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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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BASIC PRINCIPLES OF THE CONCEPT OF ACCELERATED POSTOPERATIVE RECOVERY AFTER SUBTOTAL COLECTOMY

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Abstract.

Background: Enhanced Recovery After Surgery (ERAS) programs, first proposed by Henrik Kehlet in the 1990s, have become an important component of modern perioperative care. Their principal aims are to reduce the physiological stress of surgery, minimize postoperative complications, and accelerate functional recovery.

Objective: To evaluate the feasibility and perioperative outcomes associated with implementation of ERAS principles in patients undergoing surgery for chronic colostasis.

Methods: A prospective, non-randomized, single-center observational study was conducted in 280 patients with decompensated chronic colostasis. According to the clinical indications, patients underwent subtotal colectomy, resection of a dolichosigmoid colon, or colopexy with Bauhin's valve plasty. An ERAS-based, disease-adapted perioperative pathway was used, incorporating multimodal analgesia, perioperative fluid management, early mobilization, early enteral nutrition, and early removal of urinary catheters and drains when clinically appropriate. Because of the severe and prolonged accumulation of intestinal contents characteristic of chronic colostasis, mechanical bowel preparation was deliberately retained as a disease-specific modification of the standard ERAS pathway. Outcomes were assessed descriptively, including postoperative complications, mortality, intestinal recovery, and length of postoperative hospital stay.

Results: Subtotal colectomy was performed in 183 (65.36%) patients, dolichosigmoid resection in 70 (25.0%), and colopexy with Bauhin's valve plasty in 27 (9.64%). Laparoscopic procedures accounted for 105 (37.5%) cases and open procedures for 175 (62.5%) cases. Postoperative complications occurring within 14 days were reported in 9 (3.22%) patients. Overall mortality was 1.07% (3 patients). Intestinal peristalsis was restored by postoperative day 2 in 258 (92%) patients. The mean postoperative hospital stay was 11 days; the median was 7 days (range, 7–13 days).

Conclusions: Implementation of an ERAS-based, disease-adapted perioperative pathway in patients undergoing surgery for chronic colostasis was feasible and was associated with a low observed rate of postoperative complications and mortality. Because this was a non-randomized observational study without a comparison group, these findings should be interpreted as descriptive and do not establish that ERAS-based management is superior to conventional perioperative care.

Key words. Enhanced recovery after surgery, accelerated postoperative recovery, subtotal colectomy, chronic colostasis.

Introduction.

Postoperative recovery after major abdominal surgery is influenced by the magnitude of the surgical stress response, perioperative pain, fluid and electrolyte disturbances, delayed gastrointestinal function, immobility, and other factors. Despite improvements in antimicrobial therapy, minimally invasive surgery, anesthesia, and perioperative monitoring, postoperative complications remain an important clinical problem [1,2]

The concept of Enhanced Recovery After Surgery (ERAS), developed and subsequently promoted by Henrik Kehlet and other investigators, introduced a multimodal approach intended to attenuate the physiological stress response to surgery and facilitate earlier recovery [3].

The concept incorporates coordinated interventions throughout the preoperative, intraoperative, and postoperative periods. These include patient education, optimization of comorbidities, appropriate nutritional management, avoidance of unnecessary fasting and bowel preparation when appropriate, multimodal analgesia, rational fluid therapy, minimization of surgical trauma, prevention of hypothermia and thromboembolic complications, early removal of unnecessary tubes and catheters, early enteral nutrition, and early mobilization [4,5].

ERAS principles have subsequently been incorporated into colorectal surgery and have been associated with shorter hospital stays and favorable perioperative outcomes in appropriately selected patients [6].

However, implementation should not be regarded as a rigid collection of mandatory interventions. Individual components may require modification according to the patient's disease, the planned operation, institutional resources, and the clinical judgment of the multidisciplinary team.

Patients with chronic colostasis represent a particular surgical population. Severe and prolonged impairment of colonic evacuation may be accompanied by substantial accumulation of intestinal contents and marked alterations in bowel function. For this reason, some conventional ERAS recommendations may require disease-specific modification. In particular, we retained mechanical bowel preparation in the present cohort because of the specific characteristics of chronic colostasis and the technical requirements of the planned colorectal procedures.

The aim of this study was to evaluate the feasibility and perioperative outcomes of implementing an ERAS-based, disease-adapted perioperative pathway in patients undergoing surgery for chronic colostasis.

Materials and Methods.

Study design and patient population:

During 2010–2023, 280 patients with chronic colostasis underwent planned surgical treatment at our institution. The study was prospective, non-randomized, and single-center. There was no conventional-care comparison group. The decision to operate and the type of surgical procedure were based on clinical findings, diagnostic evaluation, and the underlying anatomical and functional disorder.

The median age was 58 years (range, 39–75), median body weight was 66 kg (range, 53–78), and median body mass index was 23.1 kg/m² (range, 20.6–27.2).

Preoperative assessment and patient education:

Patients underwent comprehensive outpatient assessment, including surgical and anesthesiological evaluation and consultation with other specialists when indicated. On admission, patients received written information describing the planned investigations, operation, perioperative management, possible postoperative complications, and the patient's role in recovery. The purpose of this education was to reduce anxiety and promote active participation in respiratory exercises, mobilization, and postoperative self-care.

Preoperative investigations included clinical and biochemical laboratory testing, blood group and Rh determination, urinalysis, electrocardiography, radiography, gastroscopy, and colonoscopy as clinically indicated. Respiratory function was assessed using forced vital capacity, forced expiratory volume in one second, the FEV1/FVC ratio, peak expiratory flow, and maximum voluntary ventilation. According to the ASA physical status classification, 161 (57.5%) patients were classified as ASA II, 92 (32.86%) as ASA III, and 27 (9.64%) as ASA IV.

Disease-adapted ERAS protocol:

The perioperative pathway was based on ERAS principles but was adapted to the specific clinical characteristics of chronic colostasis. We therefore did not consider every classical ERAS recommendation to be universally applicable to this patient population.

Mechanical bowel preparation was performed in all patients. This was a deliberate disease-specific modification because severe chronic colostasis may be associated with prolonged accumulation of intestinal contents and incomplete evacuation. Mechanical preparation was intended to reduce fecal loading and facilitate surgical manipulation. Accordingly, the present protocol should be described as an ERAS-based, disease-adapted pathway rather than as strict adherence to an unmodified standard ERAS protocol [7].

Patients were instructed to discontinue solid food 6–8 hours before surgery. Fluid intake was restricted during the final 2 hours before surgery, with a maximum volume of approximately 200 mL during this period. These restrictions were adopted because of concern regarding delayed gastric emptying and aspiration risk in patients with severe chronic colostasis.

Patients at increased risk of thromboembolic complications received low-molecular-weight heparin prophylaxis 12 hours before surgery when not contraindicated. Broad-spectrum antimicrobial prophylaxis was administered approximately 1 hour before skin incision. Sedative premedication was avoided unless clinically indicated.

Anesthesia and intraoperative management:

Anesthetic risk was assessed according to the ASA physical status classification. Combined general and epidural anesthesia was used in 109 (38.9%) patients. The epidural catheter was inserted at the thoracic level according to the planned anesthetic technique. General anesthesia included sevoflurane and systemic opioids when required, particularly during the most traumatic stages of surgery. The use of long-acting opioids was subsequently minimized by incorporating non-opioid analgesics into the multimodal analgesic regimen.

Mechanical ventilation was performed using standard anesthesia workstations. The median duration of ventilation was 120 minutes (range, 60–180). Intraoperative transfusion and infusion therapy were individualized according to clinical requirements. Erythrocyte mass was administered in 47 (25%) patients and fresh frozen plasma in 184 (92%) patients. Mean intraoperative crystalloid and colloid volumes were 1750.5 ± 250.5 mL and 1150.5 ± 505.96 mL, respectively.

The surgical approach was either laparoscopic or open according to the patient's condition, the underlying anatomical disorder, and the surgeon's experience. Open surgery was not considered a violation of the ERAS concept when clinically indicated.

Postoperative management:

Patients were extubated immediately after surgery or as soon as clinically feasible, generally within the first postoperative day. Early mobilization was encouraged. Urinary catheters and abdominal drains were removed as soon as clinically appropriate. Multimodal analgesia included epidural local anesthetic when indicated and non-steroidal anti-inflammatory drugs, particularly lornoxicam and ketorolac, with reduced use of long-acting opioids such as morphine, trimeperidine, and fentanyl.

Epidural catheters were removed on postoperative day 2 in 101 (36.07%) patients and on postoperative day 3 in 179 (63.93%). After epidural catheter removal, paracetamol was used as the principal analgesic for 4–5 days, followed by oral analgesics as clinically indicated.

Nasogastric drainage was used selectively according to the clinical characteristics of the patient and the expected risk of gastric retention or regurgitation.

Perioperative infusion therapy was individualized with the aim of avoiding both hypovolemia and unnecessary fluid overload. In our patients, the reported perioperative infusion rate was approximately 8–10 mL/kg/h. Intravenous infusion was discontinued after adequate oral fluid intake had been established.

Early enteral intake was initiated when clinically tolerated and in the absence of vomiting or evidence of an intra-abdominal complication. The protocol allowed small volumes of oral nutritional mixtures from the first postoperative day, while oral feeding was advanced after clinical and, when indicated, radiological assessment.

Patients were encouraged to mobilize from the first postoperative day, progressing from sitting to standing and walking according to tolerance. Respiratory exercises and measures for prevention of thromboembolic complications were also continued after surgery.

Outcome measures:

The principal outcome measures were postoperative complications, postoperative mortality, postoperative intestinal recovery, length of postoperative hospital stay, and readmission. Complications were assessed during the first 14 postoperative days and classified according to the Clavien–Dindo system [8,9].

Statistical analysis:

Statistical analysis was performed using Statistica version 7.1 (StatSoft, Tulsa, OK, USA). Because the study was prospective, non-randomized, single-center, and did not include a comparison group, the analysis was descriptive. Continuous variables are presented as means and/or medians with ranges, and categorical variables are presented as absolute numbers and percentages. No between-group hypothesis testing was performed, and no comparative P values, relative risks, or weighted mean differences were calculated.

Results.

A total of 280 patients underwent surgery for chronic colostasis. Subtotal colectomy was performed in 183 (65.36%) patients, dolichosigmoid resection in 70 (25.0%), and colopexy with Bauhin's valve plasty in 27 (9.64%) patients with pathological mobility of the right colon and Bauhin's valve insufficiency.

Laparoscopic procedures were performed in 105 (37.5%) patients and open procedures in 175 (62.5%) patients.

The urinary catheter was removed on postoperative day 1 in 182 (65%) patients, on day 2 in 85(30.4%) patients, and on day 3 in 13 (4.6%) patients.

After surgery, infusion therapy was continued during transfer to the intensive care unit, with reported volumes of 2553.5 ± 523.3 mL of crystalloids and 850.8 ± 215.2 mL of colloids.

The median duration of postoperative ventilatory support was 90 minutes (range, 0–240), and the median time from the end of surgery to extubation was 140 minutes (range, 45–310). Among 109 patients who received combined general–epidural anesthesia, 35 (32.1%) were transferred to the intensive care unit breathing spontaneously and were extubated within 1 hour after transfer.

Early postoperative complications, including upper airway obstruction, arterial hypoxemia, hypoventilation, blood pressure changes, cardiac rhythm disturbances, oliguria, bleeding, hypothermia, impaired consciousness, nausea and vomiting, pain, flatulence, and intestinal atony, occurred in 28 (10%) patients during the first 3 postoperative days and were managed appropriately.

Intestinal peristalsis was detected by postoperative day 2 in 258 (92%) patients. Postoperative nausea and vomiting occurred in 36 (12.86%) patients, and postoperative intestinal paresis occurred in 23 (8.21%) patients.

Postoperative complications recorded during the first 14 postoperative days occurred in 9 (3.22%) patients. Overall postoperative mortality was 1.07% (3 patients): one death was attributed to pulmonary embolism and two to sudden coronary death.

The mean postoperative hospital stay was 11 days, while the median was 7 days (range, 7–13 days).

Discussion.

The present study describes the feasibility of implementing an ERAS-based perioperative pathway in a cohort of patients undergoing surgery for chronic colostasis. The protocol incorporated several established ERAS components, including structured patient education, multidisciplinary perioperative assessment, multimodal analgesia, prevention of thromboembolic complications, antimicrobial prophylaxis, individualized fluid management, minimization of unnecessary opioid exposure, early mobilization, early enteral intake, and timely removal of urinary catheters and drains [10].

An important feature of the present protocol was its adaptation to chronic colostasis. Standard colorectal ERAS pathways generally seek to avoid routine mechanical bowel preparation and prolonged preoperative fasting. In contrast, we retained mechanical bowel preparation in this cohort because severe chronic colostasis was associated with prolonged accumulation of intestinal contents and because bowel emptying was considered important for the planned procedures. This modification should therefore be interpreted as a disease-specific adaptation rather than as strict adherence to every component of the standard ERAS pathway.

The same principle applies to other components of perioperative care. ERAS is a multimodal framework rather than a requirement to apply every intervention identically to every patient. In patients with substantial gastrointestinal dysfunction, the timing of oral intake, use of gastric decompression, fluid therapy, and other measures may need to be individualized according to clinical findings.

The observed postoperative complication rate and mortality were low in the present cohort. However, because there was no comparison group, these findings cannot demonstrate that ERAS-based management reduced complications or hospital stay compared with conventional perioperative care. The present results therefore provide evidence of feasibility and describe observed outcomes rather than establish treatment effectiveness.

The study also has several limitations. It was performed at a single institution, was non-randomized, and did not include a contemporaneous control group. In addition, the cohort included different surgical procedures, and the degree of implementation of individual ERAS components may have varied according to clinical circumstances. These limitations should be considered when interpreting the observed outcomes.

Future prospective comparative studies should evaluate whether a disease-adapted ERAS pathway provides advantages over conventional perioperative management in patients with chronic colostasis, particularly with respect to postoperative complications, intestinal recovery, hospital stay, readmission, and mortality.

Conclusion.

1. Implementation of an ERAS-based, disease-adapted perioperative pathway in patients undergoing surgery for chronic colostasis was feasible and was associated with a low observed rate of postoperative complications and mortality.

2. Because this was a prospective, non-randomized, single-center observational study without a comparison group, the findings do not establish superiority or causal effectiveness of ERAS-based management compared with conventional perioperative care.

3. Adaptation of ERAS principles to the specific clinical characteristics of chronic colostasis may be necessary, particularly with respect to mechanical bowel preparation, preoperative fasting, gastrointestinal decompression, and timing of enteral intake.

4. Further prospective controlled studies with an appropriate comparison group are required to determine the effect of disease-

adapted ERAS management on postoperative complications, hospital stay, readmission, intestinal recovery, and mortality.

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