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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

OPTIMIZATION OF THE APPLICATION OF AZINVASIVE TECHNOLOGIES IN THE TREATMENT OF ACUTE BILIAR PANCREATITIS

Speciality: 3213.01- «Surgery»

Field of science: Medical

Applicant: **Jumshud Ramiz Kazimzadeh**

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The dissertation work was carried out at the Department of General Surgery with courses of cardiovascular surgery and neurosurgery in the Azerbaijan State Advanced Training Institute for doctors named after A. Aliyev

Scientific supervisor: Doctor of Medical Sciences, Professor
Nazim Akif Gasimov

Official opponents: Doctor of Medical Sciences, Professor
Rauf Maqsud Aghayev

Doctor of Medical Sciences, Professor
Idris Turqut Akhundov

Doctor of Philosophy in Medicine
Anar Yashasin Aliyev

Dissertation Council FD 2.11, under the Azerbaijan State Advanced Training Institute named after A.Aliyev, of the Higher Attestation Commission under the President of the Republic of Azerbaijan

The Chairman of Dissertation Council:
The Doctor of Medical Sciences, Professor

Nazim Akif Gasimov

The Scientific Secretary of the Dissertation Council:
The Doctor of Philosophy in Medicine

Samira Alakbar Akbarbayova

The Chairman of the Scientific Seminar:
The Doctor of Medical Sciences

Sahin Hashim Aliyev

GENERAL CHARACTERISTICS OF THE WORK

Relevance and development of the topic. Among the etiological causes of acute pancreatitis, gallstone disease is the particular importance. Among the incidence of acute pancreatitis, the incidence of biliary pancreatitis is 25-48% in different European countries. Bəzi digər ölkələrdə bu patologiyadan letallıq digər etiologiyalı kəskin pankreatitlərdə olan letallıqdan üstün olması ilə səciyyələnir [Bayramov N.Y., 2002[1]; Ağayev B., 2008[2]; Əliyev S.A., 2008[3]; Qasımov N.A., 2015;[4]]

Treatment of acute pancreatitis, depending on the etiological cause, is of particular practical importance, as in the case of pancreatitis, the genesis of the disease is important in choosing the next treatment strategy. [Aliyev SA, 2008[3]; Clinical protocol for the diagnosis and treatment of acute pancreatitis, 2009[5]].

The methods used in the treatment of acute pancreatitis varies from conservative measures to open surgery. The surgical treatment strategy for acute pancreatitis has gone through several stages in connection with the evolution of views on the pathogenesis, diagnosis and treatment of the disease. Given the high severity and mortality rate, many surgeons are in favor of minimizing emergency surgery for acute pancreatitis. [Aghayev B., 2008[2]; Aliyev S.A., 2008[3], Alidzhanov F.B., Hashimov M.A., Allajarov U.D..[6]; Бебуришвили А.Г., Бурчуладзе Н.Ш., Рязанова И.И., 2007[7]].

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[1] Bayramov N. Y. Mədəaltı vəzin cərrahi xəstəlikləri. Ankara: 2002, s. 39-89. 217 s.

[2] Ağayev B. A. Cərrahi xəstəliklər. Bakı, 2008, 807 s.

[3] Əliyev S.A. Cərrahi xəstəliklər, Bakı:, 2008, s.175-230. 779s.

[4]Qasımov N.A. Mədəaltı vəzin cərrahi xəstəlkləri. Bakı 2015

[5]Kəskin pankreatitin diaqnostikası və müalicəsi üzrə klinik protokol. Bakı, 2009, 24 s.

[6] Alidzhanov F.B., Hashimov M.A., Allajarov U.D. Diagnostika i lechenie ostrogo pankreatita pri ushhemlennom kamne bol'shogo duodenal'nogo sosochka //Annaly hir. gepat. – 2007 – № 3. – c. 156 – 157.

The unsatisfactory results of the treatment of acute pancreatitis with traditional surgical methods have led to the introduction of new treatments. Thus, less invasive video endoscopic technologies have recently been used in the diagnosis and treatment of acute pancreatitis [Agayev B., 2008[2]; Banks P.A., et al. 2013[8]; De Madaria E., Banks P.A., Moya-Hoyo N., et al., 2014[9]].

The use of diagnostic laparoscopy in acute pancreatitis has reduced the incidence of mortality and purulent complications by 1,5-2 times. The application of laparoscopy is not limited to diagnostics, but also has a therapeutic effect. Laparoscopic abdominal rehabilitation and drainage, cholecystostomy, cholecystectomy and fat bladder drainage were performed. As mentioned, the majority of cases of acute pancreatitis are biliary pancreatitis. Elimination of gallstone disease prevents the development of biliary pancreatitis, which will develop in the future. However, there is no consensus on when to perform laparoscopic cholecystectomy in a patient with biliary pancreatitis.

While some authors advocate early laparoscopic cholecystectomy after acute pancreatitis, others advocate late laparoscopic cholecystectomy. [Forsmark CE, Baillie J., 2007[10]; Oría A, Cimmino D, Ocampo C, et al., 2007[11]].,

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[7] Beburishvili A.G., Burchuladze N.Sh., Rjazanova I.I. Kachestvo zhizni bol'nyh posle maloinvazivnogo hirurgicheskogo lechenija pankreonekroza //Annaly hir. gepat. – 2007 – № 3. – p. 160.

[8] Banks P.A., Bollen T.L., Dervenis C., Gooszen H.G., Johnson CD, Sarr MG, et al. Classification of acute pancreatitise2012: revision of the Atlanta classification and definitions by international consensus. Gut 2013;62:102e11.

[9] De Madaria E, Banks PA, Moya-Hoyo N, et al. Early factors associated with fluid sequestration and outcomes of patients with acute pancreatitis. Clinical Gastroenterology and Hepatology 2014;12:997–1002

[10] Forsmark CE, Baillie J. AGA Institute Clinical Practice and Economics Committee; AGA Institute Governing Board: AGA Institute technical review on acute pancreatitis. Gastroenterology 2007; 132:2022–44.

[11] Oría A, Cimmino D, Ocampo C, et al. Early endoscopic intervention versus early conservative management in patients with acute gallstone pancreatitis and biliopancreatic obstruction: a randomized clinical trial. Annals of Surgery 2007;245:10–7.

Studies have shown that laparoscopic cholecystectomy should be performed within the first 7 days in patients with mild to moderate pancreatitis, and within 7 to 21 days in patients with severe pancreatitis. In addition to studies showing that cholecystectomy in the first stage of hospitalization increases biliary complications, there are studies that show that these operations do not increase the hospitalization time compared to planned operations [Banks PA, Bollen TL, Dervenis C., et al. , 2013[8]; Forsmark CE, Baillie J., 2007[10]; Oría A, Cimmino D, Ocampo C, et al., 2007[11]]. At the same time, the morphological form of acute pancreatitis and the timing of laparoscopic cholecystectomy remain controversial. One of the controversies is the use of endobiliary interventions in acute biliary pancreatitis. According to some authors, endoscopic interventions are contraindicated in these pathologies. Thus, some authors do not support endoscopic papillosphincterotomy, given the observed complications, especially post-endoscopic retrograde cholangiopancreatography (ERXPG) pancreatitis [Papachristou G.I., Muddana V. et al. 2010[12]]. Although some studies comparing early endoscopic papillosphincterotomy with conservative treatment have yielded positive results, a randomized controlled trial conducted by Folsch et al. Baillie J., 2007[10]; Oría A, Cimmino D, Ocampo C, et al., 2007[11]]. Endoscopic papillosphincterotomy was performed only in patients with choledochal stones and was found to be less effective than conservative treatment in mild pancreatitis, complications and mortality were reduced in patients with severe pancreatitis. In some cases, radiologically enlarged choledochus was observed, but no stone was found in the choledochus during endoscopic papillosphincterotomy, which requires improvement of the criteria for endoscopic papillosphincterotomy in acute pancreatitis [Shelat V.G., Diddapur R.K. 2007[13]; Horvath K, Freeny P, Escallon J, et al. 2010[14]].

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[12] Papachristou G.I., Muddana V., Yadav D., O'Connell M., Sanders M.K., Slivka A. et al. Comparison of BISAP, Ranson's, APACHE-II, and CTSI scores in predicting organ failure, complications, and mortality in acute pancreatitis. Am J Gastroenterol 2010; p. 105:435e41.

[13]Shelat V.G., Diddapur R.K. Minimally invasive retroperitoneal pancreatic necrosectomy in necrotising pancreatitis // Singapore Med J. 2007; p. 48:220–3.

Object and subject of research. In the study, patients who were hospitalized with a diagnosis of acute pancreatitis in 2010-2016 were selected as the subject of observation, minimally invasive and traditional open surgical interventions applied in these patients and their near and far results. The purpose of the study. The main goal of the study is to optimize the application of minimally invasive technologies for acute biliary pancreatitis and thus improve the results of surgical treatment.

Research objectives:

1. Development and application of optimal treatment methods in patients with acute biliary pancreatitis;
2. Comparative evaluation of the effectiveness of different surgical treatment methods in patients with acute biliary pancreatitis;
3. Study of the near and long-term results of surgical treatment of acute biliary pancreatitis;
4. Study of quality of life after surgical treatment of acute biliary pancreatitis.

Research methods:

- Clinical and laboratory examinations
- Determination of the severity of acute pancreatitis by CT index through the Balthazar system
- USM
- Morphological examinations
- Microbiological examinations
- Instrumental examination methods
- Statistical methods
- Study of quality of life on the SF-36 scale

The main provisions of the defense:

1. 1. In the treatment of acute biliary pancreatitis accompanied by biliary obstruction, ERPXQ is an effective treatment and prevents the progression of the disease. In this group of patients, the use of ERPXQ, results in the improvement of

[14] Horvath K.., Freeny P., Escallon J. et al. Safety and efficacy of video-assisted retroperitoneal debridement for infected pancreatic collections: a multicenter, prospective, single-arm phase 2 study // Arch Surg. 2010; p. 145:817–25.

both clinical and laboratory parameters. ERPXQ should be administered from the first day of illness. In patients without biliary obstruction, ERPXQ was not effective compared to the conservative treatment group. In acute biliary pancreatitis, laparoscopic cholecystectomy performed on the early stage, during the same hospitalization, is characterized by acceptable complications and prevents future recurrent biliary pancreatitis.

2. Characteristics of complications observed in the long run of the disease show that minimally invasive surgery is superior to open surgery.

3. The use of minimally invasive surgery in acute biliary pancreatitis significantly increases the quality of life of patients in the long run with statistical accuracy.

Scientific novelty of the research:

- A relative relationship has been identified between the negative dynamics of clinical and laboratory parameters and disease progression in patients with acute biliary pancreatitis with biliary obstruction. Based on this, patient selection criteria for the use of ERPXQ in the treatment of acute biliary pancreatitis have been developed.

- Comparative evaluation of the effectiveness of various methods of laparoscopic cholecystectomy, including laparoscopic surgery, in early and late acute biliary pancreatitis. Depending on the stage, nature and development of complications of acute pancreatitis, more optimal treatment tactics have been identified. Theoretical and practical significance of the research. In patients with acute biliary pancreatitis with biliary obstruction, the use of ERPXQ prevents the progression of the disease, improves the outcome of treatment. In this group of patients, laparoscopic cholecystectomy can be successfully performed after early normalization of laboratory parameters and prevents recurrence of biliary pancreatitis in the later period.

Approbation and application of research results. Preliminary discussion of the dissertation at the interdepartmental meeting (General Surgery-1, General Surgery-2, Radiation Diagnostics with the course of radiation therapy, Traumatology departments and

METL) at the Azerbaijan State Advanced Training Institure for Doctors named after A. Aliyev (15.05.2018, protocol No.) took place. FD 2.11 Under the Dissertation Council 10.03. Scientific seminar No. 2 took place in 2021. The results of the dissertation are the journals on the relevant list of the Higher Attestation Commission for the last five years. 9 journal articles and 4 theses on the topic of the dissertation were published, two of which were published in foreign journals.

Organization where the dissertation work was carried out: Azerbaijan State Advanced Training Institute for Doctroes named after A. Aliyev.

Application of research results in practice. Minimally invasive interventions in the treatment of acute biliary pancreatitis are used in the clinic at the Azerbaijan State Advanced Training Institute for Doctors named after A. Aliyev, City Clinical Hospital No. 3, Diagnostical Medical Center. Relevant acts on the effectiveness of the application of research results were obtained.

Volume and structure of the dissertation. The dissertation written on 144 web pages; research work introduction: 12421 signs; chapter I (literature review) - 61199 signs; chapter II (research materials and methods) - 41153 signs; chapter III - 41893 signs; chapter IV - 24993 signs; final - 23485 signs; results - 1621 signs; practical recommendations - 836 references and bibliography. 12 literature sources were used in Azerbaijani, 68 in Russian, 98 in English.

The total volume of the dissertation with signs (excluding tables, graphs and bibliography) consists of 207601 signs, 25 tables, 19 graphs and pictures.

MATERIALS AND METHODS OF RESEARCH

The general part of the clinical part characteristic

The study involved 135 patients treated with acute biliary pancreatitis at the Department of Surgery and Diagnostic Medical Center of the Azerbaijan State Advanced Training Institute for Doctors named after Aliyev in 2010-2016. All patients were diagnosed with acute biliary pancreatitis. It should be noted that the

diagnosis of CBP included patients with biliary tract concretion and gallstone disease, as well as patients with biliary hypertension and microlithiasis. Patients were divided into four groups according to the methods of treatment. The first group includes 37 patients undergoing conservative treatment (27,4%), the second group includes 24 patients undergoing ERPXQ (17,8%), and the third and fourth groups has been include 74 patients undergoing surgery using various methods (radiological drainage, laparoscopic rehabilitation, open surgery). Of these, 39 (28,9%) patients received traditional open surgery and 35 (25,9%) patients received minimally invasive surgery.

In our study, Atlanta was classified in 1992 and proposed by Kochin in 2011 (International Association of Pancreatologists, International Association of Pancreatology) and the International Working Group on the Classification of Acute Pan-Creatitis (Acute Pancreatitis Classification Working Group) in 2012. The analyzed modification was used (Gut, 2013). The vast majority of patients were women 97 (76,9%) and 29 (23,1%) were men. The age of the patients was between 20-60 years, the average age was set at 35,7 ± 8,57.

Research methods. During CBP, all patients underwent a standard examination. Anamnestic data were collected from all patients, subjective and objective clinical signs of acute pancreatitis were studied. Determination of general condition and severity of dynamics at the time of admission to the clinic was based on the classification of acute pancreatitis adopted in Atlanta in 1992 (2013). The clinical and laboratory criteria for severe pancreatitis are as follows:

1) Peritoneal syndrome or cutaneous skin symptoms;
2) Symptoms of systemic inflammatory reaction syndrome (SIRS) are characterized by two or more clinical signs: body temperature> 38°C or <36°C, pulse rate> 90 beats per minute, respiratory rate> 20 beats per minute, PaC02 <32 mm. c. milk, leukocytes> 12 x 109 or <4.0 x 109;
3) Hypocalcemia <1,87 mmol / 1;
4) Hyperglycemia> 10 mmol / 1;

5) C-reactive protein> 120 mg / 1;
6) Shock (systolic AT <90 mm. C. Sut.);
7) Respiratory failure (PO2 <60 mm Hg);
8) Renal failure (oligoanuria, creatinine> 177 μmol / 1);
9) Hepatic insufficiency (hyperfermentemia);
10) Gastrointestinal bleeding;
11) Coagulopathy (platelets <100x10 / 1, fibrinogen <1.0 g / 1:

The destructive complication phase begins in the 2-3rd week of the disease and is characterized by the onset of a period of aseptic inflammatory reaction in the foci of pancreatic and peritoneal necrosis. The main diagnostic and monitoring issues of this period are the formation of fluid, signs of infiltration, sequestration and early infection at the site of pancreatogenic destruction.

Clinical signs of aseptic destructive complication of acute pancreatitis (infiltrate and fever) are characterized by: SIRS laboratory indicators, increased concentration of pancreatic necrosis marker in the blood - C-reactive protein> 120g/l; lymphopenia, increased ECG, increased fibrogen concentration;

Aseptic destruction in the focal area on USM (enlargement of the gland, inaccurate contours, monitoring of fluid in the parapancreatic and peritoneal area).

Monitoring of the period of aseptic destruction is based on the following: dynamic clinical-laboratory indicators, dynamic assessment of weight and prognosis with scoring systems, determination of the severity of acute pancreatitis through the Balthazar system with CT index, repeated USM.

Table 1. System of prognostic assessment of the severity of acute pancreatitis

Parameters	Results
Creatinine, urea, residual nitrogen Mental retardation Systemic inflammatory response Age Pleural fluid accumulation	More than 25 mg / dl Disorders of consciousness Presence of SIRS Over 60 years old Presence of fluid in the pleural cavity on radiography

Traditional radiography was performed in all patients according to the generally accepted procedure. Preoperative and intraoperative USM was performed on a Siemens-SL 2 ultrasound diagnostic device using a sensor with a frequency of 2-3,5 MHz.

We currently use a generally accepted radiological assessment system for pancreatic necrosis using the Balthazar method (1990) (Table 2). Based on this scale, a radiological index of the severity of acute pancreatitis was developed, which is more than 5, which indicates high lethality, long-term hospitalization and numerous necrosekvestrectomy.

Table 2. Radiological computed tomography index of the severity of acute pancreatitis

Gradation on Balthazar	Points	Area of the gland necrosis during the examination (%-with)	Points
A	0	No necrosis	0
B	1	Less than 30	2
C	2	30-50	4
D	3	50+	6
E	4	-	-

Laparoscopic interventions were performed using a standard set of Rudolf and Carl Storz supports.

ERCP presents it self as a combination of radiological examination and endoscopy after the introduction of a contrast agent into the bile and pancreas. In addition to obtaining a view of the bile ducts and pancreas, ERXPG allows for biopsy of the upper gastrointestinal tract, periampular area, or surgery (sphincterotomy, removal of gallstones, stenting of bile ducts).

Patients' subsequent quality of life was assessed using the SF-36 questionnaire.

Statistical processing of the material. All figures obtained in the course of the study were statistically analyzed taking into account modern recommendations. Statistical analysis was performed using

the methods of variation (average) and discriminant (χ^2-Pearson). All calculations were made in the EXCEL-2013 spreadsheet.

RESULTS OF THE RESEARCH

The 135 patients under observation, 24 (17,8%) were treated with ERCP, and 37 (27,4%) were treated conservatively. As mentioned above, ERCP is indicated in patients with biliary pancreatitis with clinical, laboratory, and instrumental evidence of concretion in the bile ducts, when there is a suspicion of concretion in the bile ducts. During ERCP, the stent was placed in patients with edema of the Oddi sphincter or recurrent stricture. For the purpose of comparative characterization of the obtained results, patients treated with ERXPQ (group I) and patients, which treated conservatively (group II) were divided into two groups (IA and IB; IIA and IIB) depending on the presence or absence of biliary obstruction. 8 patients were included in the group of patients with biliary obstruction (IA) undergoing conservative treatment, and 29 patients were included in the group of patients without biliary obstruction (IB). Endoscopic treatment was performed and 16 patients were included in the group of patients with biliary obstruction (IIA). Eight patients were included in the group of patients undergoing ERPXQ and without biliary obstruction (IIB). In 11 patients who received endoscopic treatment, ERPXQ was completed with biliary stenting, and in 13 patients, endoscopic treatment was performed without a stent. In our study, gallstone disease was found in all patients, and concretion in the bile ducts and associated biliary hypertension were detected in 24 (39,3%) patients. Both groups were similar in terms of age and sex, as well as the nature of the underlying and concomitant pathologies. The purpose of the comparison is to be more informative and we conducted a comparative analysis of the dynamics of clinical and laboratory parameters in patients with and without biliary obstruction in both groups.

At the start of treatment, the clinical laboratory findings for groups IA and IIA were as follows:

At the beginning of treatment, pain syndrome was observed in all patients with biliary obstruction. Thus, pain was observed in 8

(100%) patients in the group of patients with biliary obstruction and conservative treatment (IA), and in 16 (100%) patients in the IIA group. At the beginning of treatment, no impairment was reported in any of the comparable patient groups. If pleural fluid was not observed in the IA patient group, 1 (6,20%) patient in the IIA patient group was radiologically detected in the pleural cavity (p = 0,470, the difference is not statistically significant).

During the initial assessment, the observations of the laboratory indicators in the relevant groups were as follows. No increase in blood creatinine was observed in any patient. As mentioned, one of the specific laboratory indicators of acute pancreatitis is increase in blood amylase levels. Elevated amylase levels were reported in 8 (100%) patients at the time of admission in group IA, and in 16 (100%) patients in group IIA. An increase in CRZ was observed in 7 (87,5%) patients of group IA, while 13 (81,2%) patients of group IIA were observed (p=0,699, the difference is not statistically significant).

Decreasing of hematocrit was observed in 5 (62,5%) patients of group IA and 9 (56,20%) patients of group IIA. The difference between the groups was not statistically significant (p=0,770). Elevated bilirubin levels were observed in all patients in both groups at the time of application. Thus, 8 (100%) patients in the IA group and 16 (100%) patients in the IIA group had elevated bilirubin levels. According to our observations, the main distinguishing feature of this group of patients from patients with acute biliary pancreatitis with the absence of biliary obstruction was an increase in cholestasis, especially in the blood bilirubin.

Leukocytosis was observed in 5 (62,5%) patients with biliary obstruction and conservative treatment, and a similar indicator was found in 6 (37,5%) patients in the IIA group. The difference was not statistically significant (=0,247).

Symptoms of SIRS were observed in 6 (75%) patients in group IA, and symptoms of SIRS were observed in 14 (87.50%) patients in group IIA (p = 0,439, the difference was not statistically significant).

Thus, a comparison of groups of patients with biliary obstruction who underwent conservative treatment and ERPXQ, both

clinically and laboratoryly, did not reveal a statistically significant difference between the groups.

At the start of treatment, the clinical and laboratory findings for groups IB and IIB were as follows.

Pain syndrome was observed in all patients without biliary obstruction at the start of treatment. Thus, in the group of patients without biliary obstruction and treated conservatively (IB), pain was observed in 29 (100%) patients, and in the IIB group in 8 (100%) patients. No impairment at the time of treatment was reported in any of the patients compared. Pleural effusion was not observed in either the IB or the IIB patient group.

During the initial assessment, the observations of the laboratory indicators in the relevant groups were as follows. No increase in blood creatinine was observed in any patient. An increase in blood amylase at the time of admission in the IB group was observed in 28 (96,6%) patients, and in the IIB group in 7 (87,5%) patients. An increase in CRZ was observed in 22 (75,9%) patients of the IB group, while it was observed in 6 (75%) patients of the IIB group (p = 0,960, the difference is not statistically significant).

Decreased hematocrit was observed in 17 (58,60%) patients of IB group and 4 (50,0%) patients of IIB group. The difference between the groups was not statistically significant (p=0,663).

No increase in bilirubin in the blood at the time of application was observed in any of the patients in both groups.

Leukocytosis was observed in 11 (37,9%) patients without biliary obstruction and treated conservatively, a similar indicator was found in 4 (50,0%) patients in group IIB. The difference was not statistically significant (p=0,583).

Symptoms of SIRS were observed in 22 (75,9%) patients in group IB, and symptoms of SIRS were observed in 4 (50%) patients in group IIB (p=0.445, the difference was not statistically significant).

Thus, a comparison of groups of patients without biliary obstruction with conservative treatment and ERPXQ, both clinically and laboratory-based, at the time of initiation of treatment did not reveal a statistically significant difference between the groups.

Subsequent dynamic observation of clinical signs and laboratory indicators showed that the dynamics of the indicators observed in the group without biliary obstruction continued in a similar way. Equally, positive dynamics is observed in the course of the disease. Thus, on days 10-14 of treatment, no disturbance of consciousness and pleural fluid were detected in any patient of group IB and IIB, and pain syndrome was observed in only 1 (3,4%) patients of group IB. Creatinine, amylase, hematocrit, and SIRS were normalized in both groups over a period of time, with elevated CRZ and leukocytosis found in 3 (10,3%) and 2 (6,9%) patients in the IB group, respectively ($p>0,05$). The observed positive dynamics are also supported by radiological examination.

However, in the group with biliary obstruction, the dynamics were different. While clinical and laboratory improvement was observed in the group with biliary obstruction and ERPXQ, the progress was unambiguous in group IA. Thus, in this group there was a deepening of the symptoms of cholestasis, SIRS, and deterioration was noted in patients. The dynamics of clinical and laboratory parameters in groups IA and IIA on days 10-14 of treatment were as follows. While unconsciousness was noted in 3 patients in group IA, it was not detected in any patient in group IIA ($p=0,009$). While pleural fluid was found in 6 (75%) patients in group IA, it was not observed in any patient in group IIA ($p<0,05$). Elevated creatinine, CRZ, Ht, bilirubin, leukocytosis, SIRS symptoms 3 (37,5%), 4 (50%), 3 (37,5%), 5 (62,5%), 4 (50) according to group IA %) and 5 (62.5%) patients, in the IIA group only CRZ elevation was observed in 1 (6,2%) and leukocytosis in 1 (6,2%) patients. The difference in indicators was statistically significant ($p<0,05$). Dynamic USM also revealed radiological signs of injury in these patients, intraabdominal collections. Progression of the disease was observed in 3 patients from this group and they needed open surgery. There was a statistically significant difference between clinical and laboratory signs between the groups. In our opinion, ERPXQ and papillosphincterotomy are mandatory procedures for acute biliary pancreatitis with biliary obstruction. ERPXQ should be given as soon as possible after the onset of the disease. Contraindications to ERPXQ are APACHE

with a score of more than 20 and hypocoagulation. There were no procedural complications in the patients we observed during biliary contrast.

Thus, in acute biliary pancreatitis, endobiliary interventions are characterized by high efficacy in the elimination of biliary hypertension. The use of endobiliary interventions prevents complications in acute biliary pancreatitis, leads to a reduction in hospital costs and hospitalization.

Laparoscopic cholecystectomy was performed in 54 patients at different times after conservative treatment and ERPXQ procedures. Patients were divided into two groups to determine the effectiveness of early cholecystectomy. Patients undergoing laparoscopic cholecystectomy for up to two months and patients undergoing laparoscopic cholecystectomy for more than two months. The age of the patients ranged from 21 to 67, of which 31 were women and 23 were men.

Recurrent biliary pancreatitis was reported in three of the patients who underwent surgery after two months.

No statistically significant age difference was found between the groups according to the duration of the operation ($p>0,05$).

No gender differences were found between the groups at the time of surgery ($p>0,05$).

There was no statistical difference in severity between patients who underwent surgery 2 months ago and those who underwent surgery 2 months later. In a group of patients who underwent surgery two months ago conversion was found in 1 patient, and in patients who underwent surgery after two months, the conversion was found in two patients (the difference is not statistically significant). The length of hospital stay of patients after surgery was compared between groups. In this case, no difference was found between the groups on this indicator. ($p=0,162$)

Thus, the analysis showed that laparoscopic cholecystectomy in the early period after acute biliary pancreatitis is effective and prevents recurrent biliary pancreatitis.

In 35 patients included in the study, surgical interventions were performed using minimally invasive methods. Fluid accumulation in

the abdominal cavity and peripancreatic area was observed in 17 patients with severe sterile pancreatic necrosis of biliary origin. During USM, the presence and amount of this collection in the small pelvis and fat sac were determined, and then treatment tactics were determined. Depending on the volume and location of the fluid (in what anatomical areas of the abdomen), the state of free or limited infiltration (absorbed), the evacuation of that fluid is discussed and clarified.

When and how many days after the onset of the disease in sterile pancreatic necrosis laparoscopic rehabilitation is one of the factors influencing its effectiveness. In the study, we divided all these patients into three subgroups according to the duration of laparoscopic rehabilitation. Thus, laparoscopic rehabilitation was performed in 6 patients - 7 days after the onset of the disease, in 7 patients - after 10 days, in 4 patients - after 14 days. In patients undergoing laparoscopic rehabilitation after 7 days, the amount of fluid during aspiration was approximately 3000±190 ml, during interventions after 10 days it was 5000±250 ml, and after 14 days it was 6 liters.

In 17 patients laparoscopically, the cavity (peripancreatic 7, pancreatic 9, abdominal cavity 1 (between loops) was rehabilitated and drained. In 10 patients recovery was noted, and in 5 out of 7 patients there was a need for repeated laparoscopic rehabilitation. Conversion was performed in 1 patient and the patient underwent open surgery. Thus, the preliminary results show that the most favorable period for laparoscopic rehabilitation in sterile pancreatic necrosis accompanied by fluid collection should be at the end of the first week.

The chosen tactical approach allows effective management of severe sterile pancreatic necrosis, unlike other groups of patients (traditional treatment regimens).

The least traumatic and safe method for limited infected pancreatic necrosis is radiological drainage of the purulent cavity under USM and CT. The intervention was performed on 13 patients.

From this group of patients (Radiological drainage - 13 patients, laparoscopic rehabilitation - 17 patients, combined surgery -

5 patients, a total of 35 patients) various complications were recorded in 12 patients. Among the observed complications, 1 patient had erosive postoperative bleeding, 1 patient had abscess formation, 1 patient had pancreatic fistula, 1 patient had gastrointestinal bleeding, and 1 patient had intraoperative bleeding. In the postoperative period, symptoms of sepsis and polyorgan failure were noted in 5 patients. The deaths were recorded in 3 people. The cause of death in 1 patient was erosive hemorrhage, and in 2 patients was progressive polyorgan deficiency.

In this group, open surgeries were performed on 39 patients. In 28 patients with acute infectious pancreatic necrosis, operations were performed using laparotomy, and in 6 patients using lumbotomy. In 5 patients the operation was combined - laparotomy and lumbotomy. These patients were admitted to the clinic 3 days after the onset of the disease. The indications for open surgery in all cases were detection of free fluid in the abdomen during USM, contrast CT and fine needle aspiration, confirmation of bacteriologically infected pancreatic necrosis and in 2 patients pancreatic necrosis was identified as intraoperative. One of these patients was diagnosed with acute intestinal obstruction and the other with a diagnosis of acute destructive cholecystitis.

It was noted that during laparotomy, 15 patients had total damage to the pancreas with necrotic process, 13 patients had a tail of the pancreas, and 5 patients had more of the process in the head of the pancreas.

Complications of various kinds have been reported in patients after both minimally invasive and open surgeries. We have studied the effect of the type of operation factor on the occurrence of these complications in open and minimally invasive complications. In some complications, the strength of the open operating factor is characterized by high numbers. Thus, the impact of the open surgical factor was high in complications such as eventration (5,41%), intestinal fistula (2,56%), recurrent abscesses and phlegmons (4,02%), repeated surgery (3,98%).

The number of complications per patient was 1,23 in the open surgery group and 0.51 in the azinvasive surgery group (p=0,02, the difference is statistically significant).

Deaths were reported in 8 patients at different times after surgery. The cause of death was increased heart and lung failure in 6 patients against the background of deep endogenous intoxication. In another patient, death occurred one month after surgery on the background of profuse gastrointestinal bleeding. Another patient had severe erosive bleeding 4 days after sanation relaparotomy (day 8 after the first operation) and died.

55 out of 74 patients who underwent various surgeries for different types of acute biliary pancreatitis and pancreatic necrosis were monitored by us and their quality of life was assessed according to the SF-36 questionnaire. From them, 19 belonged to the open operations group and 25 to the minimally invasive operations group. The observation period of the patients was 5 years.

One year later, the difference between the corresponding indicators of both groups was statistically significant for all categories ($p<0,05$), except for the role activity conditioned by physical activity in the physical component of health ($p>0,05$). As for the psychological component of health, the difference between the categories of mental health and social activity was inaccurate ($p> 0,05$), and in other cases was accurate ($p<0,05$).

Similar ratios were obtained in the questionnaire survey conducted among these patients after 3 years. Thus, although the indicators of quality of life increased in both control and patients in the main group, the ratio between them has not changed.

The results of the SF-36 survey, conducted five years later, showed that the physical and psychological components of health in both groups continued to increase. This is more pronounced in the group of patients undergoing laparoscopic resuscitation, USM and CT-controlled drainage.

In conclusion, the use of ERPXQ can be quite effective in mild and moderate pancreatitis with biliary obstruction. ERPXQ should be used in the first days of the disease.

It is advisable to use USM-controlled drainage in patients with limited pancreatic and peripancreatic fat accumulation, mainly 5 or more weeks after the onset of the disease.

In acute necrotic infectious pancreatitis, laparoscopic rehabilitation can be used as a last resort. Thus, the assessment of postoperative complications, lethality, as well as long-term outcomes and quality of life proves that laparoscopic rehabilitation is more effective than the costs of open surgery.

RESULTS

1. The use of ERPXQ in the treatment of acute biliary pancreatitis accompanied by biliary obstruction results in a positive dynamics of clinical laboratory parameters compared with the group without biliary obstruction. ERPXQ was performed in case of unconsciousness (37,5%), pleural fluid (75,0%), creatinine, elevated CRZ (37,5%), bilirubin (50%), SIRS (62,5%). The indicators reported in the group, only increasing in CRZ was observed in 6,2% of patients ($p<0,05$). In the group without biliary obstruction, the dynamics of these indicators were similar. The increase in CRZ was 10,3% and 12,5%, respectively, and SIRS was 13,8% and 12,5% ($p>0,05$).
2. In acute biliary pancreatitis, in the early period, during laparoscopic cholecystectomy performed during the same hospitalization, the average duration of the operation was 72,1 minutes, the length of hospital stay and conversion rates were 3,2 days, respectively, 3,8% - 2 months. In patients who underwent surgery later, these values averaged 67,5 minutes, 2,8 days, and 7,1%, respectively ($p>0,05$).
3. The number of complications encountered in 1 patient in the recent period in patients operated on with the use of minimally invasive technologies was 0,51±0,12, and in the open operating group was 1,23±0,18 ($p=0,002$). In patients undergoing surgery using minimally invasive technologies, the number of complications per patient in the long run was 0,26±0,09, and in the open surgery group was 0,77±0,14 ($p=0,003$).

4. In groups with minimally invasive and open surgeries, the quality of life of patients after 5 years with SF-36 questionnaire GH 59.9 ±7,9 and 78,8±3,9 ($p<0,05$), MH 59,8±6,2 and 82,9±4,3 ($p<0,05$).

PRACTICAL RECOMMENDATIONS

1. Indications for ERPXQ in acute biliary pancreatitis should be chosen correctly. In this case, attention should be paid to the presence of biliary obstruction in patients, both clinically, laboratory and instrumental.
2. ERPXQ surgery should be performed in patients with biliary obstruction in the first days of the disease.
3. In order to prevent recurrent biliary pancreatitis in the future, laparoscopic cholecystectomy should be performed at an early stage after normalization of laboratory parameters.
4. It is advisable to perform minimally invasive operations on the early stage in patients with indications.
5. In the treatment of residual cavities associated with long-term pancreatic drainage, drainage operations should be performed in conjunction with endoscopic drainage of the main pancreatic duct.

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