IMPLEMENTATION OF ENHANCED RECOVERY AFTER SURGERY (ERAS) IN PATIENTS WITH COLORECTAL CANCER AND CONCOMITANT METABOLIC SYNDROME


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Summary

Introduction. Implementation of enhanced recovery after surgery protocol (ERAS) is becoming more and more widespread due to their effectiveness and safety. At the same time, there is a rather limited number of studies focusing on the opportunities of ERAS in the context of its association with metabolic syndrome in patients with colorectal cancer. This study represents the results of our early experience implementing elements of the ERAS program in the perioperative management of patients with colorectal cancer associated with metabolic syndrome.

The aim. To conduct a comparative analysis and evaluate the results of surgical treatment using the enhanced recovery after surgery protocol in patients with colorectal cancer and accompanying metabolic syndrome.

Materials and methods. This study included 106 patients with colorectal cancer and accompanying metabolic syndrome, divided into two groups: the first group with the use of elements of the ERAS protocol in colorectal surgery from 2018-56 patients, and the second group in which the principles of ERAS were not used (50 patients).

Results. In the first group, with a statistically significant difference, a less severe pain syndrome was observed according to VAS (p<0.001), as well as a lower necessity for prescribing opioid analgesics in the postoperative period. Activation of patients, restoration of enteral nutrition and peristalsis occurred earlier in first group (p<0.001).

Mean hospital stay in the first group was 5.7±1.5 days, and in second group – 7.7±1.7 days (p<0.001). In the 2nd group, the percentage of complications such as: postoperative wound seroma, abdominal organ eventration, and anastomotic leaks in the 30-day postoperative period were higher than in the group with ERAS elements included.

Conclusion. The implementation of elements from the Enhanced Recovery After Surgery (ERAS) protocol for the treatment of patients with colorectal cancer and concomitant metabolic syndrome is effective and safe. It is associated with a decreased duration of hospitalization, less postoperative pain, earlier return to enteral nutrition, quicker patient mobilization, and restoration of peristalsis. Additionally, it reduces the frequency of postoperative complications and readmission rates.

Key words: colorectal surgery, colorectal cancer, metabolic syndrome, enhanced recovery after surgery protocols, ERAS, early postoperative recovery

INTRODUCTION

The Enhanced Recovery After Surgery (ERAS) protocols are a system of multimodal integrated patient management consisting of individual elements (principles, tools, and methods of multidisciplinary patient care in the preoperative, intraoperative, and postoperative periods) that, through synergistic interactions, promote early postoperative recovery in patients, reduce the frequency of postoperative complications, and shorten hospitalization duration [1-3]. Furthermore, their implementation in practice, with statistically significant differences, reduces postoperative pain and the use of opioids, lowers the incidence of nosocomial infections, and is associated with
decreased hospital costs [4-6]. Moreover, the application of ERAS protocols allows for improved overall and oncological 5-year survival rates and 5-year recurrence-free survival, particularly in patients with colorectal cancer [7-9].

According to the GLOBOCAN database and the International Agency for Research on Cancer (IARC), in 2020, there were 19.3 million new cases of cancer reported, of which 1.9 million (10 %) were colorectal cancer. Additionally, the total oncological mortality reached approximately 10.0 million cases, with colorectal cancer accounting for approximately 940,000 (9.4 %) of those cases [10]. The most common risk factors for developing primary colorectal cancer include a high body mass index (BMI), consumption of a significant amount of red meat, smoking, low physical activity, and inadequate dietary fiber intake [11]. Today, it is worth noting that individuals with concomitant metabolic syndrome represent a particular high-risk group for colorectal cancer. According to the results of a meta-analysis conducted by Chen et al. in 2020, metabolic syndrome was statistically significantly associated with the development of early colorectal cancer [OR 1.25; 95 % CI 1.09 to 1.43], compared to patients without a diagnosed metabolic syndrome [OR 1.09; 95 % CI 1.00 to 1.17] (p<0.001) [12]. Metabolic syndrome is a complex disturbance of metabolic processes in the body characterized by the mandatory presence of criteria such as visceral obesity, arterial hypertension, dyslipidemia, and insulin resistance [13]. It is not a standalone disease; however, the combination of its components significantly increases the risk of developing cardiovascular and respiratory diseases, diabetes, liver diseases, and oncological conditions, complicating their course. A statistically significant correlation has been established between the risk of developing colorectal cancer and the presence of metabolic syndrome in patients [14]. Furthermore, it has been found that the presence of concomitant metabolic syndrome in patients with colorectal cancer increases the frequency of complications in the postoperative period, prolongs hospitalization, and significantly worsens the prognosis for overall survival. In a retrospective cohort study conducted by Sharif et al., where data from 7603 patients with metabolic syndrome undergoing surgical intervention for colorectal cancer were compared to patients without metabolic syndrome, it was observed over a 30-day period that such patients had a higher overall frequency of postoperative complications, including cardiovascular, renal, respiratory, infectious complications, as well as complications related to surgical wounds that required additional surgeries and extended the duration of hospitalization [15, 16].

The prevalence of metabolic syndrome in the general population is approximately 25 % [17], and this significant figure tends to increase. This presents a serious concern regarding the elevated risks of developing oncological diseases, including colorectal cancer. It is evident that such a high prevalence of colorectal cancer and the progressive increase in the proportion of individuals potentially at risk have prompted the development and implementation of ERAS principles in this direction.

The first practical recommendations in an official format regarding the use of the ERAS protocol in colorectal surgery appeared in 2005 [18]. Today, thanks to the collaborative efforts of the ERAS Society and other research groups, the most up-to-date evidence-based recommendations for perioperative management of patients have been formulated and were updated in the fourth revision in 2018 [19]. Surgeons at our center also adhere to these recommendations when treating patients with colorectal cancer.

The concept of ERAS is based on the principle of comprehensiveness. It is worth noting that in most conducted randomized clinical trials, the emphasis is placed on strict adherence to all the elements of these protocols following the «all or nothing» principle for the proper functioning of the system. However, at present, the exclusion of certain elements for various reasons does not always disrupt the concept of enhanced recovery after surgery. For example, in colorectal surgery, the minimally invasive approach may be absent due to factors such as the tumor’s size, the presence of significant adhesions within the abdominal cavity from previous major abdominal surgeries, the patient’s overall health condition, the technical capabilities of the healthcare facility, the urgency of the required surgery, or other reasons. Laparoscopic access is an important component of ERAS protocols, but the inability to perform it for specific reasons does not necessarily mean the entire essence of the methodology is lost. The absence of one element, either partially or entirely, can be compensated for by others while preserving the key essence of the ERAS concept and ensuring favorable treatment outcomes.

This study presents the results of our early experience in implementing elements of the ERAS program in the perioperative management of patients with colorectal cancer associated with metabolic syndrome at our center. These results are presented in the context of a comparative analysis between the management of patients with colorectal cancer before and after the introduction of enhanced recovery after surgery protocols.

The aim of this study is to compare and assess the outcomes of surgical treatment in patients with colorectal cancer and concomitant metabolic syndrome using enhanced recovery after surgery (ERAS) protocols.

MATERIALS AND METHODS

This study included 106 patients with colorectal cancer and concomitant metabolic syndrome who underwent surgical intervention. All patients were divided into two groups: the first group consisted of 56 patients in whom elements of the ERAS protocol were applied during the perioperative period, and the second group included...
50 patients in whom ERAS principles were not utilized in their management.

The assessed data (in addition to age and gender) included the evaluation of intraoperative blood loss (in ml), postoperative length of stay (in days), frequency of early postoperative complications within the 30-day period following the intervention (number of cases), and their distribution among groups. These complications encompassed postoperative bleeding, anastomotic failure, thrombotic and thromboembolic complications, seromas, and infectious complications of surgical wounds. Additionally, the necessity for revision surgery within the 30-day period following the surgical intervention due to resulting complications was recorded. Pain assessment in patients during the postoperative period was conducted using the Visual Analog Scale (VAS) on postoperative days 0, 1, 2 and 3. The interpretation of results was performed on a 10-point scale ranging from 0 to 10, where 0 points denoted no pain and 10 points signified maximum pain.

**TECHNICAL ASPECTS OF THE ERAS PROTOCOL**

Since 2019, the State Scientific Institution «Center for Innovative Medical Technologies of the National Academy of Sciences of Ukraine» has been actively implementing perioperative patient care based on ERAS principles in colorectal surgery. The basis was the latest recommendations approved by the ERAS® Society in 2018, which include key components of patient care at different stages of treatment – preoperative, intraoperative and postoperative. Specifically:

### Preoperative Period
1. Informational, educational, and consultative work with the patient.
3. Implementation of preoperative physical preparation programs for the patient.
5. Preoperative correction of anemia.
7. Premedication.
8. Antibiotic prophylaxis, mechanical bowel preparation, and preparation of the surgical site.
9. Restriction of preoperative fasting and correction of fluid-electrolyte balance.

### Intraoperative Period
1. Utilization of standardized anesthetic approaches.
2. Intraoperative correction of fluid-electrolyte balance.
5. Abdominal cavity drainage.

### Postoperative Period
1. Limitation of nasogastric intubation.
3. Thromboprophylaxis.
5. Early removal of urinary catheter.
7. Postoperative glycemic control.
8. Early resumption of oral nutrition and fluid intake in the postoperative period.

In our opinion, the implementation of even individual components of the enhanced recovery after surgery (ERAS) program significantly contributes to positive treatment outcomes. We placed special emphasis on the possibility of performing open surgical approaches while adhering to the principles of ERAS. In our study, we evaluated the results of applying specific elements of the above-mentioned ERAS protocol in patients with colorectal cancer in combination with metabolic syndrome. These specific elements included preoperative optimization of the patient’s nutritional status and correction of anemia, avoiding preoperative fasting, correction of fluid-electrolyte balance at all stages, standardized anesthetic approaches, limitation of routine nasogastric intubation, multimodal analgesia at all stages, thromboprophylaxis, prevention of postoperative bowel paralysis, and early resumption of enteral nutrition and fluid intake in the postoperative period.

The patient’s nutritional status was assessed using the plasma albumin level, which required correction if it was less than 30 g/L. Optimization of the nutritional status during preparation for surgery was mainly achieved through enteral support by providing the patient’s diet with high-protein products, along with the addition of high-calorie protein supplements in the form of beverages. Preparation with the use of energy-protein drinks started no later than 48 hours before the planned surgery. Patients received approximately 3-4 bottles of 125 ml per day, equivalent to 900-1200 calories and 54-72 grams of protein, which represented about 50 % and 100 % of the average daily requirements, respectively. In cases of severe hypoalbuminemia, albumin 20 % was administered parenterally. To correct preoperative anemia, infusions of iron preparations were administered parenterally while monitoring target parameters when the initial hemoglobin level was less than 80 g/L and the serum ferritin concentration was less than 30 ng/mL.

During the intraoperative period, as part of optimizing anesthetic approaches, a short-acting inhalation anesthetic, sevoflurane, was used. Propofol was administered intravenously for anesthesia induction. The emphasis was placed on minimizing the use of opioids and using short-acting opioids (fentanyl). All patients in the ERAS group underwent monitoring of the Bispectral Index (BIS) to
The IBM SPSS Statistics package, version 23. Before descriptive and inferential statistical methods with a differentiated approach to fluid administration and the use of diuretics in patients.

Limiting the use of opioids was achieved through the application of multimodal analgesia. The focus was on using a combination of epidural analgesia, transversus abdominis plane (TAP) block, and rectus sheath (RS) block during the intraoperative period, as well as local infiltration of the incision site in the skin. In the postoperative period, a combination of paracetamol and various groups of non-steroidal anti-inflammatory drugs (NSAIDs) was used with dynamic dosage adjustments based on the patient’s subjective pain assessment.

Thromboprophylaxis in patients was carried out by using compression stockings on the lower extremities intraoperatively and postoperatively throughout the entire hospitalization period until active mobilization. Pharmacological prophylaxis with low molecular weight heparins (LMWH) was administered once a day for 28 days, with dosage calculated based on the patient’s anthropometric data and functional status. To achieve this goal, early patient mobilization was initiated in the first postoperative hours, initially within the bed and later within the intensive care unit.

Oral fluid intake was resumed on postoperative 0 day, and supplemented with additional oral nutritional drinks with increased calorie and protein content starting from the day after surgery, provided there were no contraindications. In the first postoperative hours, patients were given chewing gum to stimulate peristalsis and prevent postoperative bowel paresis.

Statistical data analysis

Statistical data analysis was performed using descriptive and inferential statistical methods with the IBM SPSS Statistics package, version 23. Before conducting the data analysis, all variables were checked for normality using the Shapiro-Wilk test and for equality of variances using the Levene’s test. Descriptive statistics such as mean (M) and standard deviation (SD) were used for normally distributed data. To assess statistically significant differences in the means of quantitative variables that followed a normal distribution, parametric methods for dependent groups (Student’s t-test) were applied. Differences were considered statistically significant at p < 0.05, ensuring a 95 % level of probability.

RESULTS OF THE STUDY

The comparison groups were homogeneous in terms of age and gender. The age of patients in both groups ranged from 49 to 86 years: in the first group, it ranged from 49 to 80 years, and in the second group, it ranged from 56 to 86 years. In the first group, the mean age was 64.8±7.3 years, and in the second group, it was 66.3±8.3 years (t=0.97; p=0.34). The distribution of males and females in the groups was as follows: in the first group, there were 30 males (53.6 %) and 26 females (46.4 %), while in the second group, there were 25 males (50 %) and 25 females (50 %). The male-to-female ratio in the first group was 1.0 to 0.9, and in the second group, it was 1.0 to 1.0, respectively.

There were no cases of intraoperative complications among the patients included in the study. There was no statistically significant difference between the groups in terms of the volume of intraoperative blood loss. In the ERAS group, the volume of intraoperative blood loss was 72.1±20.7 ml, while in the second group, it was 78.5±25.9 ml (t=1.40; p=0.16).

In Group 1, there was a statistically significant difference, with a less pronounced pain syndrome according to the VAS scale throughout the entire study period. The average VAS score in the groups was as follows: ERAS group – 0 day – 4.5±1.0, 1 day – 3.7±0.8, 2 days – 2.4±0.6, 3 days – 1.5±0.5; Non-ERAS group – 0 day – 5.6±0.8, 1 day – 5.2±0.7, 2 days – 4.0±0.7, 3 days – 2.7±0.6 (p<0.001).

The characteristics of the severity of postoperative pain according to the Visual Analog Scale (VAS) among patients in the groups are presented in Table 1.

In addition, in the 2nd group, 11 (22 %) patients required opioid analgesics on postoperative days 0 and 1, 7 (14 %) patients on postoperative day 2, and 3 (6 %) patients on postoperative day 3. Meanwhile, in the 1st group, only 3 (5.4 %) patients required the use of opioid analgesics on postoperative day 0. Patient mobilization after surgery occurred earlier in the 1st group (3.5±1.4) hours compared to the 2nd group (4.6±1.6) hours (p=0.0002).

The time to resume fluid intake and enteral feeding in the postoperative period was significantly shorter in the 1st group, taking up to 6 hours (4.0±1.4) and up to 36 hours (20.4±5.0), respectively. In the 2nd group, it took up to 12 hours (9.1±2.1) and up to 48 hours (34.3±7.4), respectively (p<0.001). Bowel function recovery and the first bowel movement in the postoperative period also occurred earlier in the 1st group, with a statistically significant difference, at (2.8±0.6) days compared to the 2nd group, (3.5±0.7) days (p<0.001).

The average length of stay in the hospital for patients in the 1st group was 5.7±1.5 days, while in the 2nd group, it was 7.7±1.7 days (p<0.001).

In the 2nd group, 6 patients (12 %) experienced complications within the 30-day postoperative period. These complications included seromas at the surgical wound site, which were treated conservatively, 1 case (2 %).
of evisceration of abdominal organs, and 3 cases (6 %) of anastomotic insufficiency of the colorectal anastomosis, which required revision surgery. In the ERAS group, there were 3 cases (5.4 %) of seromas at the surgical wound site and 1 case (1.8 %) of anastomotic insufficiency of the colorectal anastomosis during the postoperative period.

**Table 1**

<table>
<thead>
<tr>
<th>Postoperative day</th>
<th>Average score</th>
<th>Group 1 (n=56)</th>
<th>Group 2 (n=50)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4.5±1.0</td>
<td>5.6±0.8</td>
<td>p&lt;0.001*</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.7±0.8</td>
<td>5.2±0.7</td>
<td>p&lt;0.001*</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2.4±0.6</td>
<td>4.0±0.7</td>
<td>p&lt;0.001*</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.5±0.5</td>
<td>2.7±0.6</td>
<td>p&lt;0.001*</td>
<td></td>
</tr>
</tbody>
</table>

Note: * – The method of statistical analysis was the Student’s t-test

Therefore, the application of ERAS protocol elements during the perioperative period in patients with colorectal cancer associated with metabolic syndrome allowed for a statistically significant reduction in the severity of postoperative pain, limited the use of opioid analgesics, ensured early resumption of enteral nutrition, early patient mobilization, and restoration of peristalsis. This led to a shortened hospital stay, reduced the frequency of early postoperative complications, and consequently decreased the need for revision surgery within the 30-day period following surgery.

**DISCUSSION**

In modern surgical practice, the implementation of enhanced recovery after surgery (ERAS) protocols is becoming increasingly widespread due to their effectiveness and safety. Standardizing approaches to perioperative patient management according to ERAS principles has become an integral criterion for successful treatment in almost all surgical specialties. This is because ERAS protocols are associated with reduced pain and opioid use in the postoperative period, decreased rates of postoperative complications, shortened hospital stays, improved long-term outcomes, and reduced economic costs. Colorectal surgery is no exception to the positive impact of implementing ERAS.

In a meta-analysis conducted by Ni et al., 13 randomized controlled trials involving a total of 1,298 patients with colorectal cancer were analyzed. The study concluded that in the ERAS group, there was a statistically significant reduction in the duration of postoperative hospitalization [WMD – 2.00 (95 % CI – 2.52; – 1.48); p=0.00] and a lower risk of general complications [RR 0.59, (95 % CI 0.40; 0.86); p < 0.01] [1].

In the context of reducing the frequency of early postoperative complications in patients with colorectal cancer, certain elements of the ERAS program play a particularly important role.

Maintaining normovolemia (a «zero balance») while monitoring hemodynamics, avoiding overloading the body with fluids, and ensuring adequate organ perfusion are fundamental in the concept of goal-directed fluid therapy. Hypovolemia can lead to vasoconstriction and hypoperfusion of peripheral tissues and organs, resulting in ischemia and dysfunction. On the other hand, fluid overload can lead to interstitial edema and local inflammation, which worsen collagen regeneration processes and negatively impact tissue healing, increasing the risks of wound infections and anastomotic failure [20]. Xu et al. emphasized the relevance of goal-directed fluid therapy in their meta-analysis. In a sample of 11 studies involving 1,281 patients, a statistically significant difference was found regarding the reduction in the risk of postoperative complications in patients undergoing colorectal surgery when goal-directed fluid therapy was applied [RR 0.84, (95 % CI 0.71; 0.99), P = 0.04] [21]. In another meta-analysis, a statistically significant difference in treatment outcomes for patients with colorectal cancer in ERAS groups was obtained, with the use of perioperative multimodal analgesia and, specifically, transversus abdominis plane (TAP) blocks. Peltrini et al. conducted an assessment of 16 randomized controlled trials and their results indicate the effectiveness of multimodal analgesia: a reduction in pain levels assessed using the Visual Analog Scale (VAS) [WMD –0.91 (95 % CI –1.56; –0.27); p<0.05], along with a simultaneous reduction in the use of opioids [WMD –2.07 (95 % CI –2.63; –1.51); p<0.001] [21].

A critical factor in the development of early postoperative complications is protein-energy deficiency in the body, which hinders the processes of early postoperative recovery [23]. Lohsiriwat, in their study using the Subjective Global Assessment (SGA) scale to assess the nutritional status, established a relationship between the nutritional status of patients with colorectal cancer and the frequency of postoperative complications. A sample of 149 patients, after preoperative assessment, was divided into 3 groups according to the SGA scale:
SGA-A (normal nutritional status), SGA-B (mild to moderate malnutrition), SGA-C (severe malnutrition). It was found that the frequency of postoperative complications in the SGA-A and SGA-B groups was 11.31 % (OR 3.76; 95 % CI 1.36-10.36; p < 0.01), while in the SGA-C group, it was 40 % (OR 2.15; 95 % CI 0.07-63.64; p = 0.66) [24]. However, this study did not take into account the baseline level of plasma albumin in patients. In a large meta-analysis (236,480 patients), Christina et al. found higher risks of developing postoperative complications in patients with colorectal cancer with preoperative hypoalbuminemia [RR 1.69 (1.34, 2.13), P < .00001, I² = 98 %] [25].

Taking into account the high risks of thrombotic and thromboembolic complications in patients with colorectal cancer, we focused on thromboprophylaxis mechanisms in such patients during the perioperative period, following ERAS recommendations and international guidelines [26]. According to the meta-analysis by Lewis-Lloyd et al., which investigated data from 539,390 patients who underwent surgery for colorectal cancer, it was found that the postoperative incidence rate of venous thromboembolism was 195 (95 % CI, 148-256, 12 99.1 %) and 91 (95 % CI, 56-146, 12 99.2 %) per 1000 patient-years at 30 and 90 days, respectively [27]. Considering the high risks of complications in the first postoperative month, prescribing low-molecular-weight heparins during this period is crucial.

The final point to focus on is the resumption of oral nutrition and fluid intake in the postoperative period. In a meta-analysis by Herbert et al. among 1437 gastrointestinal surgery patients, the duration of hospitalization and the risks of postoperative complications were compared. It was found that in the group of patients with early enteral nutrition, the average duration of hospitalization ranged from 4 to 16 days, compared to the control group with a range of 6.6 to 23.5 days [MD 1.95 (95 % CI, −2.99 to −0.91), P < 0.001]. Moreover, the risks of developing postoperative complications were comparable in both groups, including the risk of anastomotic leakage [RR 0.78, (95 % CI 0.38-1.61)] [28]. In a study by Boelens et al., early resumption of enteral nutrition in patients undergoing surgery for rectal cancer led to earlier initiation of defecation compared to the parenteral nutrition group (P = 0.04) and a lower percentage of postoperative bowel paralysis, 54 % to 68 % (P = 0.12) [29].

Our study demonstrates the feasibility of implementing certain elements of the ERAS program in patients with metabolic syndrome undergoing rectal surgery, which positively impacts patient outcomes. The results obtained in our study regarding the duration of hospitalization, severity of pain syndrome, frequency of postoperative complications, and readmission rates were better in the ERAS group compared to the control group and correlated with statistical data from international studies. It is important to emphasize that in the context of our study, we did not differentiate between laparoscopic and open surgery groups. This suggests the possibility of implementing the ERAS protocol in open rectal surgery and achieving positive treatment outcomes without strictly adhering to the principles of minimally invasive surgery. The limitations of our study include a relatively small sample size and a short postoperative observation period.

**CONCLUSIONS**

The implementation of the Enhanced Recovery After Surgery (ERAS) protocol in our surgical practice for the treatment of patients with colorectal cancer and concurrent metabolic syndrome had a significant positive impact on outcomes. It was associated with reduced hospitalization duration, less postoperative pain, and a lower rate of postoperative complications, without increasing the frequency of necessary repeat surgical interventions in patients.

**Prospects for Further Research**

Further randomized clinical trials in larger patient cohorts are necessary to provide a more objective assessment of the results obtained regarding the effectiveness of implementing Enhanced Recovery After Surgery (ERAS) protocols in the surgical treatment of patients with colorectal cancer and concurrent metabolic syndrome.

Since 2019, the State Scientific Institution «Center for Innovative Medical Technologies of the National Academy of Sciences of Ukraine» has been actively implementing perioperative patient care based on ERAS principles in colorectal surgery.

**FUNDING AND CONFLICT OF INTERESTS**

The authors of the article confirm that there is no conflict of interest. Data on the relationship of funding for the development by certain institutions, foundations, organisations, grants: The article was performed within the framework of the research work № of state registration 0120U105158.

**COMPLIANCE WITH ETHICAL REQUIREMENTS**

The study was conducted with the written consent of the participants and in accordance with the principles of bioethics set out in the Helsinki Declaration «Ethical Principles for Medical Research Involving Human Subjects» and the «Universal Declaration of Bioethics and Human Rights (UNESCO)». All patients signed an informed consent to participate in the study. All devices used to examine patients were metrologically certified.
REFERENCES


Резюме

ІМПЛЕМЕНТАЦІЯ ПРОТОКОЛІВ ПРИСКОРЕНОГО ПІСЛЯОПЕРАЦІЙНОГО ВІДНОВЛЕННЯ (ERAS) У ПАЦІЄНТІВ З КОЛОРЕКТАЛЬНИМ РАКОМ ТА СУПУТНІМ МЕТАБОЛІЧНИМ СИНДРОМОМ

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Вступ:
Імплементація протоколів прискореного післяопераційного відновлення (ERAS) набуває дедалі більшого поширення завдяки їх ефективності та безпечності використання. При цьому існує досить обмежена кількість праць, що акцентують увагу на темі можливостей застосування ERAS в контексті асоціації метаболічного синдрому у пацієнтів з колоректальним раком. В цьому дослідженні представлено результати нашого раннього досвіду впровадження елементів програми ERAS у періопераційному веденні пацієнтів з колоректальним раком супутним метаболічним синдромом.

Мета:
Провести порівняльний аналіз та оцінити результати хірургічного лікування з використанням протоколів прискореного післяопераційного відновлення у пацієнтів з колоректальним раком та супутнім метаболічним синдромом.

Матеріали та методи:
В дослідження увійшло 106 пацієнтів з колоректальним раком та супутнім метаболічним синдромом, розділених на дві групи: 1 група із застосуванням елементів протоколу ERAS в колоректальній хірургії від 2018 року – 56 пацієнтів, та 2 група у веденні яких принципи ERAS не використовувались (50 пацієнтів).

Результати:
В 1 групі зі статистично достовірною різницею спостерігався менш виражений больовий синдром за ВАШ (p<0,001), та менша потреба у призначенні опіоїдних анальгетиків у післяопераційному періоді. Активізація пацієнтів, відновлення ентерального харчування та відновлення перистальтики відбувалася раніше в 1 групі (p<0,001). Середня тривалість перебування пацієнтів в стаціонарі у 1 групі становила 5,7±1,5 днів, а в 2 групі – 7,7±1,7 днів (p<0,001). У 2 групі дослідження в 30-денний термін післяопераційного періоду відсоток ускладнень у вигляді сероми післяопераційної рані, евентерації та неспроможності кишкових анастомозів був вищим, ніж у групі із застосуванням елементів ERAS.

Висновки:
Впровадження в хірургічну практику елементів протоколу прискореного післяопераційного відновлення (ERAS) у програму лікування пацієнтів з колоректальним раком та супутнім метаболічним синдромом є ефективним і безпечним, та асоційовано зі зниженням тривалості госпіталізації, меншою активізацією пацієнтів та відновленням перистальтики, а також зменшенням частоти післяопераційних ускладнень та повторних хірургічних втручань.

Ключові слова: колоректальна хірургія, колоректальний рак, метаболічний синдром, протокол прискореного післяопераційного відновлення, ERAS, раннє післяопераційне відновлення