

Nursing care in fast-track surgery strategy

Opieka pielęgniarska w strategii szybkiej ścieżki chirurgicznej

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Abstract

In recent years, many study results have been published confirming an improvement in the outcomes of treatment related with management of patients within the fast-track surgery programme. Early postoperative rehabilitation is possible provided there is engagement of a multi-disciplinary team, including well-educated nurses. Today, a diversion can be observed from traditional nursing on behalf of a coordinated, holistic approach, while more attention is paid to the, thus far marginalised, psychosocial aspects of care. The objective of the study is to discuss the basic assumptions of fast track surgery with respect to nursing care, with particular emphasis placed on the educational function. Modern nursing within the short-track surgery programme should focus on the provision of patients with care consisting of preliminary information concerning the perioperative period, social and psychological support, counselling in the area of home convalescence, and procedures in the case of complications.

Streszczenie

W ostatnich latach opublikowano wiele wyników badań potwierdzających poprawę efektów leczenia związaną z działaniem w ramach szybkiej ścieżki chirurgicznej. Wczesna rehabilitacja pooperacyjna jest możliwa pod warunkiem zaangażowania wielodyscyplinarnego zespołu, w tym dobrze wykształconych pielęgniarek. Współcześnie odchodzi się od tradycyjnego pielęgnowania na rzecz skoordynowanego, holistycznego podejścia, zwracając większą uwagę na marginalizowane dotąd psychospołeczne aspekty opieki. Celem pracy jest omówienie podstawowych założeń szybkiej ścieżki chirurgicznej w odniesieniu do opieki pielęgniarskiej z podkreśleniem funkcji edukacyjnej. Nowoczesne pielęgniarstwo w ramach krótkiej ścieżki chirurgicznej powinno się skoncentrować na zapewnieniu choremu opieki polegającej na wstępnej informacji na temat okresu okołoperacyjnego, wsparcia społecznego i psychologicznego, doradztwie w zakresie rekonwalescencji domowej i postępowania w przypadku powikłań.

Introduction

Constantly increasing costs of health care, and expectations of high quality medical services enforce the necessity to seek new solutions in the treatment and nursing of a patient. The introduction into surgery of minimally invasive surgical techniques, and progress in diagnostics and management, have translated into the necessity for change in care of surgical patients. Currently, the optimisation of care of a sur-

gical patient requires the cooperation of an interdisciplinary team, united by the common goal, which is to shorten the duration of hospitalisation while maintaining total patient safety. Nurses, to an increasing degree, participate in highly specialised diagnostic and therapeutic procedures, as well as the coordination of primary and specialist care. They are engaged in educational actions and psychosocial assistance for the entire period of hospitalisation.

The concept of 'fast-track surgery' was introduced into medicine by Henrik Kehlet in 1999 [1]. While analysing factors exerting an effect on the duration of hospitalisation of patients after colorectal surgery, he developed a multifactor programme considering the optimisation of pain relief, reduction of stress, early nutrition, and early mobilisation of patients. Kehlet shortened the hospital stay from 7 to 3 days, and improved the physical functioning of patients after colorectal surgery [2, 3]. The management within the fast-track surgery programme consists of a multifactor approach to treatment in accordance with the recommendations of evidence based medicine [1].

In 2001, the term fast track was replaced by the enhanced recovery after surgery (ERAS) in order to emphasise the importance of complex perioperative care in order to improve the outcomes of treatment [4]. The ERAS protocol was first introduced in colorectal surgery, but it was very quickly adapted for surgeries within other organs. It consists of a change to the traditional approach to surgical patient care, and implementation of management based on scientific evidence. It contains guidelines for the whole team of specialists providing the patient with care. The success of these programmes is possible due to the close cooperation of surgeons, anaesthetists, nurses, physiotherapists, and dieticians [5, 6]. Each member of the team is obliged to undertake actions aimed at optimisation of the outcomes of treatment from the first visit to the outpatient department until discharge from

hospital [5]. To date, the benefits resulting from the implementation of fast track surgery have been best documented with respect to colorectal surgery [4].

The ERAS protocol covers over a dozen elements contributing to the proper preparation of a patient for surgical procedure, appropriate perioperative management, and postoperative care [3, 4] (Table 1).

Actions in accordance with the protocol are aimed at the reduction of stress related to the surgical procedure, which decreases the frequency of complications after elective surgery [5, 7]. It was confirmed that the time of hospitalisation is shortened, and there is an improvement in the functioning of the cardiovascular and alimentary systems, as well as the muscular system [8, 9]. However, a change from traditional management to the ERAS protocol is not so simple, and its implementation may be difficult or even impossible in less specialised centres [7].

Although in recent years the results of many studies have been published confirming an improvement in the outcomes of treatment related to acting in accordance with the ERAS protocol, the role of nurses in this innovative approach to care has not been sufficiently documented.

In order to create an international bank of information and possibilities of exchange of experiences in the group of nurses interested in ERAS, the ERAS Nursing Group was created acting within the ERAS Society. The role of the organisation is to impart knowledge via a website containing information for patients, and plans of care developed by the members of the group in compliance with the ERAS protocol [10].

Table 1. Components of the ERAS programme*

Preoperative	Preadmission counselling Selective bowel preparation Carbohydrate-loading/no prolonged fasting No – premedication Antibiotic prophylaxis Thromboprophylaxis
Intraoperative	No drains Thoracic epidural anaesthesia Short-acting anaesthetic agents Avoidance of sodium/fluid overload Short incisions Warm air body heating in theatre
Postoperative	No nasogastric tubes Standard mobilisation Non-opiate oral analgesics/ nonsteroidal anti-inflammatory drugs Prevention of nausea and vomiting Stimulation of gut mobility Early removal of catheters/drains Perioperative oral nutrition Audit of compliance/outcomes

*Compiled based on: Fearon K.C.H. *Overview: Key Elements and the Impact of Enhanced Recovery Care In: Manual of Fast Track Recovery for Colorectal Surgery.* Nader F, Kennedy RH., Ljungqvist O, Mythen MG. Springer 2012

Preoperative period

The qualification of patients for the procedure in the fast-track mode is important. A patient qualified for such an approach requires more engagement in the process of education already at the first surgical/anaesthetic visit [6, 11].

The patient should be provided with the best information possible concerning the period of hospitalisation. This is the precondition of a patient's enrolment in the process of treatment and rehabilitation. Simultaneously, the participation in the fast-track programme means that the patient will comply with the recommendations given by the professionals in order to achieve the assumed goals [12].

In countries that have implemented the ERAS programmes, nurses play the role of educator [13]. It is possible to discuss the most important components of the programme; however, it seems necessary to provide a patient with additional brochures/information leaflets, which may be analysed at leisure. Such a visit usually takes place several weeks prior to surgery. The participation of family members is also possible, who may help in the preparation for the surgical procedure. The purpose of the visit is the recognition of

various factors that may have an effect on the course of the procedure [10].

During the period of preparation for surgery the patient should eat a healthy diet, increase body weight if necessary, undertake physical activity in the form of exercises for 30 min daily, and discontinue tobacco smoking and alcohol consumption.

The patient's anxiety before surgery should not be ignored. Anxiety occurred in 85% of patients undergoing surgical treatment under general anaesthesia. The majority of patients began to experience anxiety 1–4 weeks earlier [13]. The application of the holistic approach in nursing care may protect a patient against anxiety related with the surgery. Some reports propose the introduction of a formal plan covering an improvement of the sense of own effectiveness, personal control, self-improvement, and environmental support.

The intensity of anxiety may be diagnosed using proper scales, such as the Amsterdam Preoperative Anxiety and Information Scale (APAIS) [14] (Table 2).

Perioperative period

The common practice is to keep the patient fasted from midnight before the day of surgery. Nevertheless, the latest results of studies provide evidence that the consumption of clear fluids 2 h prior to surgery, and solid food up to 6 h before surgery does not increase the number of complications [3]. The administration of a high-carbohydrate preparation (pre-op) 2–3 h before anaesthesia is recommended in order to reduce thirst and hunger before the procedure, decrease postoperative insulin resistance, and better maintain body weight and muscle strength.

Management in accordance with the ERAS protocol requires the avoidance of routine cleansing of the colon [3]. The results of studies do not confirm any important benefits related with mechanical bowel preparation and application of rectal enemas, although such practices are commonly used in classic surgery [15]. It was even found that such management may increase the frequency of postoperative infections, complications within the abdominal cavity, and longer hospital stay [16, 17]. In elderly patients, severe hydroelectrolytic disorders may develop [18]. The preparation of the colon consists of the application of a low-fibre diet on the day preceding the surgery, instead of a liquid diet and administration of derivatives of polyethylene glycols (Fortrans) in a divided dose on the day before surgery and on the day of the procedure [19].

Surgical techniques exert an effect on stress related with surgical procedure. Some studies document a considerable advantage of laparoscopic treatment, while others show small differences [2, 20, 21].

The selection of anaesthesia and the agents applied occupy an important place in the ERAS protocol. They affect pain sensations, the duration of postoperative obstruction, and possibilities of reha-

Table 2. The Amsterdam Preoperative Anxiety and Information Scale

1	I am worried about the anaesthetic
2	The anaesthetic is on my mind continually
3	I would like to know as much as possible about the anaesthetic
4	I am worried about the procedure
5	The procedure is on my mind continually
6	I would like to know as much as possible about the procedure

**The patient ascribes scores according to the 5-point Likert scale, where 1 = low/never, and 5 = extreme.*

bilitation of the patient [7]. Epidural analgesia is preferred, which enables good pain management during the procedure and in the postoperative period. Anticipatory analgesia is used, which consists of blocking the development and conduction of pain stimuli from the surgical sites [22].

Hypothermia may lead to an increase in the frequency of surgical site infections due to the constriction of peripheral vessels [23]. Maintaining body temperature within the range 36.5–37.5°C is recommended. For this purpose, the patient's body temperature should be monitored during surgery, and continued after the procedure; heating pads should be used, as well as air heaters and devices for heating transfusion fluids [23].

Postoperative period

Pain management is very important in modern perioperative care [5]. It enables quicker mobilisation of patients, earlier nutrition, and, ultimately, a quicker discharge home. The principle of care according to ERAS is limitation of the use of opioids to the benefit of combining drugs of various mechanisms of action [3]. Non-steroidal anti-inflammatory drugs (NSAIDs), despite concerns about the risk of bleeding and other complications associated with their use, are safe drugs in short-term application under the protection of proton pump inhibitors [24].

Postoperative Nausea and Vomiting (PONV) are observed relatively often after surgical procedures, and concern approximately 25% of patients on the first day after surgery, and approximately 80% of patients in the group at elevated risk. The occurrence of PONV may prolong the time of hospitalisation of a patient, require increased nursing care, and result in readmission of a patient who has been previously discharged home. The patient's sensations and deterioration of satisfaction with perioperative care are equally important. The aetiology of PONV is complex and multifactor. The management consists of proper

pharmacotherapy, selection of the technique of intravenous hydration, and pain relief [25].

According to the modern surgical approach, the routine use of nasogastric tubes should be avoided. It was confirmed that they can increase the number of pulmonary complications, prolong the time of intestinal obstruction, and have no protective effect on colorectal anastomosis [26]. The principle should be an avoidance of drainage of the abdominal cavity, especially the prolongation of retaining the drain tubes. A drain tube causes discomfort and limits the possibility of mobilisation of a patient after surgery [27].

The introduction of oral nutrition as soon as possible is recommended. Early nutrition reduces catabolism caused by the surgical procedure, and consequently the loss of muscle mass. It exerts a beneficial effect on the healing of wounds and decreases the frequency of surgical infections. The patient may start drinking water in small portions several hours after the surgery, if nausea and vomiting do not occur [3]. On the first day after the surgical procedure, liquid food is introduced, and subsequently solid food. It was confirmed that such management can have an advantageous effect by decreasing the risk of intestinal anastomosis dehiscence, the risk of infection, and by shortening the time of the patient's stay on the ward [3].

Postoperative intestinal obstruction may cause the occurrence of nausea and vomiting, delay the introduction of oral nutrition, and result in worse mobilisation of a patient after surgery. Minimally invasive surgical techniques, avoidance of the use of gastric tubes, and limitation of the use of opioids during and after surgery decrease the frequency of postoperative intestinal obstruction.

Among the most important components of short track surgery is early mobilisation of patients after the procedure. Even a short immobilisation can lead to adverse effects, such as thromboembolism, loss of muscle mass, atelectasis, and the deterioration of lung function. Teaching the patient respiratory exercises, effective cough, and principles of mobilisation after surgery should start even before the surgical procedure.

A necessary component in the short track surgery procedure is the control of the outcomes of treatment. The patient should contact the facility where he/she was treated within 1–2 days after discharge home, then after 7–10 days, and on day 30 after surgery, in order to control the clinical status and potential complications [23].

Contemporary surgical nursing

Minimally invasive surgery and the shortened time of a patient's stay in the surgical ward impose the introduction of changes in the nursing practice. The problems of care related with the physical functioning of a patient are most often of lesser importance than the necessity for education concerning

the problem of perioperative period [5]. A diversion is observed from traditional nursing on behalf of a coordinated, holistic approach, paying more attention to the psychosocial aspects of care, which have been marginalised to-date. The implementation of short-track surgery is associated with the necessity to place more emphasis on specialist preparation of nurses for work in an interdisciplinary team. It was found that the level of nurses' education can exert a considerable effect on morbidity and postoperative mortality [23].

According to the classic approach, the education of a patient covers respiratory exercises, teaching of effective cough, and simple physical exercises. Information is usually provided by a physician or anaesthetist. In countries with a lot of experience in the implementation of ERAS, all members of the team providing care, including nurses, are engaged in patient education.

Nursing assessment takes place after making the decision about surgery and is aimed at the provision of more complex care. Preoperative evaluation may cover such components as: assessment of physical fitness in combination with the planning of care, and evaluation of the demand for psychosocial care in relation to a short stay in the surgical ward. It was observed that patient education can reduce anxiety and result in earlier recovery of intestinal motorics after surgery [28]. Preliminary assessment before the surgical procedure is usually well conducted; however, the provision of information concerning the course of surgery, analgesia, and postoperative period leave a lot to be desired [13].

The subsequent problem is the coordination of information passed to the patient. Frequently, preoperative education and preparation of a patient for discharge from hospital do not keep pace with the shortening of hospital stay. Therefore, nursing requires instruments for obtaining precise information that enables the education of patients in order to prepare them for self-care in home conditions.

According to the modern approach, apart from routine information, a patient receives properly prepared scales/questionnaires that allow determination of the intensity of pain, nausea and vomiting, appetite, and registration of sensations related to self-body image after surgery. A good solution may be a patient diary, in which every day after surgery the patient registers their feelings. The staff providing patient care analyse the entries in the diary and are interested in the patient's wellbeing. Patient's notes may be a valuable source of knowledge concerning perioperative experiences of the patient in order to improve the quality of the services provided.

Some researchers propose the creation of separate units – Elective Surgery Nursing Units (ESNU) – dealing with the preparation of a patient for surgery, education in perioperative care, and home convalescence.

Simultaneously, these units could perform the function of a communication junction for all patients prior to and after surgery [13].

At the same time, patients may be more aware of nursing services available during the use of short track surgery programme, and better informed at each stage of treatment. Frequently, after returning home, patients have problems that they had not considered earlier. In such cases, a nurse may explain doubts to avoid concerns or unnecessary visits to a physician in the cases of simple issues, such as pain relief, healing of wounds, and nausea and vomiting. Contact with a patient after surgery may be based on telephone, SMS, e-mail, or by means of other platforms, e.g. web-sites or social networks [29].

A question arises whether the care of a patient in accordance with the ERAS programme may increase the load on nursing staff. Several reports that focus on this aspect have not confirmed a greater work load among nurses with relation to the ERAS after colorectal surgery and gynaecological procedures, explaining this by a better organisation of work and cooperation with the patient [30].

Surgical nursing may be a bridge between hospital and home in the provision of patient safety during short-track surgery. Such an approach in perioperative nursing practice may provide continuity of patient care [13]. Short-track surgery poses higher requirements for nurses in the area of assessment of patient's status, communication, education, and awareness of the risk associated with the procedure. However, the results of studies indicate that nursing care within the short-track surgery programme contribute to early rehabilitation after surgery with fewer complications [31].

Conclusions

Short-track surgery is a multidisciplinary approach to care during the perioperative period, allowing earlier discharge of the patient from hospital. Education and motivation, early nutrition and mobilisation of a patient, and multi-directional schemes of pain management are of great importance.

Modern nursing within the short-track surgery programme should focus on the provision of patients with care consisting of preliminary information concerning the perioperative period, social and psychological support, counselling in the area of home convalescence, and procedures in the case of complications.

The training of the team of surgeons, anaesthetists, nurses, and physiotherapists is of great importance, strengthening the team approach in patient care.

Conflict of interest

The authors declare no conflict of interest.

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