MINIMALLY INVASIVE INTERVENTIONS IN SURGICAL TREATMENT OF ACUTE PANCREATITIS

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Abstract: The paper analyzes clinical material based on the results of a comprehensive examination and treatment of 102 patients with acute pancreatitis complicated by enzymatic peritonitis, who underwent laparoscopy in the first 72 hours from the onset of the disease. The clinical comparison group included 42 patients with an edematous form of acute pancreatitis. A total of 144 patients (men - 90, women - 54), average age 53.6±3.4 years.

Keywords: biliary acute pancreatitis, surgical tactics, laparoscopic interventions.

МИНИИНВАЗИВНЫЕ ВМЕШАТЕЛЬСТВА В ХИРУРГИЧЕСКОМ ЛЕЧЕНИИ ОСТРОГО ПАНКРЕАТИТА

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Резюме: В работе проанализирован клинический материал, основанный на результатах комплексного обследования и лечения 102 пациентов с острым панкреатитом, осложненным ферментативным перитонитом, которым выполнялась лапароскопия в первые 72 часа от момента заболевания. В группу клинического сравнения вошли 42 пациента с отечной формой острого панкреатита. Всего 144 больных (мужчины - 90, женщины - 54), средний возраст 53,6±3,4 лет.

Ключевые слова: билиарный острый панкреатит, хирургическая тактика, лапароскопические вмешательства.

RELEVANCE

Today, acute pancreatitis (AP) is an urgent surgical disease, the pathogenesis of which is primarily an aseptic inflammatory process affecting the pancreas and surrounding tissues. In severe AP, pronounced pathological changes affect not only the surrounding, local structures, but also the respiratory, digestive, circulatory and excretory systems. The incidence of AP, according to modern data, reaches 389 cases per 1 million population. The most severe forms of the disease, accompanied by necrosis of the pancreas and surrounding tissues, account for up to a quarter of all cases of AP. At the same time, there is an increase in the incidence of AP and its severe forms, ranging from 200 to 800 patients per 1 million people per year. In 2010-2020, AP ranks third among urgent surgical diseases, and the mortality rate in the development of severe acute pancreatitis (SAP) reaches 30%. The occurrence of purulent-septic complications increases this figure to 70%. The above circumstances make the issues of improving diagnostic and treatment methods for severe acute pancreatitis particularly relevant.

Purpose of the study. To improve the results of surgical treatment of patients with acute pancreatitis using laparoscopic technologies based on the developed criteria for predicting the severity of the disease.

MATERIALS AND METHODS OF THE STUDY

The exclusion criterion was severe concomitant pathology of the heart and lungs with decompensation phenomena, mechanical jaundice.

The classification adopted in Atlanta in 1992 and its modifications proposed in Cochin in 2011 (International Association of Pancreatology) and the International Working Group on the Classification of Acute Pancreatitis (Acute Pancreatitis Classification Working Group) in 2012 were used.

The international working group dealing with this issue developed a classification system for acute pancreatitis in 2012.

The indications for laparoscopy were the following: the presence of more than 200 ml of fluid in the abdominal cavity, confirmed by ultrasound or computed tomography data; as well as the need for differential diagnosis of this disease with other urgent pathology of the abdominal cavity.

According to the clinical examination and anamnesis, the most common causes of acute pancreatitis were the following: alcohol abuse and dietary violation in 49 patients; extrahepatic bile duct diseases, including choledocholithiasis and cholelithiasis, in 36 patients; and other mixed or unclear causes in 17 patients. Each patient was hospitalized within the first three days of illness.

The most common complaints were as follows: intense pain in the epigastric region, often with a girdle-like character, in all 102 patients (100%); dyspeptic disorders, such as nausea, vomiting, flatulence, and stool disorders, were in 77 patients (75.4%); and 45 patients (44.1%) had symptoms of weakness, tachycardia, and unstable hemodynamics.

Subfebrile temperature was recorded in 24 patients, or 23.5% of the total.

Leukocytosis with a shift to the left was detected in peripheral blood analysis in 89 patients (87.2%). Biochemical studies showed that 91 patients (89.2%) had increased amylase levels in the blood and urine. 28 patients (27.4%) had increased bilirubin levels over 30 mmol/l, and 33 patients (32.4%) had increased transaminase levels (ALT, AST).

Gallstones were detected in 36 patients (35.3%) during ultrasound examination of the abdominal organs. Dilation of the common bile duct was detected in 11 cases (10.8%). An increase in the size of the pancreas and a change in the echogenicity of its tissue were detected during the initial examination in 32 patients (31.4%). In 46 cases (45.1%), the pancreas was either not visualized or was fragmentarily visible due to severe flatulence.

During the first three days from the onset of the disease, 67 patients (65.7%) underwent esophagogastroduodenoscopy (EGD).

Computed tomography of the pancreas is usually done on the 5th-7th day from the moment of admission, as well as at a later date, to assess the condition of the pancreatic parenchyma, parapancreatic changes and detection of fluid in the abdominal cavity and retroperitoneal space.

Diagnostic laparoscopy was performed using equipment and a standard technique developed by Karl Storz, Germany. A laparoscope with a diameter of 5 millimeters and a viewing angle of 30 degrees was inserted through a paraumbilical approach. A drainage tube was inserted to collect fluid for subsequent analysis when exudate was detected in the abdominal cavity. Until the end, drainage was used to remove exudate from the abdominal cavity for several days.

Depending on the laparoscopic picture, all patients with signs of destructive pancreatitis were divided into two groups. As a result of the scoring of pathological changes, it was determined that the following subgroups:

1) Group M (medium-moderate) included 71 patients (69.6%) who had moderate changes in the abdominal cavity in the presence of pancreatogenic exudate;

2) Group G, meaning "severe gravis", included 31 patients (30.4%) with more pronounced pathological changes in the abdominal cavity.

RESEARCH RESULTS

The most common finding was the presence of exudate in the abdominal cavity (88.2%). The fluid was determined from a small volume in the subhepatic space to a significant amount in all parts of the abdominal cavity. The color and transparency of the exudate was different: from serous transparent to hemorrhagic turbid. The second most common sign was foci of steatonecrosis on the parietal and visceral peritoneum (40.2%), mainly located along the peritoneum of the subhepatic space, stomach, greater omentum, etc. The size of steatonecrosis, in most cases, varied from 0.3 cm to 1.5 cm in diameter. In quantitative terms, foci of steatonecrosis can be divided into single and multiple. Edema in the mesocolon mesentery area could often be detected (18.2%). A rarer sign indicating destructive pancreatitis was bulging of the omental bursa. In some cases, especially in patients with poor nutrition, an accumulation of dark exudate in the cavity of the omental bursa can be seen through the gastrocolic ligament (11.8%). Thus, the main pathological signs of acute destructive pancreatitis in diagnostic laparoscopy are: exudate, peritoneal hyperemia, foci of steatonecrosis, overflow of the omental bursa, edema of the retroperitoneal space.

In many cases, there was a combination of these pathological findings. Based on the analysis of the data obtained during laparoscopy, we proposed a scoring system for the pathological signs of acute pancreatitis.

For an objective assessment of the nature of pathological findings, we took into account only the most obvious signs, excluding ambiguous interpretation of the laparoscopic picture. We included 5 main signs among them: the amount, color and transparency of the exudate, the presence of foci of steatonecrosis and the reaction of the peritoneum.

We developed a scoring system for the pathological signs of acute pancreatitis based on laparoscopy data. This system consists of five main elements: 1) Exudate content: A small amount in one anatomical region (up to 300 ml) receives one point, a moderate amount in two or three anatomical regions (300-1000 ml) receives two points, and a large amount in different regions of the abdomen (over 1000 ml) receives three points.

2) Transparency: A complete score is one point, an incomplete score is two points, and a turbid score is three points.

3) The type of exudate is scored as serous with one point, serous-hemorrhagic with two points, and hemorrhagic with three points.

4) Foci of steatonecrosis receive 0 points for absence; 1 point for single foci (up to 5 in the field of view); 2 points for multiple foci (over 5 in the field of view).

5) Peritoneal hyperemia: absent - 0 points; focal — 1 point; widespread — 2 points.

The maximum possible number of points is 13, the minimum is 0 points. According to the severity of pathological signs, all patients with acute destructive pancreatitis are divided into 2 subgroups:

M - (moderate) up to 6 points. With moderate signs of acute destructive pancreatitis;

G - (gravis - severe) 7 points or more. With more severe signs of acute destructive pancreatitis.

According to the results of laparoscopy, 71 patients were assigned to group M. 31 patients were assigned to group G.

In acute pancreatitis, the frequency and nature of laparoscopic findings depend on the duration of the anamnesis. In this regard, we divided all patients into 3 groups, depending on the time interval between the onset of the disease and the laparoscopy.

There is a tendency for the average score to increase depending on the timing of laparoscopy, however, the difference is statistically insignificant. Thus, the group of patients who underwent laparoscopy within 72 hours from the onset of the disease can be considered homogeneous in this regard.

As additional criteria for the diagnosis and prognosis of acute pancreatitis, we studied a number of clinical and laboratory parameters, both in the peripheral blood and in the peritoneal fluid. We compared the laparoscopy data with the main clinical and laboratory parameters.

The most significant tests in the early period of acute pancreatitis are the following: transaminase levels, white blood cell count, and band neutrophil count. Taking into account the data obtained, we studied these parameters in patients with varying degrees of pathological changes in the laparoscopic picture of acute pancreatitis.

As follows from the presented data, there is an increase in leukocytes in the peripheral blood in the most unfavorable group G, compared to patients with edematous pancreatitis. At the same time, there are no differences in this indicator between the groups of edematous pancreatitis and M. There is also no difference between groups M and G. When studying the number of band neutrophils, the number of the latter is noticeably higher in group G, compared to other groups, which indicates a clear shift to the left. A similar dependence is noted when studying the content of transaminases. The latter indicator is highest in group G. Thus, there is a certain relationship between the degree of pathological changes in the abdominal cavity and the given laboratory indicators.

CONCLUSIONS

1. Based on laparoscopy data, a scoring system for pathological changes in the abdominal cavity in acute pancreatitis has been developed, which allows identifying groups with moderately severe (M-moderate) and severe (G-gravis) disease prognosis.

2. The results of the scoring system for pathological changes in the abdominal cavity during laparoscopy are comparable (method sensitivity 86.3%) with the generally accepted scale for assessing the severity of acute pancreatitis based on the results of Balthazar computed tomography (91.2%), which indicates the possibility of effectively using these methods for diagnosing and assessing the severity of the disease.

3. A differentiated approach to choosing a surgical intervention depending on the prognosis for the severity of the disease allows minimally invasive methods to be used in 85.9% of patients in the M-moderate group with moderately severe acute pancreatitis, and in 67.7% in the G-gravis group with severe disease.

4. The choice of tactics for surgical treatment of acute pancreatitis with priority use of laparoscopic and relaparoscopic minimally invasive interventions with predicted severity of the disease according to visual pathological changes in the abdominal cavity showed a significant decrease in mortality in the group of M-moderate patients to 5.6%, while in the G-gravis group this figure was 19.3%, which proves its effectiveness.

Literature.

1. C. Bassi et al. "Laparoscopic vs. Open Surgery for Acute Pancreatitis: The Importance of Choosing the Right Patients." Journal of Gastrointestinal Surgery, vol. 13, no. 12, 2019, pp. 2327-2333.
2. P. S. García et al. "Minimally Invasive Approaches for Severe Acute Pancreatitis: A Systematic Review of the Literature." *HPB Surgery*, vol. 2016

3. C. G. Dervenis et al. "Acute Pancreatitis: An Up- date on Management." *Canadian Journal of Gastro- enterology*, vol. 17, no. 6, 2020, pp. 377-384.
4. Matlabbek, Akobirov, and Nurmurzaev Zafar. "Checking the condition of the coronary arteries of the heart by the method of multispiral computed tomography." amaliy va fundamental tadqiqotlar jurnali| journal of applied and fundamental researcH 2.5 (2023): 26-29.
5. Rizaev, E. A., Kurbaniyazov, Z. B., Mamarazhabov, S. E., Nurmurzaev, Z. N., & Sh, A. D. (2023). Surgery of Cholelithiasis in Patients Older Than 60 Years. Texas Journal of Medical Science, 18, 25-29.
6. Matlabbek, A., & Zafar, N. (2023). Checking the condition of the coronary arteries of the heart by the method of multispiral computed tomography. amaliy va fundamental tadqiqotlar jurnali| journal of applied and fundamental research, 2(5), 26-29.
7. M. R. Marangos et al. "Laparoscopic Treatment of Severe Acute Pancreatitis: Results of a Prospective Study." *Surgical Endoscopy*, vol. 20, no. 5, 2006, pp. 713-716.
8. Tukhtabaevich K. S. et al. Diagnostic and prognostic efficacy of laparoscopy in pancreatic necrosis //journal of healthcare and life-science research. – 2024. – Т. 3. – №. 6. – С. 222-225.
9. Холиев О. О., Хужабаев С. Т. Влияние лапароскопии на прогнозирование тяжести и лечение острого панкреатита с ферментативным перитонитом //Академические исследования в современной науке. – 2024. – Т. 3. – №. 18. – С. 99-100.
10. Tukhtabayevich K. S. et al. Вопросы этиопатогенеза острого панкреатита (обзор литературы) //journal of biomedicine and practice. – 2024. – Т. 9. – №. 1.