Nursing Considerations During Patient Recovery

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Introduction

The patient is in the center of the enhanced recovery after surgery (ERAS) care. The nursing team working bedside plays a crucial role in the implementation of the enhanced recovery program and maintaining daily ERAS routines.

The aim of this chapter is to summarize the current evidence on the important role of nursing in ERAS care and to describe the different facets of perioperative nursing. Previous chapters have covered the role of ERAS nurses in preoperative patient education and nutrition. Therefore, emphasis in this chapter is on nursing at the surgical ward.

Current Evidence

The unique function of the nurse is to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery, as written by Henderson [1]. Nurses are in a privileged position to be the frontline healthcare providers.

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What Makes the Difference with Standard Care? – A Shift of Activities!

In the traditional care scheme, the patient was prepared for digestive surgery with oral bowel cleansing, fasting, and preoperative sedation. In the postoperative period, most patients were kept bedbound for up to a week. The main nursing tasks included feeding, administration of medications, and management of catheters, drains, intravenous infusions, and nasogastric tubes. Oral nutrition was started only after signs of bowel recovery (first stool/flatus), typically 3–5 days after surgery.

Within ERAS care, the typical patient is mobilized and starts on oral intake, often within a few hours after surgery. This paradigm shift involves increasing the range of responsibilities for the nurse to include not just traditional care but also educational, motivational, and various monitoring activities.

It is of particular importance that nurses are made aware of their role in the ERAS care pathway, since compliance with ERAS care elements is closely associated with improved clinical outcome [2]. Therefore, education of the nursing staff is crucial for successful implementation of ERAS. Explanation of the process, with a proof of outcomes of the institutional results by regular feedback, can convince even staff members who may be reluctant to change about the potential impact and benefits of ERAS. In a study by Roulin et al., nurses were less reluctant to change practice following ERAS implementation compared to surgeons [3]. Furthermore, by having the nurses "on board," continuity of care was maintained also during the weekends, when often weekday routines otherwise fail [4].

Beyond the basic ERAS knowledge and skills, specific knowledge of ERAS-related nursing has to be acquired [5], and a protocol alone is not enough to successfully implement an ERAS program, as shown by Maessen et al. [6] Unfortunately, there are only a few studies assessing

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specifically the effects of nursing in ERAS care. Published evidence is mostly based on focus groups and qualitative surveys [7–11].

An effective postoperative management starts with an efficient preoperative patient education. The main aim of this education is the empowerment of the patient. Intensive preoperative preparation has been shown to have a number of benefits, including reduced postoperative pain and anxiety, increased knowledge of self-care and management of complications, and reduced hospital stay [12–14]. A qualitative investigation exploring experience and opinions of caregivers stressed the importance of good interdisciplinary collaboration [15].

Clinical Pathways

The transfer from guidelines to practice can be facilitated by employing standardized patient pathways—so-called clinical pathways. They provide a structured framework for the care processes in the busy day-to-day practice and help reduce variability and redundancy in clinical care for all caregivers including nurses, surgeons, and anesthesiologists. This is of particular importance in teaching institutions with frequent staff changes and a high number of inexperienced junior staff rotating through as part of their training. Clinical pathways are a "working canvas" that sometimes needs to be adjusted to the patient's condition [3]. Planned patient pathways have shown to reduce morbidity, complications, and costs [16].

Reasons for Non-compliance with the Protocols

The success of ERAS protocols relies on the actual application of the pathway as a whole [2] and not only for some selected items [17]. Non-compliance is therefore a constant concern and may have several reasons. In a study conducted by Roulin et al. [3], the nurses were responsible for causing 14% of the deviations in compliance with individual care items. Surgeons and anesthetists were responsible for 21% and 34% of the deviations for non-compliance, respectively. However, 78% of these deviations were classified as medically justified.

Despite the fact that most of the important items (mobilization, weighing, nutrition, education) are prescribed or requested by medical staff, the application of such items relies upon the nurses in day-to-day practice. It is always useful to audit these processes to help implementation but also sustainability of improvements. There are several ways to audit (as described elsewhere). The ERAS® Society has developed the ERAS Interactive Audit System (EIAS) to complement and mirror the guidelines that the Society develops and updates. This system captures process measures and outcomes so they can be audited together.

Nursing Workload

ERAS care can be demanding and involves new care items for the nursing staff [18]. Interestingly, nursing time spent per patient and day was shorter for ERAS patients in one study (Fig. 25.1) [19]. This can be explained by the fact that many of the traditional nursing work chores have become partially obsolete for ERAS patients who take a more active part in their recovery process and thereby gain independence much faster than they used to do. Early concerns that the additional activities associated with enhanced recovery pathways would increase the workload for nurses have not been demonstrated to be true in the literature [20]. Another concern that early discharge with ERAS may impact negatively on patient's satisfaction and views about nursing care could not be confirmed [21]. A cohort study in colorectal surgery measured a decrease in nursing workload with implementation of ERAS [19]. Interestingly, it also showed that an increased compliance with ERAS protocol was significantly correlated with decreased nursing workload. This can be explained by optimization and standardization of postoperative care. A study specifically focused on workload and ward environment of a gynecology unit showed a reduction in total time used in nursing activities per stay compared to prior to ERAS implementation [22]. Another gynecology study showed that due to shorter hospital stay, perioperative counseling and education—although it was recognized as a key element—might be neglected due to the short time of hospitalization [23].

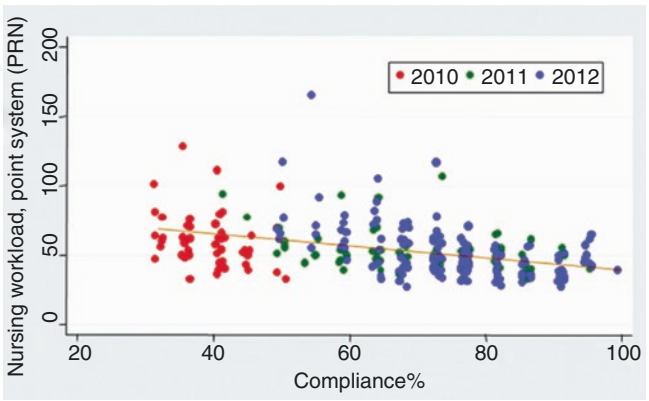

Fig. 25.1 Correlation of nursing workload with the compliance with ERAS protocol. Nurse's workload is inversely correlated to compliance with the ERAS protocol on a linear fashion. (Reprinted with permission from Hubner et al. [19])

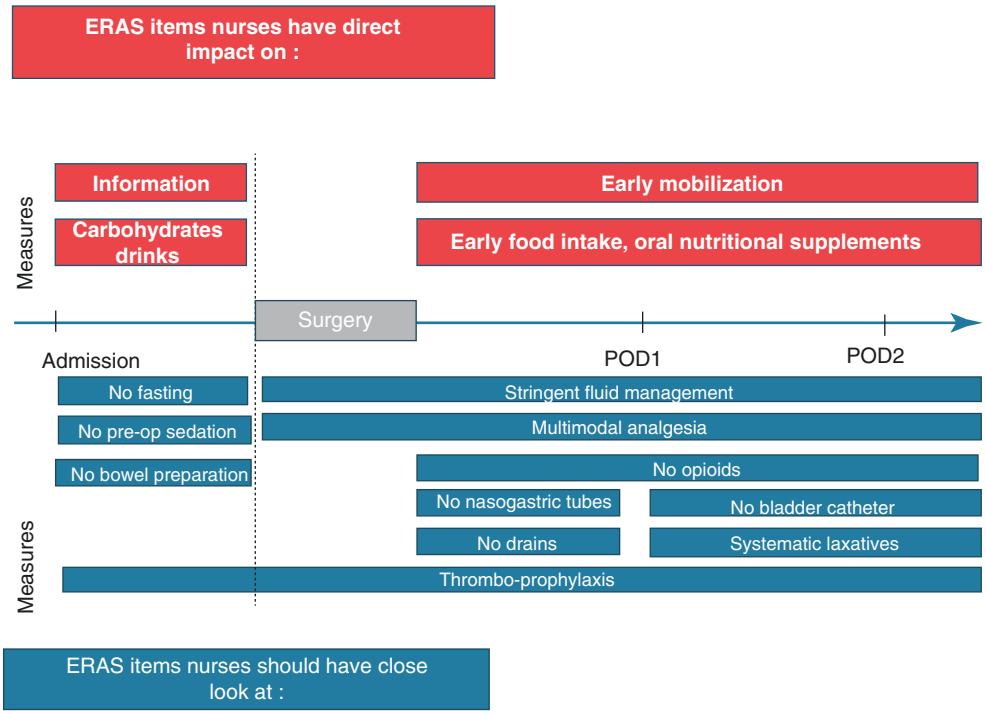

Fig. 25.2 Nurses' involvement in ERAS perioperative items. In red, ERAS items nurses have major impact on. In blue, ERAS items performed by nurses under medical order

Nurses on the Surgical Ward

The specific roles of nurses within ERAS care are summarized in Fig. 25.2.

ERAS items related to the nurse's role in preoperative care are summarized below. These include:

- Preoperative nutrition: In order to decrease insulin resistance and its negative impact, carbohydrate loading is recommended the evening prior to surgery and again 2 hours before surgery. Nurses should pay particular attention and give enough information to the patient in order to understand the importance of the carbohydrate drinks. Furthermore, correct timing and good planning are crucial, especially for patients not being operated as the first patient on the list.
- Time can be gained by omission of typical care items within traditional care schemes. One example is oral bowel preparation, which also causes dehydration that may affect anesthesia management during surgery and also recovery after surgery [24]. Similarly, traditional preoperative long-acting sedative preoperative medication may also delay postoperative recovery [25].
- Thrombo-prophylaxis with low-molecular-weight heparin (LMWH) together with sequential compression devices and mobilization should be started already in the preoperative setting.
- A reminder of the postoperative recovery process is useful to complement prior detailed information provided by the dedicated ERAS nurse.

ERAS items related to the nurse's role in postoperative care include some of the following:

- Nurses are often the frontline providers to assess and diagnose fluid overload by monitoring patient weight development and bringing this to the attention of the medical staff. Skilled nurses are able to minimize patient harm by reducing fluid overload, limit unnecessary intravenous fluid administration, and encourage patients to resume oral fluid and diet intake shortly after surgery.
- Nurses are also actively involved to ensuring efficient and timely pain management. It is important for nurses to be aware of the advantages of good pain management in improving many aspects of the patient's care, such as early mobilization, respiratory physiotherapy, early intake of food and drinks, and overall well-being [26]. The nurse should proactively and regularly assess pain and act accordingly.
- Postoperative nausea and vomiting (PONV) has been reported to occur in up to 27% of patients [27, 28]. Routine PONV prophylaxis should be standard of care. Careful attention by the nurse is therefore mandatory to administer the medications according to the patient care

pathway. Additional medications might need to be provided on demand if prophylaxis is insufficient. Opioids should be avoided or minimized, due to their side effects causing nausea and vomiting and their potential impact disturbing bowel function. Mobilization stimulates gut motility and relieves symptoms of nausea and vomiting. Chewing gum has been proven to provide some beneficial effect on return of gut motility and should therefore be made accessible to the patient [29].

- Bed rest and postoperative pain are major sources of pulmonary complications. They both induce reduced ventilation, with atelectasis and subsequent potential pulmonary superinfection. Nurses must encourage early mobilization and teach patients how to use incentive spirometry, although its usefulness is still debated.
- Patient mobilization is a cornerstone of ERAS care. It does require full participation from the patient, not just from the nurses and the nurse's aides. The ERAS guidelines suggest getting the patient out of bed on the day of surgery. On postoperative day 1, the patient should be encouraged to stand up and walk and spend at least 4–6 hours out of bed. Patients should be encouraged to have their meals served out of bed sitting on a chair at the table or in a dedicated dining room in order to promote mobilization.
- Weight measurement sometimes remains one of the most difficult goals to achieve in ERAS. The reasons are multiple. Sometimes it may be lack of motivation and information on the importance to monitor such data and training of nursing staff when patients are in ancillary units.

ERAS-Specific Education

Education is an important part of nursing within ERAS care. Information does not only concern the care pathway but should also cover discharge planning and set expectations for recovery. The clinical nurse specialist (CNS) role is expanding across various specialties, as summarized below.

- Colorectal surgery: In addition to the holistic management of cancer patients by the CNS, a patient undergoing colorectal surgery with a probability of stoma creation should have the benefit of preoperative education from dedicated stoma nurses. Postoperatively, stoma nurses will work together with the other ward nurses to ensure the patient correctly manages the stoma during their hospital stay and reaches a level of confidence in managing it prior to discharge.
- Gynecology: Assessment of self-perception and psychological impact after surgeries that often involve removing organs related to womanhood.
- Head and neck surgery or breast reconstruction: Flap monitoring [30, 31].
- Liver, pancreatic, and stomach surgery: Postoperative glycemic control [32].
- Esophagectomy and gastrectomy: The CNS plays an important role in the management of upper gastrointestinal surgery patients. They are the contact access to patients prior to admission, and they visit patients during their hospital stay. Nurses at the ward ensure that patients receive multiple small meals, with cautious increase in food intakes according to tolerance [33, 34].

Of note, sometimes it can be challenging to find the equilibrium between providing all essential information on one hand and avoiding overwhelming the patient with too much information on the other hand. This may be counterproductive for the patient's comprehension of specific items [35]. Nursing assistants may also contribute to communicating recommendations and helping with prescribed therapies in the daily practice and can help encourage patient mobilization, fluid intake, and daily weight monitoring—emphasizing a multidisciplinary approach to ERAS care.

Discharge Planning

Since time to discharge is usually reduced with ERAS, nurses should ensure the patient is ready for early discharge. Nurses are often asked to provide an assessment of the patients' ability to take care of themselves prior to leaving hospital. Together with the patient, they shall explore the pitfalls that may arise after the return to normal life.

Patient must meet certain discharge criteria before being allowed to leave the hospital. Medical discharge criteria include sufficient oral intake, adequate pain control (on oral medications), and adequate mobilization level. Bowel recovery is no longer a mandatory requirement for safe discharge [36].

The nurse, case manager, and other members of the care team need to ensure that the patient has hospital contact information in case of an emergency or if questions related to their surgery and follow-up arise after discharge. The patient should have adequate information and understanding of (1) pain management; (2) nutrition; (3) how to deal with nausea/vomiting; (4) bowel movement, diarrhea and constipation; (5) wound management; and (6) information about going back to work, returning to physical activities, restarting home medication, and the ability to drive and travel.

Nurses play an important role in the follow-up after discharge. In many hospitals, there is a nurse-led telephone follow-up service that helps maintain contact with recently discharged patients. A study of more than 200 patients within 4 weeks of discharge from the hospital showed that despite a quicker return home, the majority of patients were coping

well and many of the concerns reported were easily addressed over the telephone [37]. Therefore, it is crucial that patients and their families are aware that they will have access to the members of their healthcare team, especially when they are discharged early from the hospital.

A study assessing effect of communicated discharge information on surgical patients found that those who received information preoperatively were less likely to access a health facility than those who had not. This could lead to less unnecessary utilization of healthcare resources and greater patient satisfaction. Smartphone and other electronic applications are a popular new way of communicating with patients before and after hospitalization. The impact of these new communication techniques is currently being investigated.

Future and Development

Nurses will remain key players in ERAS care. ERAS sustainability over time will rely on various key factors. Positive feedback to the nurse's team will enhance team building and enhance compliance with ERAS protocols [38].

It is also important to audit nurses' performance and help them improve their roles as frontline healthcare providers constantly interfacing with patients. This will hopefully lead to better compliance and better data collection.

ERAS teaching should be an integral part of the nursing undergraduate curriculum. On surgical wards, nurses should be familiarized with various ERAS guidelines, evidence supporting clinical practices, and implementation initiatives.

Conclusion

Nurses are important members of the team taking care of the surgical patient. They can help ensure compliance with ERAS pathways, participate in patient-centered care, and help coordinate care among the different members of the team. Continuous education of nurses in all aspects of surgical care and ERAS is critical to the overall goals of quick patient recovery.

References

1. Henderson VA. The nature of nursing. A definition and its implications for practice, research, and education. Reflections after 25 years. NLN Publ. 1991;vii–xi(15–2346):1–116.
2. Gustafsson UO, Hausel J, Thorell A, Ljungqvist O, Soop M, Nygren J, et al. Adherence to the enhanced recovery after surgery protocol and outcomes after colorectal cancer surgery. Arch Surg. 2011;146(5):571–7.
3. Roulin D, Muradbegovic M, Addor V, Blanc C, Demartines N, Hubner M. Enhanced recovery after elective colorectal surgery – reasons for non-compliance with the protocol. Dig Surg. 2017;34(3):220–6.
4. Romain B, Grass F, Addor V, Demartines N, Hubner M. Impact of weekday surgery on application of enhanced recovery pathway: a retrospective cohort study. BMJ Open. 2016;6(10):e011067.
5. Mitchell M. The future of surgical nursing and enhanced recovery programmes. Br J Nurs (Mark Allen Publishing). 2011;20(16):978–84.
6. Maessen J, Dejong CH, Hausel J, Nygren J, Lassen K, Andersen J, et al. A protocol is not enough to implement an enhanced recovery programme for colorectal resection. Br J Surg. 2007;94(2):224–31.
7. Burch J. What does enhanced recovery mean for the community nurse? Br J Community Nurs. 2009;14(11):490.. 2, 4
8. Clifford T. Enhanced recovery after surgery. J Perianesth Nurs. 2016;31(2):182–3.
9. Montgomery R, McNamara SA. Multimodal pain management for enhanced recovery: reinforcing the shift from traditional pathways through nurse-led interventions. AORN J. 2016;104(6s):S9–s16.
10. Brady KM, Keller DS, Delaney CP. Successful implementation of an enhanced recovery pathway: the nurse's role. AORN J. 2015;102(5):469–81.
11. Bernard H, Foss M. The impact of the enhanced recovery after surgery (ERAS) programme on community nursing. Br J Community Nurs. 2014;19(4):184.. 6-8
12. Foss M, Bernard H. Enhanced recovery after surgery: implications for nurses. Br J Nurs (Mark Allen Publishing). 2012;21(4):221–3.
13. Blay N, Donoghue J. The effect of pre-admission education on domiciliary recovery following laparoscopic cholecystectomy. Aust J Adv Nurs. 2005;22(4):14–9.
14. Chaudhri S, Brown L, Hassan I, Horgan AF. Preoperative intensive, community-based vs. traditional stoma education: a randomized, controlled trial. Dis Colon Rectum. 2005;48(3):504–9.
15. Herbert G, Sutton E, Burden S, Lewis S, Thomas S, Ness A, et al. Healthcare professionals' views of the enhanced recovery after surgery programme: a qualitative investigation. BMC Health Serv Res. 2017;17(1):617.
16. Schmidt HM, El Lakis MA, Markar SR, Hubka M, Low DE. Accelerated recovery within standardized recovery pathways after esophagectomy: a prospective cohort study assessing the effects of early discharge on outcomes, readmissions, patient satisfaction, and costs. Ann Thorac Surg. 2016;102(3):931–9.
17. Jurt J, Slieker J, Frauche P, Addor V, Sola J, Demartines N, et al. Enhanced recovery after surgery: can we rely on the key factors or do we need the bel ensemble? World J Surg. 2017;41(10):2464.
18. Martin D, Roulin D, Addor V, Blanc C, Demartines N, Hubner M. Enhanced recovery implementation in colorectal surgery-temporary or persistent improvement? Langenbeck's Arch Surg. 2016;401(8):1163–9.
19. Hubner M, Addor V, Slieker J, Griesser AC, Lecureux E, Blanc C, et al. The impact of an enhanced recovery pathway on nursing workload: a retrospective cohort study. Int J Surg. 2015;24(Pt A):45–50.
20. Jakobsen DH, Sonne E, Andreasen J, Kehlet H. Convalescence after colonic surgery with fast-track vs conventional care. Colorectal Dis. 2006;8(8):683–7.
21. Philp S, Carter J, Pather S, Barnett C, D'Abrew N, White K. Patients' satisfaction with fast-track surgery in gynaecological oncology. Eur J Cancer Care. 2015;24(4):567–73.
22. Sjetne IS, Krogstad U, Odegard S, Engh ME. Improving quality by introducing enhanced recovery after surgery in a gynaecological department: consequences for ward nursing practice. Qual Saf Health Care. 2009;18(3):236–40.
23. Wagner L, Carlslund AM, Sorensen M, Ottesen B. Women's experiences with short admission in abdominal hysterectomy and their patterns of behaviour. Scand J Caring Sci. 2005;19(4):330–6.

24. Fearon KC, Ljungqvist O, Von Meyenfeldt M, Revhaug A, Dejong CH, Lassen K, et al. Enhanced recovery after surgery: a consensus review of clinical care for patients undergoing colonic resection. Clin Nutr. 2005;24(3):466–77.
25. Feldheiser A, Aziz O, Baldini G, Cox BP, Fearon KC, Feldman LS, et al. Enhanced Recovery After Surgery (ERAS) for gastrointestinal surgery, part 2: consensus statement for anaesthesia practice. Acta Anaesthesiol Scand. 2016;60(3):289–334.
26. Chemali ME, Eslick GD. A meta-analysis: postoperative pain management in colorectal surgical patients and the effects on length of stay in an enhanced recovery after surgery (ERAS) setting. Clin J Pain. 2017;33(1):87–92.
27. Son J, Yoon H. Factors affecting postoperative nausea and vomiting in surgical patients. J Perianesth Nurs. 2018;33(4):461–70.
28. Gan TJ, Diemunsch P, Habib AS, Kovac A, Kranke P, Meyer TA, et al. Consensus guidelines for the management of postoperative nausea and vomiting. Anesth Analg. 2014;118(1):85–113.
29. Short V, Herbert G, Perry R, Atkinson C, Ness AR, Penfold C, et al. Chewing gum for postoperative recovery of gastrointestinal function. Cochrane Database Syst Rev. 2015;2:CD006506.
30. Dort JC, Farwell DG, Findlay M, Huber GF, Kerr P, Shea-Budgell MA, et al. Optimal perioperative care in major head and neck cancer surgery with free flap reconstruction: a consensus review and recommendations from the enhanced recovery after surgery society. JAMA Otolaryngol Head Neck Surg. 2017;143(3):292–303.
31. Temple-Oberle C, Shea-Budgell MA, Tan M, Semple JL, Schrag C, Barreto M, et al. Consensus review of optimal perioperative care in breast reconstruction: enhanced recovery after surgery (ERAS) society recommendations. Plast Reconstr Surg. 2017;139(5):1056e–71e.
32. Melloul E, Hubner M, Scott M, Snowden C, Prentis J, Dejong CH, et al. Guidelines for perioperative care for liver surgery: enhanced recovery after surgery (ERAS) society recommendations. World J Surg. 2016;40(10):2425–40.
33. Mortensen K, Nilsson M, Slim K, Schafer M, Mariette C, Braga M, et al. Consensus guidelines for enhanced recovery after gastrectomy: Enhanced Recovery After Surgery (ERAS(R)) society recommendations. Br J Surg. 2014;101(10):1209–29.
34. Thorell A, MacCormick AD, Awad S, Reynolds N, Roulin D, Demartines N, et al. Guidelines for perioperative care in bariatric surgery: Enhanced Recovery After Surgery (ERAS) society recommendations. World J Surg. 2016;40(9):2065–83.
35. Short V, Atkinson C, Ness AR, Thomas S, Burden S, Sutton E. Patient experiences of perioperative nutrition within an enhanced recovery after surgery programme for colorectal surgery: a qualitative study. Colorectal Dis. 2016;18(2):O74–80.
36. Fiore JF Jr, Browning L, Bialocerkowski A, Gruen RL, Faragher IG, Denehy L. Hospital discharge criteria following colorectal surgery: a systematic review. Colorectal Dis. 2012;14(3):270–81.
37. Burch J. Enhanced recovery and nurse-led telephone follow-up post surgery. Br J Nurs (Mark Allen Publishing). 2012;21(16):S24–6, s8–9.
38. Gotlib Conn L, McKenzie M, Pearsall EA, McLeod RS. Successful implementation of an enhanced recovery after surgery programme for elective colorectal surgery: a process evaluation of champions' experiences. Implement Sci: IS. 2015;10:99.