Morphological features of infectious pancreatic necrosis against the background of diabetes mellitus and assessment of traditional treatment measures

Xakimov Dilshod Mamadalievich
Xodjimatov G'ulomiddin Minxodjievich
Qosimov Nosirbek Adxamovich
Andijan State Medical Institute Uzbekistan, Andijan, Atabekov Street - 1
Tel: (0-374) 223-94-60. E-mail: info@adti

ANNOTATION: The scientific thesis analyzes the morphological features of infectious pancreatic necrosis (IPN) against the background of diabetes mellitus (DM) and assesses traditional treatment measures. The study was conducted on 124 patients with IPN for the period from 2012 to 2018. The control group consisted of 62 (33%) patients with IPN against the background of SD with a traditional clinical and instrumental approach, and the comparison group also included 62 (33%) patients with IPN without SD. In the studied groups, comprehensive laboratory and instrumental studies were conducted at different stages of treatment. Studies have shown that in patients with IPN against the background of SD, accelerated progression of the necrotic process was observed and required early surgical intervention compared to patients with IPN without SD.

KEYWORDS: Infectious pancreatic necrosis, diabetes mellitus, morphological features.

Морфологические особенности инфицированного панкреанекроза на фоне сахарного диабета и оценка традиционных лечебных мероприятий

Хакимов Дилшод Мамадалиевич,
Ходжиматов Гуломидин Минходжиевич,
Касимов Носирбек Адхамович
Андижанский государственный медицинский институт Узбекистон, Андижон, Ул. Атабеков - 1 Тел :(0-374)223-94-60. E-mail: info@adti

АННОТАЦИЯ: В научном тезисе анализируется морфологические особенности инфицированного панкреанекроза (ИПН) на фоне сахарного диабета (СД) и дается оценка традиционных лечебных мероприятий. Исследования проводились у 124 больных с ИПН за период с 2012 по 2018 годы. Контрольную группу составили 62 (33 %) больных с ИПН на фоне СД с традиционным клинико-инструментальным подходом, а в сравнительную группу включены также 62 (33%) больных с ИПН без СД. В исследуемых группах проводились комплексные лабораторные и инструментальные исследования на различных этапах лечения.

Исследования показали, что у больных с ИПН на фоне СД наблюдалось ускоренное прогрессирование некротического процесса и требовали раннего оперативного вмешательства по сравнению с больными с ИНП без СД.

КЛЮЧЕВЫЕ СЛОВА: Инфицированный панкреанекроз, сахарный диабет, морфологические особенности.

Activity. The choice of optimal surgical tactics for infected pancreatic necrosis (IPN) in patients with diabetes mellitus (DM) remains one of the most complex and controversial issues of abdominal surgery. In this category of patients, early surgical intervention can provoke the development of multiple organ failure (MFA), while delayed rehabilitation often leads to the generalization of infection and the development of sepsis. In the last two decades, there has been a shift in the paradigm of surgical treatment of IPN towards minimizing trauma from early laparotomy and necrosequestrectomy - to the phased use of transcutaneous drainage, video necrosequestrectomy, and endoscopic methods.

The purpose of the study was: to study the clinical and morphological features of the course of infected pancreatic necrosis in patients with diabetes mellitus and to analyze the causes of unsatisfactory results of traditional surgical treatment methods.

MATERIAL AND METHODS OF RESEARCH

The clinical material of the study was formed on the basis of observations of 124 patients with IPN who were undergoing treatment from 2012 to 2018. The study was conducted at the RSNPM of the Andijan branch. The control group consisted of 62 (33%) patients with IPN against the background of SD, who underwent treatment in 2012-2018, when the management of this category of patients was carried out within the framework of traditional clinical and instrumental approaches. The comparison group was represented by 62 (33%) patients with IPN without SD, who were treated in the same period and served as a reference model for the course of the disease in the absence of a diabetic background.

The comprehensive use of laboratory and instrumental methods provided an objective assessment of the depth and prevalence of IPN, allowed tracking the dynamics of the pathological process and served as the basis for comparing instrumental data with clinical and laboratory indicators at different stages of treatment.

Results and their discussion.

The study of clinical and morphological manifestations allowed us to see that already in the first days of hospitalization, patients with CD began to differ from patients without carbohydrate metabolism disorders in terms of the rate and depth of PUD destruction.

Progression of the focus according to ultrasound or MSCT data for the first three days was observed in 36 out of 62 patients in the control group, which corresponded to 58.1%. In the comparison group, a similar dynamic was registered only in 17 people, that is, in 27.4% ($\chi 2=11.9$; p=0.001; OR=3.67; 95% CI: 1.73-7.78).

LF necrosis >50% was noted in 34 (54.8%) patients of the control group and in 19 (30.6%) patients of the comparison group ($\chi^2=7.41$; p=0.006; OR=2.75; 95% CI: 1.32-5.74).

The absence of a formed capsule was found in 38 (61.3%) patients of the control group and in 18 (29%) patients of the comparison group ($\chi^2=13.03$; p <0.001; OR=3.87; 95% CI: 1.83-8.19).

The thickness of the peripancreatic infiltrate ≥10 mm was registered in 39 (62.9%) patients with IOP against the background of CD and in 28 (45.2%) patients from the comparison group ($\chi^2=3.93$; p=0.047; OR=2.06; 95% CI: 1.0-4.22). The presence of free fluid was recorded in half of the patients in the control group (51.6%) and in 1/3 of patients in the comparison group (35.5%), which, although not statistically significant ($\chi^2=3.28$; p=0.07; OR=1.94; 95% CI: 0.94-3.99), but emphasized a tendency towards a more pronounced inflammatory reaction in patients with IPN against the background of SD.

Patients received a standard volume of conservative therapy, including broad-spectrum ABT and intensive infusion support. Such therapy was conducted only in 8 (12.9%) patients of the control group and in 10 (16.1%) patients of the comparison group ($\chi^2=0.26$; p=0.61; OR=0.77; 95% CI: 0.28-2.1). Primary intradermal drainage was performed in 28 (45.2%) patients of the control group and in 26 (41.9%) patients without carbohydrate metabolism disorders, i.e., in the comparison group ($\chi^2=0.13$; p=0.72; OR=1.14; 95% CI: 0.56-2.32). Repeated drainage interventions also occurred with a close frequency (19.4% and 14.5% respectively; $\chi^2=0.52$; p=0.47; OR=1.41; 95% CI: 0.55-3.64). Such a profile indicates the absence of a differentiated approach, since the grounds for performing drainage were determined by the general criteria of IPI and the size of fluid collections, without taking into account diabetic changes in microcirculation or the expected rate of process progression.

Open operations were performed with comparable frequency, and the first laparotomy with non-sequestrectomy was performed in 26 (41.9%) patients of the control group and in 22 (35.5%) patients of the comparison group ($\chi^2=0.54$; p=0.46; OR=1.31; 95% CI: 0.64-2.71). Repeated relaparotomy was required in 15 (24.2%) and 9 (14.5%) observations, respectively. Although the difference in the frequency of repeated operations was absent in the statistical expression ($\chi^2=1.86$; p=0.17; OR=1.88; 95% CI: 0.75-4.69), clinically in patients with IPN against the background of SD, repeated interventions were more often discussed due to the ongoing progression of necrosis and insufficient effectiveness of draining minimally invasive operations.

An important nuance was associated with the timing of the first surgical intervention, which was required within 72 hours from the moment of hospitalization by already 24 (38.7%) patients of the control group and only 12 (19.4%) patients of the comparison group (χ^2=5.64; p=0.018; OR=2.63; 95% CI: 1.17-5.92).

Types of surgical access were distributed evenly, among which frontal, retroperitoneal, and combined access were used in both groups with minimal differences, which confirms the absence of individualization of surgical technique. The choice of access was determined by the localization of necrosis according to visualization data, and not by the features of concomitant diabetic angiopathy or the presumed resistance of tissues to ischemic damage. The same peculiarity was noted for the medicinal part of the treatment, when the similarity of the exacerbation of antibacterial therapy (ABT) we identified was carried out in 36 (58.1%) patients of the control group and in 31 (50%) patients of the comparison group. The values did not reach statistical significance (χ2=0.81; p=0.37; OR=1.38; 95% CI: 0.68-2.81). The volume of infusion therapy ≥3 liters per day at 48 hours was noted in 41 (66.1%) patients of the control group and 38 (61.3%) patients of the comparison group (χ2=0.31; p=0.58; OR = 1.23; 95% CI: 0.59-2.57).

Conclusion. Thus, a comparison of clinical and morphological changes and the structure of traditional treatment measures shows that with the same approaches to choosing tactics, patients with IPN against the background of SD entered treatment with a more pronounced zone of destruction, demonstrated accelerated progression of the necrotic process, and more often required early surgical intervention. At the same time, the set of treatment methods and the sequence of their implementation remained the same for both groups, which did not take into account the peculiarities of the course of the disease in patients with IPN against the background of SD. Such a discrepancy between the severity of the initial morphostructure of IPN and identical treatment regimens forms prerequisites for further explanation of the differences in the frequency of complications and mortality, since the standard tactics proved insufficiently adapted to the nature of the LPR damage in this category of patients.

LIST OF LITERATURE

1. Ахмедов Ш. Х. Миниинвазивные технологии в лечении острого панкреатита: клинико-экономический анализ // Экономика и социум. - 2025. - № 7-1(134). - С. 352-363.

2. Гусейнов Л. М. Современные алгоритмы хирургического лечения инфицированного панкреонекроза: роль малоинвазивных технологий // Современная наука: актуальные проблемы теории и практики. Серия: Естественные и технические науки. - 2025. - № 4-2. - С. 153-155.

3. Жураев Г.Г., Касымов А.Л., Мирзаев К.К.,Солиев М.Б. *"Клиническая оценка отдаленных результатов комплексного лечения диабетической флегмоны нижних конечностей"* Научные исследования и общественные проблемы volume 3, issue 1,2024 c11-14

4. Касымов А.Л., Жураев Г.Г., Нишонов М.Ф., Мирзаев К.К., Солиев М.Б. "Ближайшие и отдаленные результаты комплексного лечения гнойнонекротических поражений мягких тканей нижних конечностей у больных сахарным диабетом" Вестник ТМА №1, 2024 ISSN 2181-7812 С.103

5. Мусашайхов Х.Т., Косимов А.Л., Салохиддинов К.З., Мусашайхов У.Х., Мирзаев К.К. Современные взгляды на проблему эндогенной интоксикации при остром панкреатите и выбор патогенетически обоснованной дезинтоксикационной терапии (обзор литературы)// Journal of modern medicine №1 (12), Tome 1, 2026. - С. 197-209.

6. Juraev G. G Kasymov A. L Sadikov R. A Soliev M. B Xojimetov D. Sh //Experimental substantitation of the use of laser irraditation and photodynamic therapy in diabetic femoral phlegmon// Central asian journal of medical and natural sciences volume: 04 issue: 04 | jul-aug 2023 issn: 2660-4159 C544-553

7. Juraev G.G., Kasymov A.L., Musashaikhov X.T., Xojimetov D.Sh., Soliev M.B. // Possibilities of laser and photodynamic therapy in the treatment of purulent-necrotic processes of the lower extremities in patients with diabetes mellitus// Article text-5764 Volume-26, september 2023 issn: 2749-3644 C1-9

8. Masood M., Vedamurthy A., Krishnamoorthi R., et al. Interventional Management of Acute Pancreatitis and Its Complications // J. Clin. Med. - 2025. - Vol. 14, №18. - P. 6683.

9. Pauw H.S., Timmerhuis H.C., Boxhoorn L., et al. Predictors for Successful Treatment of Infected Necrotizing Pancreatitis with Antibiotics Alone: A Nationwide Prospective Cohort // Ann. Surg. - 2025. - Vol. 282, №5. - P. 860-867.

10. Rao J.W., Li J.R., Wu Y., et al. Ascites Characteristics in Acute Pancreatitis: A Prognostic Indicator of Organ Failure and Mortality // World J. Gastroenterol. - 2025. - Vol. 31, №28. - P. 108926.