ESTIMA
Brazilian Journal of Enterostomal Therapy

ORIGINAL ARTICLE
https://doi.org/10.30886/estima.v22.1535_IN

Construction of a Perioperative Care Protocol for Individuals with Intestinal Ostomies

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ABSTRACT

Objective: To develop a nursing protocol to guide perioperative care for individuals with intestinal ostomies. **Method**: A methodological study conducted between March and June 2022, using a quantitative approach. The study was divided into three stages: 1) an exploratory phase to determine the characteristics of the target population using a questionnaire; 2) the definition of perioperative recommendations based on Enhanced Recovery After Surgery® (ERAS); and 3) the creation of the protocol. Data analysis involved simple descriptive statistics. **Results**: Ten (10) patients responded preoperatively, while only six (6) responded postoperatively. Preoperative education was provided by nurses in 50% of cases. Findings showed an absence of ostomy site marking in 90% of cases, insufficient self-care in 60%, and postoperative complications in 60%, including edema, mucocutaneous separation, contact dermatitis, peristomal hernia, edge maceration, and granuloma. The proposed protocol consists of a care flowchart with four lines of follow-up within the institution and a consolidated framework with four key axes of perioperative nursing actions. Each axis includes sub-axes that detail specific guidelines to be implemented. **Conclusion**: The situational analysis of the target population and perioperative complications demonstrated the feasibility of developing a perioperative care protocol focused on the immediate preoperative, intraoperative, and postoperative phases.

DESCRIPTORS: Perioperative care. Ostomy. Postoperative complications. Clinical protocols. Enterostomal therapy. Nursing.

Construção de protocolo de assistência perioperatória destinado às pessoas com estomia intestinal

RESUMO

Objetivo: Construir um protocolo de enfermagem para guiar a assistência perioperatória de pessoas com estomia intestinal. **Método:** Estudo metodológico realizado entre os meses de março a junho de 2022, com abordagem quantitativa. Este foi segmentado em três etapas: 1) fase exploratória para apurar características do público-alvo com aplicação de questionário; 2) definição das recomendações perioperatórias com base no *Enhanced Recovery After Surgery*®; 3) produção. A análise dos dados quantitativos contou com estatística descritiva simples. **Resultados:** Dez pacientes responderam no pré-operatório, no pós-operatório, somente seis responderam. Na assistência prestada às pessoas submetidas à confecção de estomia intestinal, o ensino pré-operatório pelo enfermeiro foi realizado para 50% dos casos, 90% relataram ausência da demarcação de estomia,

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Received: Feb. 17, 2024 | Accepted: Jul. 25, 2024

How to cite: Dias ALL, Neves WFS, Lima FC, Sagica TP, Correa Júnior AJ, Mendes CP, et al. Development of a perioperative care protocol for individuals with intestinal stomas. ESTIMA, Braz J Enterostomal Ther. 2024;22:e1535. https://doi.org/10.30886/estima.v22.1535_IN

60% demonstraram autocuidado insuficiente e 60% a ocorrência de complicações pós-operatórias, tais como edema, descolamento mucocutâneo, dermatite de contato, hernia periestomal, maceração de bordas e granuloma. A proposta é composta de um fluxo assistencial com quatro linhas de seguimento na instituição e um consolidado com quatro eixos de condutas de enfermagem perioperatória, cada eixo do consolidado possui subeixos que pormenorizam diretrizes a serem implementadas. **Conclusão:** A análise situacional do público-alvo e das complicações perioperatórias demonstrou a factibilidade na construção de um protocolo de assistência perioperatória, visando às fases pré-operatório mediato, pré-operatório imediato, intraoperatório e pós-operatório.

DESCRITORES: Assistência perioperatória. Estomia. Complicações pós-operatórias. Protocolos clínicos. Estomaterapia. Enfermagem.

Certificación de un protocolo de asistencia perioperatoria para personas con estomías intestinales

RESUMEN

Objetivo: Construir un protocolo de enfermería para guiar los cuidados perioperatorios de personas con ostomía intestinal. **Método:** Estudio metodológico realizado entre marzo y junio de 2022, con un enfoque cuantitativo. Este se segmentó en tres etapas: 1) Fase exploratoria para determinar las características del público objetivo mediante un cuestionario; 2) Definición de recomendaciones perioperatorias basadas en el *Enhanced Recovery After Surgery*®; y 3) Producción. El análisis de datos cuantitativos se basó en estadísticas descriptivas simples. **Resultados:** Diez (10) pacientes respondieron preoperatoriamente; postoperatoriamente, solo respondieron seis (06). La enseñanza preoperatoria fue realizada en un 50% por los enfermeros, existiendo ausencia de demarcación de ostomía (90%), autocuidado insuficiente (60%) y aparición de complicaciones postoperatorias (60%), tales como edema, desprendimiento mucocutáneo, dermatitis de contacto, hernia periestomal, maceración de bordes y granuloma. La propuesta estuvo compuesta por un flujo de atención con cuatro líneas de seguimiento en la institución y un consolidado con cuatro ejes de conducta de enfermería perioperatoria, cada eje del consolidado tiene subejes que detallan lineamientos a implementar. **Conclusión:** El análisis situacional del público objetivo y de las complicaciones perioperatorias demostró la viabilidad de construir un protocolo de atención perioperatoria, dirigido a las fases preoperatoria mediata, preoperatoria inmediata, intraoperatoria y postoperatoria.

DESCRIPTORES: Atención perioperativa. Estomía. Complicaciones posoperatorias. Protocolos clínicos. Estomaterapia. Enfermería.

INTRODUCTION

The adaptive process resulting from surgery with the creation of an intestinal stoma is influenced by physical, emotional, and sociocultural factors and can be aggravated by the onset of complications [1]. It is estimated that 70% of individuals with an intestinal stoma experience a complication within two years after the surgical intervention [2]. The main complications include bleeding, edema, necrosis, retraction, mucocutaneous separation, prolapse, stenosis, hernia, and various skin infections [3].

In this context, the psychosocial changes associated with body image alteration exacerbate conflicts related to self-esteem, self-deprecation, self-care, and coping with the health condition [4)]. These psycho-emotional experiences lead to significant social changes for the individual and a reduction in quality of life [5,6].

The factors contributing to these complications are associated with the need for improved perioperative care [7]. Best practice recommendations include correct surgical techniques, interprofessional care planning, identification of the sociodemographic factors and educational needs of patients and their families, as well as stoma site marking [8].

The importance of specialized, high-quality perioperative care is emphasized, which requires the development of care protocols based on scientific evidence for clinical practice. These protocols are innovative as they enable the implementation of such care and the improvement of healthcare quality [9,10].

OBJECTIVES

To develop a nursing protocol to guide perioperative care for individuals with an intestinal stoma.

METHODS

This is a methodological, descriptive study with a quantitative approach. The study was conducted in three phases:

1. An exploratory phase to investigate the characteristics of the target population;
2. Definition of perioperative care recommendations for patients with intestinal stomas;
3. Development of the protocol.

It is important to note that the final content and semantic validation process was not conducted. To ensure methodological rigor, the first phase followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist, recommended by the EQUATOR Network [11].

The study setting was a High-Complexity Oncology Center (CACON in Portuguese) located in Northern Brazil. At CACON, patients requiring surgery for the creation of an intestinal stoma are initially seen in the outpatient clinic and then referred to the Onco-Abdomen Surgical Clinic, which has 18 beds. This clinic provides both immediate and delayed preoperative and postoperative care. After hospital discharge, the service offers outpatient follow-up, including ostomy care for patients with an intestinal stoma.

In the first phase, participants were patients registered in the hospital's oncology service who met the following inclusion criteria: individuals over 18 years old, diagnosed with colorectal cancer, and scheduled for surgery involving the creation of an intestinal stoma. Exclusion criteria included patients who lacked the psychological and/or cognitive ability to respond.

Data collection took place from March to June 2022. Information pertinent to the study's objectives was gathered in two distinct stages:

In the first stage (preoperative), a structured, adapted questionnaire was used 12), which took approximately 30 minutes to administer. It consisted of two sections:

1. Sociodemographic and health data;
2. Clinical and therapeutic data.

The sample was non-probabilistic and based on convenience, as the researchers were nursing residents at the surgical clinic, which received patients scheduled for surgery to create an intestinal stoma. Participants were approached based on their hospital admission day and return from the operating room, ensuring that the study did not interfere with the health team's routine or the participants' care. Notably, during the data collection period, all patients in the sample underwent emergency surgeries at an annex next to the institution, as the hospital's surgical wing was under renovation.

Participants were approached in the hospital wards at the bedside, with privacy screens used to ensure privacy during questionnaire completion. The purpose, objectives, and stages of the research were thoroughly explained, along with the reason for and timing of the questionnaire administration. In the second stage of data collection, after hospital discharge, data were extracted from the medical records of participants from the first stage, using an instrument designed by the researchers. This instrument included information on the occurrence of stoma and peristomal skin complications.

The data were organized in spreadsheets using Excel 2020, followed by a descriptive analysis of the results. Continuous variables were expressed as mean and standard deviation (SD), depending on the normality of the data, while categorical variables were expressed as counts and percentages.

In the second phase, recommendations from the Enhanced Recovery After Surgery® (ERAS®) program were adopted, as it provides the best evidence for perioperative care of individuals with an intestinal stoma. This program was chosen for its perioperative care guidelines, which focus on patient rehabilitation and surgical safety, aiming to reduce the incidence of postoperative complications, shorten hospital stays, and lower costs [13,14].

In the third phase, after a thorough analysis of these recommendations, combined with the patient profile data obtained, the recommendations were adapted to construct a perioperative care protocol. Initially, the protocol includes a therapeutic itinerary flow for patients requiring the creation of an intestinal stoma. To achieve this, the paid digital platform Lucidchart® was used for intelligent diagramming of the process, illustrating the progression of stages and decision-making points. The protocol also includes a consolidated guide with the main nursing actions and care for patients undergoing intestinal stoma surgery.

This study was approved by the Ethics Committee of the proposing institution, following the guidelines of Resolution No. 466/12. All research participants signed the Informed Consent Form (ICF), and the Data and Medical Record Usage Commitment Form (DMRUCF) was signed by the researchers.

RESULTS

Characterization of Individuals Indicated for Intestinal Stoma Creation

Ten patients completed the first part of the questionnaire, but only six continued with postoperative follow-up. The time to return after surgery was ten days, and following the follow-up consultation with hospital nurses, the medical records were analyzed. There was an equal proportion (50%) of female and male participants, as well as equal proportions for the marital statuses of "single" and "married." The average age was 58.8 years (±SD = 9). The predominant education level was incomplete primary education (30%). Regarding clinical aspects, the identified cancer risk factors were alcoholism (50%), smoking (60%), and physical inactivity (60%). Most patients denied or were unaware of any allergies (70%) (Table 1).

The creation of an intestinal stoma was indicated entirely due to colorectal cancer (100%), and the complementary treatments provided were chemotherapy (60%) and radiotherapy (60%). In the care provided to individuals undergoing intestinal stoma surgery, preoperative health education by nurses was identified in 50% of cases. The absence of preoperative stoma site marking was observed in most cases (90%), and 60% of patients reported feelings of preoperative anxiety.

Regarding intraoperative care, the surgical procedures performed were rectosigmoidectomy (50%) and abdominoperineal resection of the rectum (50%), which resulted in the creation of colostomies (80%) and ileostomies (20%). Ten days after hospital discharge, 60% of patients experienced complications (Table 2).

Table 3 shows the types of stoma-related complications in postoperative patients (n=6), with the most common being contact dermatitis (66.66%), followed by edema (50%). Other complications affected 16.67% of patients.

Investigation of International Recommendations for Stoma Care and the Development of a Care Protocol

The development of the protocol followed the recommendations of the ERAS® program, adapted to the realities of the institution and the target population studied. It consists of a care pathway (Figure 1) and a consolidated guide with nursing practices and perioperative care (Chart 1) [15].

DISCUSSION

The possible risk factors for the development of stoma and peristomal skin complications were identified, particularly those related to dietary and cultural habits specific to the Northern Region [16] and lifestyle factors such as physical activity

or inactivity [17], as 60% of the initial sample reported not engaging in physical activities. The average age was 58.8 years [7], and the education level was low [18].

Anxiety was observed, highlighting the educational needs of these patients, particularly in terms of perioperative teaching by nurses for patients undergoing intestinal stoma surgery and their families. This is coupled with the need for

Table 1. Sociodemographic and health profile of participants, Belém (PA), Brazil, 2024.

Characteristics	Quantifications n (%)
Age (years)	
Mean [±SD]	58,8 [9]
Minimum-Maximum	48–78
Education	
Complete primary	2 (20)
Incomplete primary	3(30)
Complete secondary	2 (20)
Incomplete secondary	1 (10)
Complete higher education	1 (10)
Incomplete higher education	1 (10)
Income (in minimum wages)	
Less than one	2 (20)
One	5 (50)
More than one	3 (30)
Comorbidities	
Diabetes mellitus	
Yes	9 (90)
No	1 (10)
Arterial hypertension	
Yes	6 (60)
No	4 (40)
Gastrointestinal tract disease	
Yes	4 (40)
No	6 (60)

Source: Prepared by the authors.

Table 2. Clinical and therapeutic profile of study participants, Belém (PA), Brazil, 2024.

Characteristics	Quantifications n (%)
Diagnosis	
Colorectal cancer	10 (100)
Type of intestinal stoma	
Ileostomy	2 (20)
Colostomy	8 (80)
Postoperative self-care for stoma management	
Good	2 (20)
Fair	2 (20)
Insufficient	6 (60)
Postoperative complications	
Yes	6 (60)
No	4 (40)

Source: Prepared by the authors.

Table 3. Postoperative complications related to the intestinal stoma, Belém (PA), Brazil, 2024.

Stoma and peristomal skin complications	Quantifications n (%)
Edema	
Yes	3 (50)
No	3 (50)
Mucocutaneous separation	
Yes	1 (16,67)
No	5 (83,33)
Contact dermatitis	
Yes	4 (66,66)
No	2 (33,34)
Peristomal hernia	
Yes	1 (16,67)
No	5 (83,33)
Edge maceration	
Yes	1 (16,67)
No	5 (83,33)
Granuloma	
Yes	1 (16,67)
No	5 (83,33)

Source: Prepared by the authors.

preoperative stoma site marking to assist in the rehabilitation and adaptation of this patient population. In this study, nine patients did not receive these interventions and exhibited altered emotional states or developed postoperative complications.

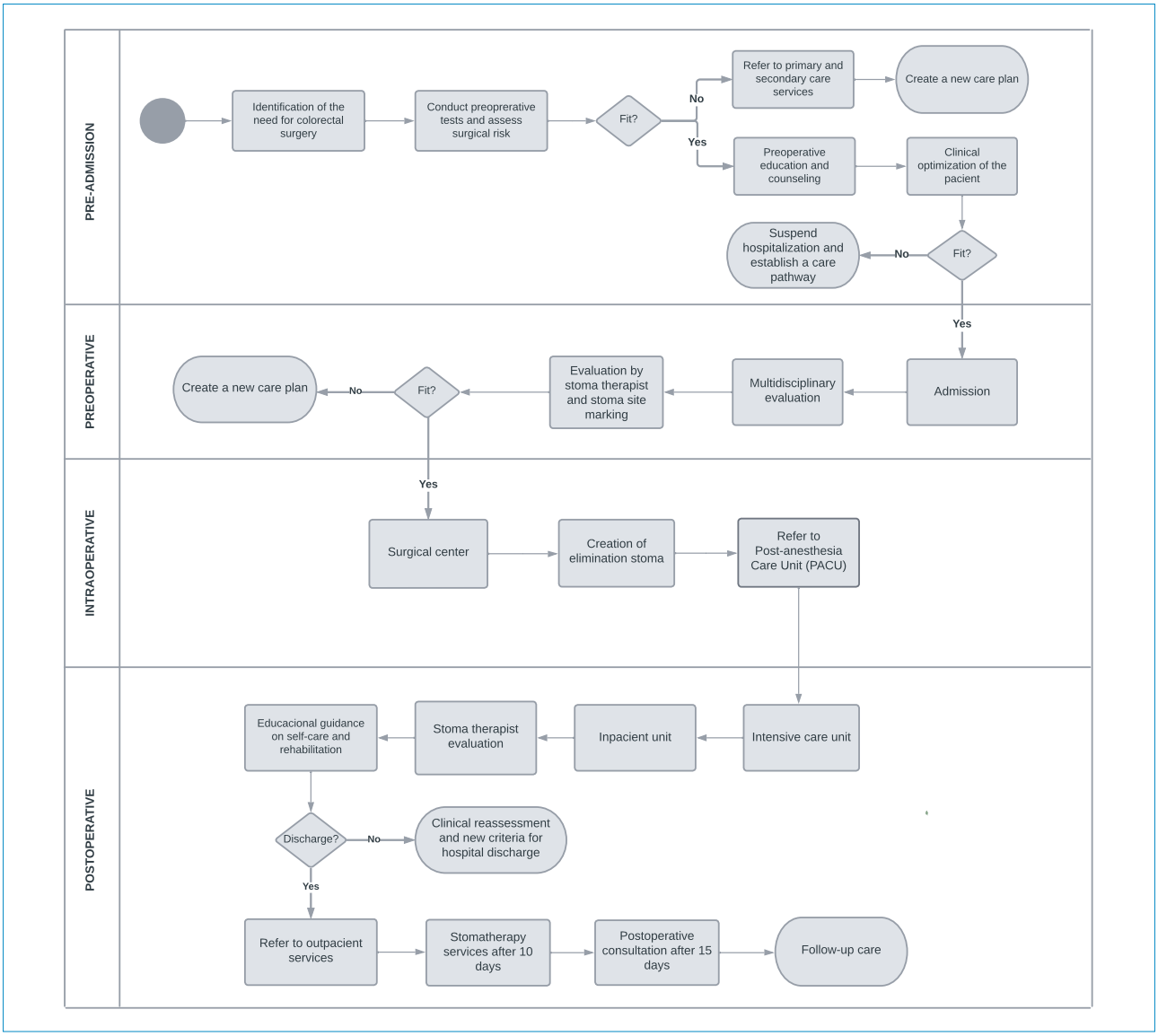
Contact dermatitis was the most common complication in this study. However, other skin complications, such as edema and peristomal hernia, were also identified. The occurrence of these complications reinforces the idea that the absence or insufficiency of self-care education, combined with other factors such as prolonged hospital stays, readmissions for surgical re-interventions, and increased institutional costs [19], exacerbates psychosocial issues related to self-image, sexuality, and social isolation [6].

The use of protocols can foster appropriate health management by promoting an environment where the multidisciplinary team has access to proper information and conducts supported by clinical and therapeutic evaluations of the patient population, decision-making processes, and scientifically based interventions, whether educational or procedural [10]. For institutions, the use of guiding tools such as protocols not only ensures service excellence but also results in higher satisfaction rates among patients and healthcare professionals [20].

The proposed interventions for the immediate preoperative period aim to provide preoperative education and counseling, with a summary of perioperative recommendations, dynamic self-care education—including realistic simulations [21] and multimedia resources [22,23]—to present knowledge and offer psychosocial support from the multidisciplinary team. Additionally, there is a focus on multimodal clinical optimization to identify, prevent, and minimize risks for complications related to chronic conditions and lifestyle habits [24], as well as nutritional aspects and anemia management [13].

Preoperative interventions include initiating antibiotic therapy and preparing the skin to prevent infections, preparing the bowel depending on the clinical situation, assessing the patient's fluid and electrolyte imbalances, shortening the fasting period, and providing carbohydrate loading to address metabolic changes and prevent postoperative complications. Preoperative hydration management, stoma site marking by a qualified nurse, and preventing stoma and peristomal skin complications are also emphasized [3,13].

In the intraoperative phase, the actions included in the protocol are directly related to minimizing surgical risks, such as multimodal analgesia with short-duration analgesic agents to promote early recovery after the procedure[14].



Source: Prepared by the authors.

Figure 1. Flowchart of the perioperative care protocol for the creation of an intestinal stoma in individuals with colorectal cancer. Belém (PA), Brazil, 2024.

Thermoregulation is also recommended to prevent complications such as hypothermia and alterations in other vital parameters, which aid in postoperative recovery. Additionally, less invasive surgical incisions help reduce the risk of surgical site infections, along with minimizing the use of abdominal drains and nasogastric or nasoenteric catheters [24].

Postoperative interventions emphasize the importance of responsible discharge, including clinical and psychosocial evaluations, to ensure readiness for discharge and assess confidence in returning home and the capacity for self-care[25]. Implementing outpatient follow-up within two weeks after colorectal surgery can help identify knowledge gaps and the occurrence of stoma and peristomal skin complications. The referral of patients with newly created stomas to specialized care units, where they receive collection equipment and accessories from the Brazilian Unified Health System (SUS in Portuguese), is crucial for ensuring postoperative recovery and rehabilitation [13,14].

It is essential to define a care pathway and provide continuous education for healthcare professionals to offer specialized care to individuals undergoing surgery for intestinal stoma creation. Therefore, professionals, patients, and families must be informed about the rights outlined in Ministry of Health Ordinance No. 400, dated November 16, 2009, which established national guidelines for healthcare for people with ostomies within the SUS [26]. This will be fundamental for continuing care actions in the late postoperative period.

Chart 1. Perioperative nursing protocol for the creation of intestinal stoma in individuals with colorectal neoplasms. Belém (PA), Brazil, 2024 (15).

Delayed preoperative	
Preoperative education and counseling	Teach the patient and family about the surgical procedure; Explain the necessary care after stoma creation; Teach and encourage self-care with stoma collection equipment; Explain nutritional aspects and lifestyle habits that can optimize or hinder surgical recovery; Monitor preoperative tests; Initiate psychological support.
Clinical optimization of the patient	Identify, prevent, and minimize risks for complications; Use multimodal assessment scales; Manage chronic diseases; Investigate risks for systemic complications; Recommend the cessation of smoking and alcohol use; Monitor physical capacity and encourage potential habit changes.
Nutritional care	Assess nutritional risks; Recommend oral supplementation if necessary; Measure weight and assess weight loss; Recommend postoperative diet and nutritional care.
Anemia management	Evaluate potential triggering factors; Request laboratory tests to analyze hemoglobin levels; Recommend oral therapy; Consider a blood transfusion if oral therapy is insufficient.
Immediate preoperative	
Antibiotic therapy and skin preparation	Initiate protocol for surgical site infection prevention; Administer antibiotic therapy 60 minutes prior to the procedure; Recommend preoperative antisepsis with chlorhexidine scrub; Advise hair trimming using scissors.
Bowel preparation	Recommend against performing intestinal washes; Perform mechanical preparation or enema, if prescribed, when necessary; Supervise clinical changes related to electrolyte imbalance during the morning, afternoon, and night shifts.
Shortening of fasting and carbohydrate loading	Recommend intake of clear foods and liquids 6 hours prior to the procedure; Offer oral carbohydrates composed of CHO-maltodextrin (800 ml the night before surgery and 400 ml up to 2 hours before the procedure); Monitor diet tolerance and clinical changes.
Preoperative fluid management	Assess electrolyte balance using the fluid balance chart; Initiate intravenous hydration if necessary; Proceed with the procedure only when the patient is in a state of volume balance.
Preoperative stoma site marking	Perform the procedure in a private area or at the bedside; Inform the patient of the importance of the procedure to be performed; Obtain consent; Assess the range of motion; Identify the person's waistline in lying, sitting, and standing positions; Expose the abdomen and check for scars, skin folds, hernias, bony prominences/iliac crest, areas of radiation, pendulous breasts, and the umbilical scar; Identify the edge of the rectus abdominis muscle; Identify the midpoint on the imaginary diagonal line between the bony prominences/iliac crest and the umbilical scar; Ask the patient to sit, stand, lie on their side, and lie down to identify any anatomical obstacles in the proposed site; Confirm with the patient whether the potential stoma sites are easily visible to them; Mark the site on the patient's abdomen with a permanent skin marker, after confirming the correct positions; Protect the marking with transparent film and provide instructions on how to prevent the marks from fading; Record the intervention in the patient's medical record.
Intraoperative	
Analgesia	Prioritize a multimodal approach with epidural analgesia and short-duration general anesthetic agents; Monitor neuromuscular blockade until full reversal.

Continue...

Chart 1. Continuation.

Delayed preoperative	
Monitoring and control of vital signs	Perform multiparametric monitoring; Assess body temperature levels; Prevent hypothermia using heaters and thermal blankets; Pay attention to blood pressure levels and oxygen saturation.
Surgical access	Prioritize minimally invasive incisions; Consider the marked locations for stoma creation.
Drains and catheters	Minimize the need for abdominal drain insertion; Avoid the insertion of nasogastric and nasoenteric catheters; Perform insertion of an indwelling urinary catheter.
Postoperative	
Nausea and vomiting	Ensure antiemetic prophylaxis (prescription of one to three medications); Evaluate gastrointestinal signs and symptoms; Consider the use of alternative therapies (music therapy, aromatherapy, acupuncture, among others).
Thromboprophylaxis	Initiate deep vein thrombosis prevention protocol in the preoperative period; Instruct the use of compression stockings or intermittent pneumatic compression while hospitalized; Administer low molecular weight heparin once daily for 28 days, if necessary.
Postoperative fluid management	Ensure electrolyte balance; Minimize the use of 0.9% saline or saline-based solutions for fluid replacement; Consider balanced solutions with hypotonic crystalloids for replacements.
Removal of urinary catheter	Check urinary output and characteristics of diuresis; Consider removal on the 1st postoperative day for low-risk patients and on the 3rd day for those with moderate to high risk; Assess urinary retention and the need for intermittent catheterization after removal of the indwelling urinary catheter.
Oral intake and bowel function	Initiate a liquid diet starting 4 hours after colorectal surgery, as per medical prescription; Progress diet based on patient tolerance and clinical response of gastrointestinal function; Consider discontinuing medication after full acceptance of the diet; Supervise bowel function.
Mobilization and ambulation	Initiate patient mobilization upon return to the inpatient unit; Encourage early ambulation, based on the patient's clinical condition; Assess ambulation, ensure it is performed at least twice a day, and increase its frequency as the patient's capacity improves.
Preparation for hospital discharge and specialized follow-up	Assess clinical conditions for hospital discharge; Ensure the patient is aware of their clinical status and confident about returning home; Provide reinforcement education on postoperative care to the patient and family; Refer to outpatient services; Conduct follow-up in two weeks; Identify educational needs and ensure self-care teaching; Refer to the reference unit for the acquisition of collection equipment and accessories, and for specialized follow-up.

Source: Prepared by the authors.

A limitation of this study is the sample size and the specific circumstances during the data collection process, as well as the difficulties in follow-up due to the therapeutic journey of these individuals to the outpatient setting. Additionally, the follow-up was restricted by the number of elective admissions for these procedures, the clinical conditions of the patients, and the occurrence of one postoperative death. As a result, some participants did not return for their consultation with the stoma care nurse at the outpatient clinic of the institution studied.

As recommendations, it is proposed that the implementation of the protocol, following validation by experts and clinical testing in accordance with ERAS® program recommendations, could improve care for individuals undergoing intestinal stoma surgery, potentially enhancing their quality of life and rehabilitation. Furthermore, it is suggested that future studies focus on systematizing nursing care and multidisciplinary interventions for individuals undergoing stoma creation. This would encourage coping and resilience, with perioperative education and an effective care pathway for the prevention of complications and specialized follow-up in secondary care within the SUS.

CONCLUSION

The situational analysis of the profile of individuals with intestinal stomas and clinical characteristics, such as the occurrence of perioperative complications in patients undergoing surgery with stoma creation, highlighted the need for a perioperative care protocol, particularly due to the lack of preoperative stoma site marking.

The implementation of protocols based on scientific evidence and the steps recommended by the ERAS® Protocol involves not only administrative challenges but also the training and engagement of the multidisciplinary team. This requires the adoption and standardization of care practices for individuals who are candidates for intestinal stoma creation. To achieve the objectives of the protocol, it is necessary to set goals for its refinement and implementation. These goals include the development of studies that promote the training of the multidisciplinary team, encouraging nursing professionals to pursue specialization in stomatherapy and related fields, and raising awareness among managers about the importance of establishing an efficient care pathway.

It was considered important to define the sociodemographic, clinical, and perioperative profile as a basis for proposing the care protocol for individuals who are candidates for intestinal stoma creation. This protocol outlines guidelines for care at each stage, including the delayed preoperative period, immediate preoperative period, intraoperative period, and postoperative period, as recommended by the ERAS® Protocol.

Acknowledgments: Not applicable.
Author contributions: ALLD: formal analysis, conceptualization, data curation, writing – original draft, methodology. WFSN: formal analysis, conceptualization, data curation, writing – original draft, writing – original draft, methodology. FCL: writing – original draft, writing – review and editing, methodology. TPS: writing – original draft, writing – review and editing, methodology. AJSCJ: writing – review and editing, supervision, validation. CPM: writing – review and editing, supervision, validation. HMS: formal analysis, writing – review and editing, validation. MES: formal analysis, conceptualization, data curation, writing – review and editing, supervision, validation.
Availability of research data: All data were generated or analyzed in this study.
Funding: Not applicable.
Conflict of interest: None declared.

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