



Original Research

Pre- and postoperative stoma education and guidance within an enhanced recovery after surgery (ERAS) programme reduces length of hospital stay in colorectal surgery



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H I G H L I G H T S

- Patients with stoma formation in colorectal surgery benefits from an ERAS programme.
- Hospital stay can be reduced significantly by stoma education and counselling.
- Stoma formation is associated with high frequency of stoma related complications.

A R T I C L E I N F O

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A B S T R A C T

Introduction: Stoma formation delays discharge after colorectal surgery. Stoma education is widely recommended, but little data are available regarding whether educational interventions are effective. The aim of this prospective study was to investigate whether an enhanced recovery after surgery (ERAS) programme with dedicated ERAS and stoma nurse specialists focusing on counselling and stoma education can reduce the length of hospital stay, re-admission, and stoma-related complications and improve health-related quality of life (HRQoL) compared to current stoma education in a traditional standard care pathway.

Methods: In a single-center study 122 adult patients eligible for laparoscopic or open colorectal resection who received a planned stoma were treated in either the ERAS program with extended stoma education (n = 61) or standard care with current stoma education (n = 61). The primary endpoint was total postoperative hospital stay. Secondary endpoints were postoperative hospital stay, major or minor morbidity, early stoma-related complications, health-related quality of life, re-admission rate, and mortality. HRQoL was measured by the generic 15D instrument.

Results: Total hospital stay was significantly shorter in the ERAS group with education than the standard care group (median [range], 6 days [2–21 days] vs. 9 days [5–45 days]; p < 0.001). Regarding overall major and minor morbidity, re-admission rate, HRQoL, stoma-related complications and 30-day mortality, the two treatment groups exhibited similar outcomes.

Conclusion: Patients receiving a planned stoma can be included in an ERAS program. Pre-operative and postoperative stoma education in an enhanced recovery programme is associated with a significantly shorter hospital stay without any difference in re-admission rate or early stoma-related complications.

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1. Introduction

Stoma formation is a well-known cause of delayed discharge

after colorectal surgery [1–3]. Although education is widely recommended for patients receiving a new stoma, few data are available on the effect of educational interventions on decreased

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length of stay, re-admissions, and stoma complications. A recently published systematic review of educational interventions for stoma patients concluded that no consensus exists on the benefit of stoma education, though the grade of evidence was low [4]. Enhanced recovery after surgery (ERAS) is a multimodal peri-operative approach that aims to reduce organ dysfunction and the surgical stress response, reducing morbidity and length of hospital stay [5]. One important aspect of an enhanced recovery programme is the peri-operative information and patient education, which appears to be essential in achieving early discharge [6,7].

We carried out a controlled, randomized trial in which we compared patients treated by an ERAS approach to patients treated in a standard care pathway [6]. The main objective of the present sub-study was to evaluate patients receiving a planned stoma. We wanted to investigate whether an ERAS programme with dedicated ERAS and stoma nurse specialists focusing on counselling and stoma education can reduce the length of hospital stay, re-admission, and stoma-related complications and improve health-related quality of life (HRQoL) compared to current stoma education in a traditional standard care pathway.

2. Material and methods

2.1. Study design

The current study was part of a randomized controlled trial at Haukeland University Hospital in Bergen, Norway [6]. The aim was to determine whether an ERAS care pathway can reduce the total postoperative hospital stay (THS) compared to standard care, mainly as a result of reduced morbidity. Patients who were to receive a stoma were randomly divided in ERAS care with extended stoma education, and standard care with conventional stoma education. Patients older than 18 years of age scheduled for elective open or laparoscopic colorectal surgery for benign or malignant disease and planned stoma were eligible for inclusion. Patients with rectal cancer and pre-operative pelvic radiation were also included. Patients were informed about the study both in writing and orally, and written consent was obtained from those who accepted to participate. Patients were informed about the treatment group 1–3 weeks before surgery. Due to the nature of the study, neither the physician nor the patient was blinded to the treatment assignment. The trial was approved by the regional committee of ethics in Western Norway (reference number 2010/2079).

In the current sub-study, we wanted to focus on patients who were planning to have a stoma as part of their surgical treatment and were likely to be self-sufficient in managing their stoma. Patients who already had a stoma before the operation were not included.

2.2. Objectives and endpoints

The primary endpoint was the THS which was defined as the postoperative hospital stay (PHS), in days, and any additional days if re-admission was necessary within the first 30 days after surgery. The discharge criteria were similar for both treatment groups: (1) postoperative pain adequately controlled with per oral medication (VAS <4), (2) mobilized and out of bed more than 6 h/day, (3) bowel function and ability to tolerate solid food without nausea, and (4) no complications requiring treatment in hospital. Furthermore, all patients had to be comfortable with the stoma care based on an agreement between the ward nurse, the stoma nurse specialist, and the patients themselves that they were proficient enough.

Secondary endpoints were PHS, major or minor morbidity, mortality, early stoma-related complications, re-admission rate,

and HRQoL. Data were recorded before the operation, on the day of surgery, and daily after surgery until discharge. Definitions of complications were established prior to commencing the study. HRQoL was assessed using the 15D instrument (<http://www.15d-instrument.net/15d>), which is a standardized, self-administered health state descriptive questionnaire that has been validated and translated into Norwegian and can be used both as a profile and a single index score measure [8]. The 15D includes dimensions of mobility, vision, hearing, breathing, sleeping, eating, speech/communication, excretion, usual activities, mental functioning, discomfort and symptoms, depression, distress, vitality, and sexual activity, with five levels on each. The single index score (15D score) representing the overall HRQoL on a scale of 0–1 (1 = full health, 0 = being dead) and the dimension level values of 0–1 (1 = no problems on the dimension, 0 = being dead) are calculated from the health state descriptive system using a set of population-based preferences or utility weights. The minimum clinically important change/difference in the 15D score is 0.015 [9].

All patients visited an outpatient clinic on days 10 and 30, following up with the same stoma nurse specialist and the same two surgeons to minimize observer-related bias. The occurrences of previously undescribed stoma-related complications were noted during regular outpatient follow-up by the stoma nurse specialists after 12 weeks.

2.3. Peri-operative education and care

Patients in the ERAS group had one or two consultations 45–60 min in duration before surgery with the ERAS nurse and stoma nurse specialist. The patients were told about their own role in retraining so that they understood the importance of their own efforts and received thorough information about stoma surgery and training in stoma care. The explanation provided to the patients included the part of the intestine that was to be removed and the consequences it may have, they were shown pictures of a stoma, and the function of stoma care equipment was explained. Pre-operative stoma education included the possible impact of stoma creation on relationships and sexuality and various activities of daily life, such as bathing and showering. The routines after surgery were explained, the first shift being on the first postoperative day with daily changes in order to get used to and build up skills and confidence. Patients were also shown how to and practised changing a stoma, told where to buy stoma care equipment, and informed about the Norwegian patient association for stoma patients, Norilco. They received stoma care equipment to take home for practice and received an information brochure to read.

Patients in the standard group received their first information about the stoma from nurses with varying experience in stoma care on the day of admission, which was the day before surgery. Patients were told the part of the intestine to be removed and informed about the shift routines, life with a stoma, bathing and showering with a stoma, and Norilco.

In both groups, the stoma site was marked the day before surgery. After surgery, the patients in the standard care group received daily education from ward nurses, supervised sporadically by a stoma nurse specialist. In the ERAS group the patients received daily education from a stoma nurse specialist.

Patients in the ERAS group were treated according to the ERAS protocol, whereas patients allocated to standard care were treated according to standard peri-operative care in Norway [6]. The numbers of ERAS items used in both groups are shown in Table 1. During hospitalization, the patients in the ERAS group were admitted to a ward separate from the standard group. The responsible nurse in the ERAS group was a stoma nurse specialist who also provided pre-operative education. Nurses in the standard

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