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INNOVATIVE TECHNOLOGIES AND TACTICAL APPROACHES IN THE TREATMENT OF ABDOMINAL INJURIES.

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Abstract. *The authors proposed active surgical tactics as "damage control" in traumatic liver injuries. The method of "damage control" in SFRICAN used since 2006 as the only method of saving the life of patients with traumatic injuries of the liver in the IV and V degree (for E. Moore, 1986). In the departments of emergency surgery STRNCMP 2008 – 2018 127 operated patients with liver trauma.*

Of these, 19 (14,96%) patients with severe liver injuries of IV and V degree of damage by E. Moore. The effectiveness of multi-stage tactics was evaluated by the level of mortality and the number of purulent-septic complications.

The results of surgical treatment of 19 patients with massive liver injuries, aged 17 to 50 years, were analyzed. The median age was 26 years. There were 11 men and 8 women. The average assessment of the severity of damage on the ISS scale was 34 points (17-76), E. Moore IV and V degree of damage. The average blood loss was 2850 ml (1750-3850 ml). All patients underwent multi-stage laparotomy with gauze (film) tamponade, the average number of operations per 1 person 2,7 (2-5), suturing of the liver wound with tamponade (13), extensive hepatotomy and vascular ligation (3), atypical resection (2), stitching of large major vessels with taponade (1). The average bed/day in the intensive care unit is 13 (3-16), and the average bed/day in the clinic is 25 (3-28). Mortality was 26,3% (5 out of 19), mainly purulent-septic complications and multiple organ failure. Multi-stage surgical tactics "damage control" in isolated and combined severe liver damage is an effective method in unstable patients with the risk of developing coagulopathy and multiple organ failure.

The use of the "damage control" technique helped to reduce the mortality rate from acute abdominal pathology by 27,2%.

Key words: *closed abdominal trauma, liver injury, "damage control".*

ИННОВАЦИОННЫЕ ТЕХНОЛОГИИ И ТАКТИЧЕСКИЕ ПОДХОДЫ В ЛЕЧЕНИИ АБДОМИНАЛЬНЫХ ТРАВМ

Аннотация. *Авторы предложили активную хирургическую тактику как «контроль повреждений» при травматических повреждениях печени. Метод «damage control» в SFRICAN применяется с 2006 г. как единственный метод спасения жизни больных с травматическими повреждениями печени IV и V степени (по E. Moore, 1986). В отделениях неотложной хирургии ННЦМП за 2008 – 2018 гг. прооперировано 127 больных с травмой печени.*

Из них 19 (14,96%) больных с тяжелыми повреждениями печени IV и V степени повреждения по Э. Муру. Эффективность многоэтапной тактики оценивали по уровню летальности и количеству гнойно-септических осложнений.

Проанализированы результаты хирургического лечения 19 больных с массивными повреждениями печени в возрасте от 17 до 50 лет. Средний возраст составил 26 лет. Было 11 мужчин и 8 женщин. Средняя оценка тяжести повреждений по шкале ISS составила 34 балла (17-76), Е. Мура IV и V степени повреждений. Средняя кровопотеря составила 2850 мл (1750-3850 мл). Всем больным выполнена многоэтапная лапаротомия с марлевой (пленочной) тампонадой, среднее количество операций на 1 человека 2,7 (2-5), ушивание раны печени с тампонадой (13), обширная гепатотомия и лигирование сосудов (3)., атипичная резекция (2), сшивание крупных магистральных сосудов тапонадой (1). Средний койко-день в отделении интенсивной терапии составляет 13 (3-16), а средний койко-день в поликлинике 25 (3-28). Летальность составила 26,3% (5 из 19), в основном гнойно-септические осложнения и полиорганная недостаточность. Многоэтапная хирургическая тактика «damage control» при изолированном и сочетанном тяжелом поражении печени является эффективным методом у нестабильных больных с риском развития коагулопатии и полиорганной недостаточности.

Использование методики «damage control» позволило снизить смертность от острой абдоминальной патологии на 27,2%.

Ключевые слова: *закрытая травма живота, повреждение печени, «контроль повреждений».*

INTRODUCTION

Traumatic injuries of the liver according to the severity of the course, the complexity of diagnosis and treatment, the high mortality rate, are considered the most dangerous among injuries of the abdominal organs. The frequency of liver damage in closed abdominal trauma ranges from 20 to 46.9% [3], with penetrating injuries - from 57% to 86.4% of cases [2].

According to the literature, postoperative mortality in blunt abdominal trauma with liver damage is 30.4%, with stab wounds of the organ - from 4 to 10.5%, with combined trauma, 39.3% of patients die.those who suffered [5].

With a modern combined injury, the victims, in whom the severity of injuries on a scaleISS corresponds to IV and V degrees (according to E.Moore, 1986), characterized by high mortality, reaching 40-80%. High mortality rates are associated with a combination of injuries, shock, blood loss, aggravated in the early postoperative period by the development of "abdominal compartment syndrome", and subsequently - purulent-septic complications [4,6,7,8].

The traditional surgical tactics for isolated and combined injuries include laparotomy with correction of existing injuries to the abdominal organs and chest cavities. However, with massive damage to internal organs, often combined with damage to large vessels, the complete correction of all damage takes a long time, which affects the outcome of treatment.[9,10,11].

Initially, the "damage control" strategy (M.Rotondo 1993) was used for the surgical treatment of the wounded with polytrauma. This technique consisted of three stages:

The first is urgent, immediate surgery to stop active bleeding and prevent infection of the abdominal cavity.

The second is the implementation of cumulative intensive anti-shock therapy in the presence of an intensive care unit for the fastest rehabilitation of the body.

The third - within 48-72 hours after the injury, the final decision on surgical treatment.

Purpose of the study- evaluate the effectiveness of the method "damage control" for severe liver damage.

MATERIALS AND METHODS

During 2008-2018, 127 patients with liver injury were operated on in the emergency surgery departments of the SFRNCEMMP.

Of these, 19 (14.96%) of patients with severe liver injuries of IV and V degrees of damage according to E.Moore. The effectiveness of multi-stage tactics was assessed by the level of mortality and the number of purulent-septic complications.

Werethe results of surgical treatment of 19 patients with massive liver damage, aged 17 to 50 years, were studied. The average age is 26 years. Of these, 11 men, 8 women. The average assessment of the severity of injuries on the ISS scale was 34 points (17-76), according to E.Moore IV and V degrees of injury. The average blood loss was 2850 ml (1750-3850 ml). All patients underwent a multi-stage laparotomy with gauze (film) tamponade, the average number of operations per 1 person was 2.7 (2-5), suturing of the liver wound with tamponade (13), extensive hepatotomy and ligation of blood vessels (3), atypical resection (2), stitching of large main vessels with taponade (1). The average bed/day in the intensive care unit is 13 (3-16) and the average bed/day in the clinic is 25 (3-28). Mortality was 27.2% (3 out of 11), mainly purulent-septic complications and multiple organ failure.

In addition, a correlation study was conducted: 41 patients with acute abdominal pathology treated according to the “damage control” system (interrupted operation), 30 patients (control group, similar in terms of main nosology, time of hospitalization, concomitant nosology, age) were conducted by the method “ early total care" (simultaneous performance of the full volume of surgical intervention, regardless of the type of nosology and the primary condition of the patient).

To understand the severity of the patient and the legitimacy of managing patients in the "damage control" mode, a scale was designed (each indicator was estimated from 1 to 4 points) of the patient's nosology:

< 9 points - there are no indications for the use of the "damage control" technique,

10-16 points - unambiguous indications for "damage control".

Empiricism in decision making is acceptable for adjacent values of the algorithm 8-9 points.

In the scale of severity, these indicators were taken into account: the duration of the disease, the source of peritonitis, the type of inflammatory and destructive processes in the abdominal cavity, with mesenteric-vascular thrombosis, the degree of intestinal necrosis was taken into account, with acute intestinal obstruction - the origin of obstruction, in circumstances of infected pancreatic necrosis - generalization and the location of the process, the presence of shock in polytrauma with damage to the abdominal organs, etc. was taken into account.

Undoubtedly, an important and decisive moment of this tactic is the implementation of not a single surgical intervention, but 2 or more according to indications.

RESULTS AND DISCUSSION

The results of surgical treatment of 19 patients with massive liver injuries were analyzed. The mean ISS severity score was 34 (17-76). All patients underwent a multi-stage laparotomy with gauze (film) tamponade, the average number of operations per 1 person was 2.7 (2-5), the following types of operations were performed: suturing the liver wound with tamponade (13), extensive hepatotomy and ligation of blood vessels (3), atypical resection (2), suturing of large great vessels with taponade (1). The average bed/day in the intensive care unit is 13 (3-16) and the

average bed/day in the clinic is 25 (3-28). At the same time, mortality was 26.2% (5 out of 19), mainly purulent-septic complications and multiple organ failure.

The mortality rate in the main group of patients with the damage control method was 19.5% (8 out of 41 patients died). This ratio in the comparison group with the early total care method was 53.3% (16 out of 30 patients died).

The study of the first steps of this tactic and the final data obtained were a predetermining factor for creating our own scale in order to take into account operational risk, as well as further prognosis of the disease based on the physiological state of the patient. The patient's age, blood pressure (mmHg), heart rate (bpm), Hb (hemoglobin) g/l, Potassium (mmol/l), Sodium (mmol/l), urea (mmol \l), leukocytes, ECG, the state of the cardiovascular and respiratory systems, temperature and acidity. All indicators were evaluated in points (from 1 to 4 depending on the degree of their deviation):

1-10 - compensated state (prognosis for life is favorable)

11-29 - subcompensated state (boundary state)

30-44 - decompensated state (prognosis for life is unfavorable)

The proposed algorithm, which is based on numbering criteria, eliminates empiricism when choosing a treatment method for severe liver injuries in unstable patients with a risk of developing coagulopathy and multiple organ failure, makes it possible to determine indications for damage control with high accuracy, use this technique at the right time, to recognize and prevent acceptable complications in advance, as well as to predict the outcome of the disease. The strategy that has been proposed above combines the strengths of programmed relaparotomy and the standard damage control technique for injuries. Staged surgical treatment provides a chance to fully use the modernized resuscitation post-syndromic treatment, as well as prosthetics of organ function in order to combat the systemic inflammatory response, which is not amenable to drug and physiotherapeutic stimulation of intestinal paresis. The application of this strategy reduced mortality from 53.3% to 19.5%.

CONCLUSIONS:

1. Multi-stage "damage control" surgical tactics for isolated and combined severe liver injuries is an effective method in unstable patients with the risk of developing coagulopathy and multiple organ failure.

2.The use of the “damage control” technique helped to reduce the mortality rate from acute pathology of the abdominal organs from 43.9% to 26.3%.

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