ISSN 1978-6743
E-ISSN 2477-3948
Jurnal Ilmiah Kesehatan
(Journal of Health Science)
Fakultas Keperawatan dan Kebidanan | Universitas Nahdlatul Ulama Surabaya

Enhanced Recovery After Caesarean Delivery: A Narrative Review

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ARTICLE INFORMATION

Received: June 17, 2022
Revised: February 23, 2023
Available online: February 2023

KEYWORDS

Enhanced Recovery After Caesarean Delivery; ERACS

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A B S T R A C T

Enhanced recovery after surgery (ERAS) is a philosophy of perioperative care that has been used in other fields since the 1990s but has only recently been applied to obstetric care in the form of Enhanced Recovery After Caesarean Delivery (ERACS). This review highlights perioperative care in ERACS, ERACS guidelines, and the benefits of ERACS. ERACS is a multimodal-based perioperative management protocol to recover the patient's condition immediately. It maintains preoperative organ function and reduces stress response during surgery. The primary keys in this protocol include preoperative counseling, optimization of nutrition, use of standard anesthetic and multimodal analgesia drugs, and early mobilization. The protocol covers perioperative care, from preoperative, intraoperative and postoperative. It involves a multidisciplinary team of anesthesiologists, surgeons, nurses, and nutritionists. The ERACS has many benefits, including shortening the duration of hospitalization, decreasing anxiety and stress, reducing the risk of postoperative infection, and accelerating the body's recovery. In addition, there are faster functional recovery, minimal complications, and a shorter length of stay. It can also improve patient care quality and reduce opioid exposure and dependence. ERACS aims to provide a comfortable patient experience by accelerating the process of patient care and recovery by prioritizing patient safety. However, the obstacle is consistency in carrying out the ERACS protocol in each related service unit, such as polyclinic, operating rooms, and treatment rooms, to implement each protocol comprehensively and optimally.

INTRODUCTION

Law Number 44 of 2009 declares a hospital is a health service institution providing comprehensive individual health services in inpatient, outpatient, and emergency. Various disciplines complement patient care in hospitals with each other (Budhi Setianto, et al., 2021). In addition, clinical considerations implementation is regulated in the regulation of the Minister of Health of the Republic of Indonesia, Number 5 of 2016. It states that clinical advisory is crucial in implementing National Health Insurance. It can ensure quality control and cost control so that the health services provided are effective and efficient according to patients' needs. The clinical advisory also provides certainty in resolving clinical problems in health services during the implementation of National Health Insurance.

Furthermore, Clinical Pathway (CP) is an evidence-based integrated performance planning concept with measurable outcomes for healthcare performance standards, standards of care, and home care. It summarizes every step given to the patient based on patient service standards. In addition, it includes evaluation, diagnosis, information support, rehabilitation, and clinical evaluation. Variances in clinical pathways have been identified to contribute to hospital duration of stay, medicinal drug utilization, hospital outcomes, and costs. ERACS is an intuitive first step to lower variances to improve patient care (Mullman, 2020).

https://doi.org/10.33086/jhs.v16.i01.3098

Enhanced recovery after surgery (ERAS) is a philosophy of perioperative care that has been used in other fields since the 1990s but has only recently been applied to obstetric care in the form of Enhanced Recovery After Caesarean Delivery (ERACS). This review highlights perioperative care in ERACS, ERACS guidelines, and the benefits of ERACS. ERACS is a multimodal-based perioperative management protocol to recover the patient's condition immediately. It maintains preoperative organ function and reduces stress response during surgery. The primary keys in this protocol include preoperative counseling, optimization of nutrition, use of standard anesthetic and multimodal analgesia drugs, and early mobilization (Kurniawaty & Anindita, 2018). The ERACS protocol can increase patient satisfaction, reduce patient length of stay, and reduce costs. The protocol covers perioperative care, from pre-admission, preoperative, and intraoperative. In addition, it includes postoperative, involving a multidisciplinary team of anesthesiologists, surgeons, nurses, and nutritionists. Recent studies revealed that ERACS improved patient outcomes, reduced postoperative complications, accelerated postoperative recovery, and supported faster patient discharge. Further, it could lower hospital costs (Kurniawaty & Anindita, 2018).

The Perioperative Care in ERACS

Preoperative, intraoperative, and postoperative care are critical in implementing ERACS (Tika et al., 2022).

Preoperative care

Pre-admission information, education, and counseling will be provided in preoperative care. Patients should get sufficient information on the surgical and anesthetic procedures the patient will undergo. Ideally, the patient and family meet with the surgeon, anesthesiologist, and nurse for discussion. It can reduce fear and patient anxiety and accelerate patient recovery and discharge. In addition, psychological counseling aims to reduce stress to accelerate wound healing and recovery after surgery. Counseling provides information, leaflets, or multimedia information provided to patients. It can improve patient involvement in perioperative nutrition, mobilization, pain control, and physiotherapy. Besides, it reduces complications after surgery.

Education and counseling are generally necessary for the success of the ERACS. The education and counseling provided contain information about the procedure and what to expect when the patient is in the operating room. In addition, there are surgical plans, pain management plans, goals for nutrition, and early mobilization. Other information provided to the patient is the nutritional information for pregnant women, nursing mothers, length of stay, and criteria for patient discharge (Habib & Ituk U, 2018). Three health workers provided this education: Obstetrics and Gynecology specialists, anesthesiologists, and

Personal Surgery Office (PSO) nurses. It is essential to provide educational materials that can be accessed via the web or taken home to help patients become familiar with the ERACS concept.

During the Covid-19 pandemic, patients with an elective SC surgery plan will undergo PCR (polymerase chain reaction) tests. In addition, patients with emergency surgery will undergo a COVID-19 antigen test. Both tests are carried out after the patient has obtained other test results that the anesthetist uses as a standard for surgical feasibility.

Intraoperative care

Before undergoing the surgical procedure, the patient must fast to avoid postoperative vomiting. The recommended fasting duration before anesthesia is six to eight hours for solid foods and two hours for high-calorie fluids. Taking high-calorie drinks two hours before surgery can reduce thirst, hunger, and anxiety before surgery. There will be ranitidine or omeprazole capsules provisioned two hours before the procedure. In addition, a single dose of broad-spectrum prophylactic antibiotics is provided 30-60 minutes before the ERACS procedure (Kurniawaty & Anindita, 2018). Furthermore, scheduled acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDs) are provided. It includes restricting the dose of neuraxial opioids (morphine), preventing hypothermia and nausea, and assisting mother-toddler bonding (Kurniawaty & Anindita, 2018).

Multimodal analgesia has become a key component for most surgeries or anesthetics. ERACS protocols involve medications and techniques beyond routine surgical anesthesia. Analgesic drugs may be administered immediately preoperative, intraoperative, and continued postoperatively. Non-opioid analgesics minimize opioid consumption in ERACS (Patel & Zakowski, 2021).

Postoperative care

Early mobilization begins by sitting on the edge of the patient's bed. The patient can stroll from the patient's bed to the restroom because the catheter was removed no later than 6 hours after the procedure to avoid urinary tract infections complication in postoperative patients. After removing the catheter, the patient can breastfeed the baby in a comfortable sitting position so there is correct baby attachment when breastfeeding. The patient can be discharged one day after the ERACS procedures (the second day of hospitalization). The criteria for discharge are patients without pain or tolerated pain without additional anti-pain medications such as anti-pain patches or infusions. Based on respondent interviews, there was an increase in patient satisfaction after using the ERACS method among patients who have experienced regular cesarean sections. In addition, patients undergoing SC surgery for the first time thought that SC surgery was not as painful as imagined. So they wanted to give birth with the same method for the next delivery (Tamang, 2021).

ERACS Guidelines

Medical Societies, The American College of Obstetricians and Gynecologists (ACOG), and the Society for Maternal-Fetal Medicine (SMFM) prepare ERACS guidelines based on clinical evidence. Then, they submit those guidelines for practitioners to review, consider, and adopt (Liu, Du, and Yao, 2020). The ERACS guidelines enhance healing after surgical procedures. In addition, the guidelines comprise recommendations to improve all elements of patient care. The ERACS guidelines are an evidence-based practice to remove obstacles in implementation. Thus, training health workers regarding ERACS guidelines and clinical audits is vital (Bowden, 2019).

Table 1. ERACS Guidelines (Liu, Du, and Yao, 2020)

Preoperative care	Protocol
- Antenatal Care - Inpatient Care	- Education and counseling (anesthesia procedures, pain management, nutrition, early mobilization, criteria for patient discharge) - Intake of solid food six to eight hours before surgery - Intake of high-calorie drinks two hours before surgery - Ranitidine or omeprazole provision two hours before the procedure. - A single dose of broad-spectrum prophylactic antibiotics 30-60 minutes before the procedure.
Intraoperative care	**Protocol**
- Prevent hypotension due to anesthetic drugs. - Spinal anesthesia - Multimodal non-opioid analgesia - Optimal uterotonic with a low dose - Improved mother-baby bonding	- Phenylephrine is the vasopressor of choice to prevent maternal hypotension. - A low dose of 0.5% bupivacaine, Fentanyl, and morphine - Paracetamol IV dan NSAID - Low dose oxytocin infusion 15-18 IU/hour - Delayed Cord Clamping and early initiation of breastfeeding
Postoperative care	**Protocol**
- Early oral intake - Early mobilization	- Drinking water for 0-30 minutes post-op. - Food intake 4 hours post-op - Mobilization Level 1: sitting back in bed for 15 to 30 minutes. - Mobilization Level 2: sit on the side of the bed with legs dangling for 5 to 15 minutes. - Mobilization Level 3: Standing - Mobilization Level 4: Walking around the patient ward - Early urinary catheter removal no later than 6 hours after the procedure to minimize the risk of urinary tract infection.

The Benefits of ERACS

There are several reasons why the clinical results of performing ERACS are so impressive. Preoperative education and detailed psychological counseling about the ERACS protocol can help reduce psychological stress and improve patient adherence (Fajriani, 2016). Second, the ERACS protocol reduces hunger, increases carbohydrate intake, relieves stress, and reduces insulin resistance and food loss after surgery (Kurniawaty & Anindita, 2018). Third, the ERACS protocol recommends faster removal of urinary catheters and mobilization to reduce the risk of postoperative urinary tract infections and venous

thromboembolism. Fourth, standard nursing practice, broad-spectrum prophylactic antibiotics, and early mobilization with the ERACS protocol decrease postoperative infection risks such as postoperative wound infections, lung infections, and urinary tract infections (Tamang, 2021). Fifth, multimodal analgesia and intraoperative care can increase patient comfort during surgery (Liu, Du, and Yao, 2020). Last, early postoperative oral nutrition is vital to speed recovery by maintaining body homeostasis so patients can perform daily activities.

According to the latest research, ERACS showed a decreased length of stay in patients. The underlying thing is a significant pain reduction with multimodal analgesia so that post-Sectio Caesaria patients can mobilize for two hours and continue for six hours after surgery. Length of stay (LOS) is one indicator to assess hospital quality. Length of stay is a term given to describe the length of time a patient is hospitalized, from when the patient is recorded at the time of admission until the hospital issues a discharge planning or discharge plan. This data is essential in the medical record to consider patient costs. The hospital expenditure budget is the most significant contributor to state budget expenditure, so the number of patient days or LOS needs to be considered to estimate the management of hospital expenses and financing.

CONCLUSION

The ERACS method as a perioperative program for cesarean section patients has many benefits, including shortening the duration of hospitalization, reducing anxiety and stress, reducing the risk of postoperative infection, and accelerating the body's recovery. In addition, there is faster functional recovery, minimal complications, and a shorter length of stay. Furthermore, it can improve the quality of patient care and reduce opioid exposure and dependence. ERACS aims to provide a comfortable patient experience by accelerating the process of patient care and recovery by prioritizing patient safety. However, the obstacle is consistency in carrying out the ERACS protocol in each related service unit, such as polyclinic, operating rooms, and treatment rooms, to implement each protocol comprehensively and optimally.

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