ORIGINAL ARTICLE

EXPERIENCE OF THE TREATMENT OF PATIENTS WITH ACUTE PANCREATITIS

Stepan S. Filip, Rudolf M. Slyvka, Yuriy P. Skrypinets, Andriy M. Bratasyuk, Anatoliy I. Shitev
UZHHOROD NATIONAL UNIVERSITY, UZHHOROD, UKRAINE

ABSTRACT
The aim: To improve the results of treatment of patients diagnosed with acute pancreatitis.
Materials and methods: The materials of the work are based on the clinical examination and treatment of 301 patients with acute pancreatitis, in the treatment of which, along with classical treatment, a therapeutic and diagnostic complex was used, which allows predicting and preventing the development of abdominal compartment syndrome (ACS).
Results: Managed to reduce the number of cases of infected pancreatic necrosis, effectively predict and prevent the development of abdominal compartment syndrome (ACS), reduce the average length of stay of patients in the hospital.
Conclusions: The use of the proposed management algorithm for patients with acute pancreatitis allows to shorten the treatment period by effectively predicting and preventing the development of pancreatic necrosis, its septic complications and abdominal compartment syndrome.

KEY WORDS: acute pancreatitis, pancreatic necrosis, abdominal compartment syndrome

INTRODUCTION

Acute pancreatitis (AP) is one of the most serious acute diseases of the abdominal cavity organs. According to the frequency of treatment, it ranks third among acute diseases of the organs of abdominal cavity after acute appendicitis and acute cholecystitis [1]. According to the latest data, the frequency of diagnosis of AP in different countries ranges from 4.9-73.4 cases per 100,000 population, and in Ukraine 102 cases [1,2]. The overall mortality varies from 4% to 15%, and with the necrotic form it is 24-60%, postoperative mortality reaches 70-80%.It is also worth noting socially significant factors: a significant deterioration in the quality of life of patients if the process is chronic [1-3].

Over the past decade, pancreatologist surgeons have revised the key points of the pathogenesis of acute pancreatitis, the phasic nature of its course, the basic principles of medical and surgical treatment, which significantly changed the approaches to providing medical care to patients of this group and improved the results of treatment [4,5].

Despite the introduction of new diagnostic methods, the use of prognostic programs for the severity of the course of the disease, the development of numerous treatment protocols and recommendations, and the introduction of the latest conservative, interventional endoscopic, radiological and surgical treatment methods, the results of the treatment of this contingent of patients are close to the satisfactory [6].

THE AIM

To improve the results of treatment of patients diagnosed with acute pancreatitis.

MATERIALS AND METHODS

The study included 301 patients with a diagnosis of AP, who were treated in the surgical hospital of the KNP «URKL» URR in the period from 2018 to 2021.There were 207 men (68.8%), 94 women (31.2%). The age range was from 21 to 78 years.The average age of the statistical population was 41.5 years.A clinical diagnosis was made based on the presence of at least 2 of 3 generally accepted criteria:
- clinical picture (spinning pain in the upper abdomen);
- increased levels of amylase and lipase (>3 above the normal limit);
- results of imaging methods of examination (ultrasound examination (USE), computed tomography (CT), magnetic resonance imaging (MRI)) that correspond to acute pancreatitis.

We assessed the severity of the course of AP using the Atlanta classification, 2012. According to it, 191 (63.5%) patients had a mild course of AP, 101 (33.5%) had a moderate course, 9 (3.0%) had a severe course of AP.In 4 patients with signs of severe AP, phenomena of peritonitis were detected, which became the reason for emergency surgical intervention. Other patients, due to the severity of the condition and the need to support the work of the main body systems, are hospitalized in the DAIC. These 9 patients dropped out of our study.
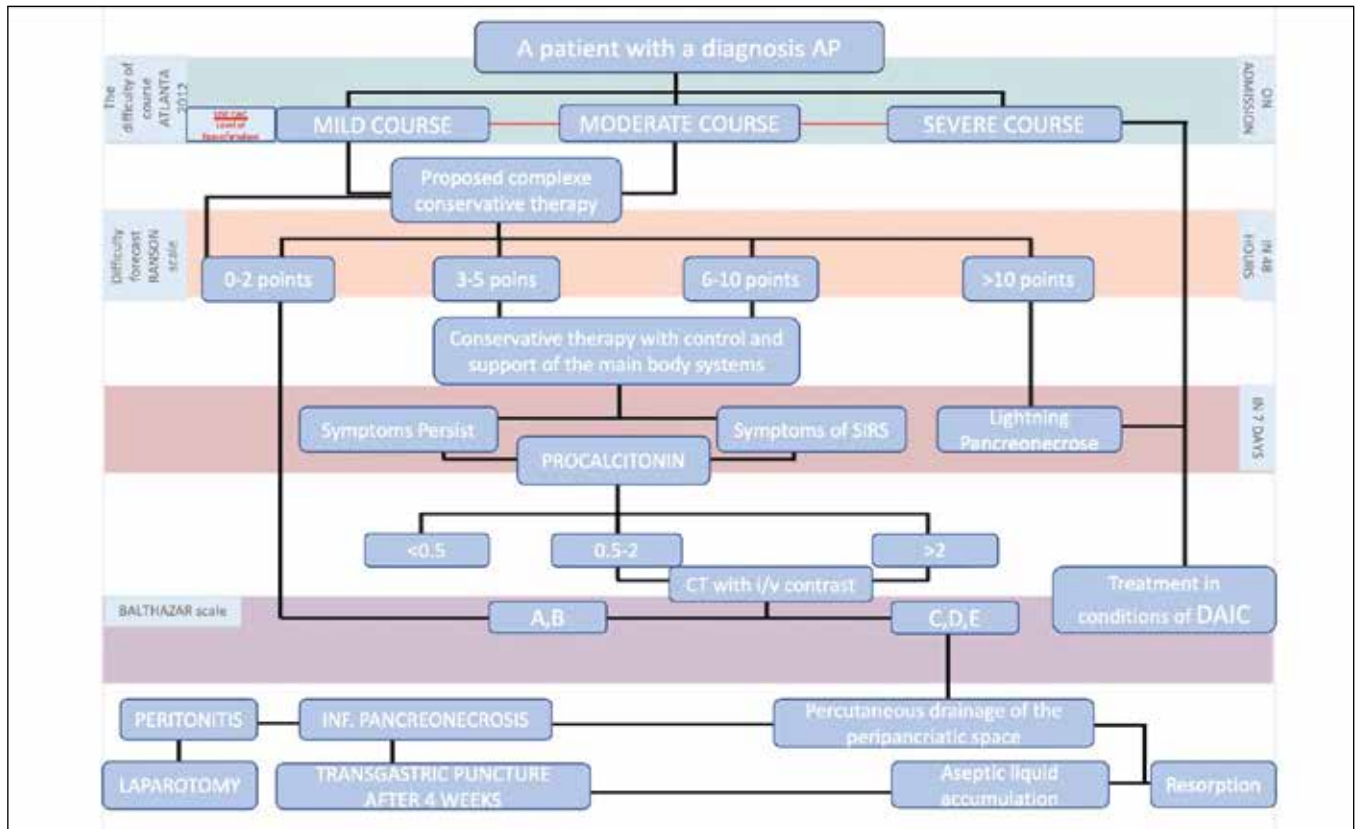
Fig.1. Management algorithm for patients with AP

All 292 patients were divided into two groups: group A (145 patients) – control, in which treatment was carried out according to approved protocols for the treatment of acute pancreatitis, and group B (147 patients) – study, in which the treatment algorithm developed by us was applied .

We used the Ranson scale to predict the severity of the course of AP [6,7]. For this purpose, all patients were assigned to one of two etiological groups based on complaints, medical history, USE, and the dynamics of laboratory parameters within 48 hours: biliary and alcoholic AP. 11.03% of patients in the control group and 10.2% of the study group, according to USE and medical history, met the criteria of «idiopathic pancreatitis» and were evaluated according to the scale for miliary pancreatitis.

0-2 points in the control group were scored by 86 (59.3%) patients, in the study group this indicator reached 68.7% (101 patients);

3-5 points in the control group scored 49 (33.85%) patients , and 42 (28.5%) in the study group;

6-11 points in the control group were scored by 10 (6.9%) patients. In group B, this indicator was 2.7% (4 patients).

All patients of the study group underwent complex conservative treatment. For decompression of the alimentary canal and enteral tube feeding, patients were fitted with naso-gastric tubes.Patients consumed food to prevent complications such as infected peripancreatic necrosis by reducing bacterial translocation, contrary to previous practice that recommended keeping the «bowel calmness» to prevent prolongation of inflammation of the pancreas.

In the future, depending on the dynamics of clinical symptoms and laboratory indicators, patients were transferred to enteral nutrition. In the case of significant clinical improvement, even with the maintenance of laboratory indicators above the norm, we transferred patients to fractional enteral nutrition.

All patients receivedadequate analgesia. In cases of a mild course, NAIDs were used, while in severe pain syndrome, which was more often noted in the course of moderate severity, narcotic analgesics were used (morphine 0.1% – 1.0 i/m x 2-3t/d).

Infusion therapy has also become an integral part of the treatment algorithm.

Considering the indicator of hematocrit and electrolytes, infusion therapy was carried out at the rate of 1-2 ml/kg/h. On average, the amount of transfused fluid reached 2.5-3 liters in the first day. We also took into account concomitant cardiac and renal insufficiency: in these cases, infusion volumes were reduced. The infusion was carried out mainly with solutions of blood substitutes of the crystalloid group.

An important component of conservative therapy was the technique of forced diuresis, which was aimed at reducing of concentration of enzymes in blood and related manifestations of SIRS.

To create a functional rest of the digestive system, in the case of a mild course of AP, we used proton pump inhibitors (PPI). If according to the prediction of the Ranson scale, the patients scored more than 3 points, or the course of AP was initially of medium severity, we used synthetic octapeptides in the standard administrationmode.

The electrolyte composition was corrected on the basis of laboratory indicators. To eliminate hypocalcemia, we used calcium preparations. Administration of magnesium was mandatory.

With pronounced nausea and intensive vomiting, ondasetrom or metoclopramide intravenously jetand KCl drug were used to eliminate hypokalemia and metabolic acidosis.

The use of disaggregants to preserve the rheological properties of blood and antioxidants, the purpose of which was to eliminate free radicals and interrupt the development of oxidant stress, became an integral part of conservative therapy.

Glycemia indicators were actively monitored. With the help of simple insulin, the indicator was kept within the limits of no higher than 7 – 7.5 mmol/l.

All patients with clinical symptoms persisting for more than 1 week or patients with deterioration in the form of hyperthermia above 38°C, leukocytosis ≥12 with a significant shift to the left were shown to determine the level of procalcitonin as a marker of pancreatic necrosis. An indicator above 2ng/ml was an indication for conducting a CT scan with i/v contrast (in the case of kidney pathology, MRI) followed by a CT determination of the AP severity index using the Balthazar scale. Patients with stage B, C, D according to this classification were subject to active tactics: percutaneous drainage of the para-pancreatic zone was used. 4 weeks after demarcation of the zone of destruction and formation of cysts, they were drained through the skin followed by obliteration. Peritonitis was the indication for open intervention.

In cases of increased procalcitonin level above 1.0 ng/ml, or persistence of symptoms for more than 1 week, we added antibacterial agents from the group of fluoroquinolones and metronidazole to conservative therapy.

In the case of biliary pancreatitis with mild and moderate degrees of severity of the course of AP, laparoscopic cholecystectomy was performed after clinical improvement. In case of a severe course of AP, or in the presence of liquid septic or aseptic accumulations, surgical intervention was performed after resorption of the accumulations, or after performing minimally invasive interventions (puncture methods), not earlier than 6 weeks. In the presence of choledocholithiasis without wedging or signs of cholangitis, endoretrograde cholangiopancreatography (ERCP) with papillosphincterotomy was performed after clinical improvement. In cases of wedging or cholangitis – as a matter of urgency. In our study, there were 2 such cases.

According to the results of our past studies, we also took into account the possible development of abdominal compartment syndrome (ACS), which can complicate the course of AP in 8-15% of cases. In patients with an increased in volume, distended abdomen, unstable hemodynamics (BP ≤ 90/60 mm Hg), respiratory failure (FRM ≥ 20), oliguria (daily urine ≤500 ml), among other diagnostic measures, intra-abdominal pressure (IAP) using the intravesical method of indirect manometry. In 6.2% of patients of group A and 6.8% of subjects of group B, the indicator reached above 12 mm m/c. Regarding these patients, we applied a set of measures to prevent the occurrence of ACS in the treatment process.

In order to radiologically confirm aseptic and septic complications in persons with a corresponding clinical picture, an increased level of procalcitonin above 2 ng/ml and the absence of the desired response to the treatment, we used CT of the abdominal cavity with intravenous contrast according to the recommendations of the American College of Radiology in 2013 th year [8-11].

RESULTS

According to proposed conservative treatment in group B according to the Ranson prognostic scale, the total number of stocks with a predicted mild course is 68.7%, which is significantly higher than in group A (59.3%). Also, in the study group B, the number of patients with a predicted severe course was only 4 (2.7%) patients, among whom in 2 cases there were signs of biliary pancreatitis, choledocholithiasis with wedging and signs of cholangitis, which required emergency ERCP with papillosphincterotomy, while in the control group, this indicator was as much as 6.9%.

The study of the level of procalcitonin, as a marker of pancreatic necrosis, made it possible to timely add antibacterial agents to the therapy and conduct CT with contrast in order to determine the expediency of percutaneous drainage of the pancreatic space vapor. In the study group, the number of such patients was 7.48% (11 patients). The 1st (0.67%) of them subsequently developed the phenomenon of infected pancreatic necrosis, which was isolated over time, and after 4 weeks a percutaneous puncture was successfully performed.

In the control group, the total number of cases of infected pancreatic necrosis reached 3.44%.

It should be noted that in the control group, ACS phenomena were observed in 4.5% of cases, while in the study group such phenomena were not observed.

The average length of stay in the hospital of patients in the control group reached 9.3 days, while in the patients of the study group this indicator was at the level of 6.7 days.

In the 1st case of the study group, phenomena of peritonitis were noted, which required emergency open surgical intervention. Such cases were not observed in group B.

DISCUSSION

The relevance of the problem of acute pancreatitis today is based on the increase in the frequency of its diagnosis, the severity of complications and the threatening increase in mortality. The diagnostic algorithm of acute pancreatitis requires improvement, taking into account the rational, combined use of modern methods of diagnosing the pathology of the abdominal organs, with the aim of effective forecasting and prevention of its complications. [12]. The proposed diagnostic algorithm and treatment technique allows predicting and preventing the development of

abdominal compartment syndrome, the development of septic complications and pancreatic necrosis, which significantly improves the results of treatment and rehabilitation of this contingent of patients and it can be used in the conditions of specialized departments of the surgical profile at the district, city and regional levels hospitals [13, 14].

The effectiveness of complex conservative therapy in acute pancreatitis is directly related to its use already in the first hours of the disease, the pathogenesis of which is characterized by a rapid cascading course. That is why, precisely this problem often appears before surgeons – patients seek help late and often in a difficult condition. In such cases, conducting intensive complex therapy makes it possible to bring patients in the early stages of the disease out of shock, which in the recent past was the main cause of the patient's serious condition and death. The possibilities of modern intensive therapy make it possible to overcome severe intoxication and shock in the enzyme phase, to provide favorable conditions for operations at a later date [14, 15].

But the results of treatment of acute pancreatitis are still far from being resolved. Indeed, the number of patients who die or are operated on in the early period of the disease has decreased. However, against the background of conservative therapy, they pass into the category of patients with retroperitoneal purulent processes and the most severe manifestations of sepsis. Therefore, the solution of intensive care aspects led to the appearance of problems of septic surgery, which did not exist before due to the inoperability, and even the incurability of patients with severe pancreatic necrosis. This is the reason why the authors' conclusions are not very optimistic and sound like a call to find new effective methods of diagnosis and treatment of acute pancreatitis [15, 16].

CONCLUSIONS

In this way, the algorithm proposed by us for the management of patients with HP allows:

1) Significantly reduce the number of patients with a predicted severe course according to the Ranson scale. In the study group, this indicator was only 2.7%, while in the control group, this indicator was as much as 6.9%;

2) Reduce the length of stay in the hospital: 9.3 days in the control group, while this indicator was 6.7 days in the patients of the study group.

3) With the help of procalcitonin as a marker of pancreatic necrosis and a CT scan with intravenous contrast, it is possible to supplement conservative treatment with antibacterial agents and skin drainage of the pancreatic space, which significantly reduced the number of cases of infected pancreatic necrosis in the study group (0.67%) in compared to the control (3.44%).

4) The algorithm provides for taking into account the possibility of the occurrence and prevention of the development of ACS. In the control group, ACS phenomena were noted in 4.5% of cases, while such phenomena were not observed in the study group.

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ORCID and contributionship:
Stepan S. Filip: 0000-0002-6549-3892 A,B,C
Rudolf M. Slivka: 0000-0002-0187-2711 C
Yuriy P. Skripinets: 0000-0002-9741-4175 B, D
Andriy M. Bratasyuk: 0000-0003-4390-2357 E, F
Anatoliy I. Shitev: 0000-0002-1034-2405 D, F

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CORRESPONDING AUTHOR
Andriy M. Bratasyuk
Uzhhgorod National University
148 Sobranetska st., 88015 Uzhhgorod, Ukraine
tel: +380677439445
e-mail: docbrat@gmail.com

A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis,

D – Writing the article, **E** – Critical review, **F** – Final approval of the article