

CHAPTER 5

ERAS MANAGEMENT IN OBSTETRIC AND GYNECOLOGICAL INTERVENTIONS

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INTRODUCTION

Preoperative and postoperative care and services are essential elements of surgical treatment in surgical interventions. Henrik Kehlet implemented the first example of postoperative care in 1997 under the early postoperative care program to shorten patients' hospital stay who had undergone colorectal surgery. Later, this program was arranged as an abbreviation of ERAS 'Enhanced Recovery After Surgery. It aimed to accelerate functional recovery and improve postoperative results with this protocol.

The ERAS protocol includes evidence-based practices that combine many disciplines before, during, and after surgery (1). The primary purpose of ERAS is to protect organs, reduce the stress response, shorten the hospital stay with a rapid postoperative recovery, and reduce morbidity and mortality due to surgery with these evidence-based practices. Thus, the cost associated with surgery will decrease, contributing to the countries' economies. If we look at the cesarean section rates globally, our country is in fourth place. The cost of a cesarean section is high compared to vaginal delivery, and its burden on the economy is evident. For this reason, the application of the ERAS protocol after a cesarean section is gaining more and more critical for our country.

The ERAS association created a guide by making antenatal, preoperative, and intraoperative recommendations for applying evidence-based practices in gynecology (2,3). The process starts with the preoperative evaluation 30-60 minutes before the emergency or elective gynecological and cesarean operations. It continues until the total recovery at home. Teamwork is required in which the

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surgeon, anesthetist, and nurse play a role together. The study emphasized the importance of ERAS in gynecology and obstetrics in decreasing intravenous fluid intake and morphine use, increasing patient satisfaction, shortening hospital stay, and contributing to the economy (4,5). In Table 1, ERAS management is indicated as the item.

Table 1. Elements of the ERAS Management Guidelines		
Preoperative	Intraoperative	Postoperative
Informing the patient	Prevention of intraoperative hypothermia	Urinary catheter
Failure to clean the intestines before surgery	MidThoracic epidural analgesia	Use of non-narcotic analgesics after surgery
Preoperative not fasting	Short-acting anesthesia protocol	Blood sugar management
Preoperative oral carbohydrate loading	Multimodal management of postoperative nausea and vomiting	Stimulation of gastrointestinal motility
Assessment of the nutritional status	Perioperative fluid management	Initiation of early enteral nutrition
Preoperative optimization	Surgery without drains	Early mobilization
Rehabilitation	Laparoscopic and robotic surgery	Early discharge criteria
No premedication	Use of the nasogastric tube	Follow-up and control of results
Thromboembolism prophylaxis		
Antimicrobial prophylaxis		

PREOPERATIVE EVALUATION

The information is given to the patients before surgery, counseling service, and investigation of the surgical risk factors of the patient to reduce surgery-related complication rate and anxiety (6). To reduce complication rates and anxiety, nurses play an essential role by evaluating the preoperative risk factors of the patient, such as informing the patient about the postoperative fasting time, mobilization time, hospital stay, and the procedures to be performed.

Female patients mainly present with abnormal uterine bleeding due to myoma uteri or hormonal disorder in gynecology. In this case, anemia and the need for blood transfusion become the critical. Hemodilution caused by unnecessary fluid intakes after elective or emergency surgeries may worsen existing anemia. Treating anemia with preoperative evaluation contributes to the patient's recovery process while reducing the need for blood transfusion and complications related to anemia (7).

According to the ERAS protocol, a preoperative blood glucose level of 140 – 180 mg/dl is recommended. By providing glucose optimization, nurses significantly prevent hyperglycemia from increasing the risk of surgical infection.

The adverse effects of alcohol and cigarette use on our body, especially the cardiovascular system, are known. It is recommended to quit smoking and alcohol use at least four weeks before the operation (8). Nurses can increase the awareness of the patients on this issue by informing the women who are planning for gynecological surgery before the operation.

There is a risk of thromboembolism in patients scheduled for gynecological cancer surgery who require extensive pelvic surgery due to cancer metastases. Thromboembolism is a significant cause of morbidity and mortality in this group of patients. According to the ERAS protocol, low molecular weight heparin (LMWH) or heparin should be started preoperatively in addition to mechanical measures in patients with risk factors, especially in the patient group requiring cancer surgery (8). ACOG (American Society of Gynecology and Obstetrics) recommends using intermittent compression stockings for thromboembolism prophylaxis for patients in the middle-risk group, starting from the preoperative period and continuing until their mobilization is completed. For patients in the high-risk group, it is recommended to wear pneumatic pressure devices before the surgery and use them until discharge (9).

Long-term fasting for up to 12 hours to prevent aspiration of gastric contents during anesthesia is not recommended. It depletes liver glycogen metabolism, creates insulin resistance, and leads to dehydration. Particle-free fluid intake should be encouraged up to 2 hours before cesarean section. It is recommended to restrict solid intake until 6 hours before the operation (10). Antacids and H₂ receptor blockers can be used together in premedication to reduce the risk of aspiration pneumonia.

Before abdominal or pelvic surgery, bowel cleansing is performed to reduce the risk of infection. However, there is an opinion that preoperative and prenatal

bowel preparation does not provide any additional benefit. It causes dehydration and delayed return of postoperative bowel movements (11).

Infection is an essential cause of surgical morbidity that prolongs hospital stay. Studies compare prophylactic antibiotics before skin incision in cesarean section and antibiotic applications after cord clamping. It was observed that intravenous antibiotics administered 1 hour before the skin incision reduced maternal complications (12). In prophylaxis, cefazolin from the first-generation cephalosporin group is preferred because it has a narrow spectrum, low cost, and rare side effects. While 1 g of antibiotic prophylaxis is sufficient in adults, it can be increased to 3 g in patients over 120 kg (13).

ANESTHESIA AND ERAS MANAGEMENT IN OPERATIONS

In cesarean sections, especially spinal anesthesia, are more reliable and preferred than general anesthesia. Maternal morbidity and mortality are less common in spinal anesthesia compared to general anesthesia. Hypotension, nausea, vomiting, and bradycardia may occur after spinal anesthesia. Horner syndrome can be seen as a rare complication (14). However, complications of general anesthesia have been reported 17 times more often than spinal anesthesia (15). It was found that there was no significant difference in parameters showing fetal involvement, such as APGAR score (16). Early breastfeeding occurs after spinal anesthesia, and studies have shown that maternal anxiety and postpartum depression are less common in this case. (17)

Spinal and epidural anesthesia can also be applied in combination, allowing us to prolong the anesthesia time and widen the anesthesia area with the help of a catheter. If performing an additional post-anesthetic as transversus abdominis plane area block (TAP), in this case, the need for postoperative analgesia will be significantly reduced (3).

According to the ERAS protocol, it is crucial to ensure perioperative thermoregulation. Perioperative hypothermia causes postoperative wound infection, drug interactions, coagulopathy, myocardial ischemia, tremors, decreased patient satisfaction and affects up to APGAR and pH changes in the newborn (18).

POSTOPERATIVE EVALUATION

One of the most critical components of the ERAS protocol is the provision of adequate postoperative analgesia. With the recommendation of anesthesia

associations, multimodal analgesia should be prioritized rather than applying a single drug or method. Thus, together with the use of drugs with different mechanisms of action, besides providing optimal analgesia, a decrease in the incidence of drug-related side effects is achieved.

Meta-analyses show that optimal analgesia can be provided with analgesic infusion through the epidural catheter in the first two days after the operation in both laparotomy and laparoscopic surgery. In addition to epidural anesthesia, 4 mg/day of paracetamol should be used routinely. If this protocol is insufficient, non-steroidal anti-inflammatories (NSAIDs) can be used. NSAIDs should be started as a routine analgesic close to removing the epidural catheter and should be used as needed after discharge.

When postoperative nausea and vomiting are severe, it causes dehydration, delay in transition to oral feeding, and increased postoperative fluid intake. This increases the length of hospital stay and hospital costs. In addition, postoperative nausea-vomiting should be prevented as it may delay the patient's oral intake. Antiemetics should be used, and drugs such as opioids, which have nausea-vomiting properties during anesthesia, should be avoided. Patients should be encouraged to start oral fluid intake at the second hour and solid food intake at the fourth hour postoperatively. It should be supported with oral nutritional fluids until adequate oral nutrition is achieved.

Another vital contribution of epidural analgesia to postoperative recovery is to allow early mobilization. With the provision of physical conditions in which the patient's pain is relieved, improvement in lung functions and tissue oxygenation and a decrease in the incidence of dangerous diseases such as atelectasis and thromboembolism are expected. Removing the urinary catheter within 24 hours is recommended to ensure early mobilization.

The ERAS process starts with the preoperative informing of the patient and continues with informing the patient after discharge. By the ERAS protocol, the patient whose discharge is planned should be informed about the complications. After discharge, her well-being should be questioned by obtaining the patient's contact information. For the protocol to be fully implemented, a pre-operation checklist should be prepared, and a team should be worked with nurses and other health personnel. With the ERAS protocol, patients can also contribute to their healing processes.

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