0.000	34.77±2.90	38.52±3.01	-6.182	0.000
Control group	48	1401.3±214.4	611.2±106.3	22.828	0.000	34.12±2.86	37.65±3.35	-5.518	0.000
t		0.706	-6.356			1.100	1.331		
P		0.482	0.000			0.274	0.187		

Table 4. *Comparison of ICU treatment duration and hospital stay between the two groups ($\overline{x} \pm s$).*

Group	n	Time of ICU treatment (d)	Length of stay (d)
Research group	47	10.6±2.5	38.8±5.8
Control group	48	12.3±2.9	41.6±6.6
t		-3.057	-2.195
P		0.003	0.031

Table 5. *Assessment of treatment effects in the two groups [n (%)].*

Group	n	Cure	Take a turn for the better	Of no avail
Research group	47	19(40.43)	24(51.06)	4(8.51)
Control group	48	10(20.83)	29(60.42)	9(18.75)
Z		-2.262		
P		0.024		

Table 6. *Comparison of complications in the two groups.*

Group	n	False cyst	Acute renal failure	Metastasizing septicemia	Acute respiratory failure	Other	Complication rate (%)
Research group	47	5	2	2	2	2	13(27.66)
Control group	48	8	4	4	3	4	23(47.92)
χ^2							4.141
P							0.042

group was lower after 14d and 28d of treatment than that of the control group, and the SOFA score of the research group was lower than the control group; the duration and hospitalization of ICU treatment were shorter than that of the control group; the overall efficacy was better than that of the control group after 28d of treatment group, and the complication rate was lower than that of the control group. The above results suggest that ultrasound-guided PCD combined with somatostatin treatment in SAP patients can more effectively relieve the patient's condition, reduce the occurrence of related complications, and improve the clinical treatment effect. Because PCD technology can effectively drain abdominal effusion, remove harmful substances in the effusion, inhibit early inflammatory reaction, reduce necrotizing infection of pancreas and peripancreatic tissue, delay or block the progression of SAP, and promote the outcome of the disease [25,26]. At the same time, the operation under ultrasound guidance is more accurate and causes less iatrogenic damage to patients [27].

Local and systemic inflammatory reactions are important pathological mechanisms of SAP. WBC is a commonly used inflammatory index in the clinic, rising during acute infection and hemorrhage [28]. PCT is a protein that is elevated during severe bacterial infection, sepsis, and multiple organ failure [29]. IL-6, TNF- α are a group of proinflammatory factors, which promote each other and cause an inflammatory cascade [30]. PGI 2 and TXA 2 are a group of factors with vasodilation and contraction effects, which are normally in balance and maintain the stability of pancreatic microcirculation [31]. TXA2 can promote platelet aggregation, cause vasoconstriction and vascular endothelial cell injury. PGI2 can antagonize the effect of TXA2, inhibit abnormal platelet activation, and protect vascular endothelial cells [32]. The disturbance of PGI2 and TXA2 levels in SAP patients may cause microthrombosis and lead to pancreatic microcirculation disturbance [33]. Blood amylase is a specific indicator of pancreatic injury, and its serum level can better reflect the degree of pancreatic injury [34]. ALB is a commonly used clinical nutritional index. Due to the influence of fasting, systemic inflammatory response, stress response and other factors, the body of SAP patients is in a state of negative nitrogen balance, and the level of ALB decreases when the disease is severe [35]. In this study, PCT, IL-6, TNF-α, TXA2 and blood amylase in the study group were lower than those in the control group after 28 days of treatment. These results suggest that ultrasound-guided PCD combined with somatostatin can more effectively inhibit excessive inflammatory response, reduce the severity of infection, prevent vascular endothelial injury and improve microcirculation in SAP patients. This is an important mechanism for the treatment of SAP. The reason is that PCD can clear peripancreatic effusion and abscess in time, reduce pathogen load and inflammatory load, and block pathological processes such as secondary systemic inflammatory response and microcirculation disturbance.

Conclusion.

In conclusion, ultrasound guided PCD combined with somatostatin treatment for SAP patients can more effectively alleviate the degree of inflammatory response, effectively alleviate the severity of the patient's condition, reduce the occurrence of related complications, and improve clinical treatment effectiveness.

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