

Pain Score and Quality of Post Cesarean Section Recovery with ERACS Method

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ABSTRACT

Introduction : When regular childbirth is impossible owing to fetal or maternal health issues, a cesarean section must be done. One of the complications of cesarean section is pain and quality of recovery. The strategy for managing pain and quality of recovery is using the ERACS method. This method is a new technique in anesthesia with the principles of evidence-based perioperative care, a multidisciplinary approach and carried out in a team, carried out on an ongoing basis and continues to be developed.

Objective : The study's objective was to use the ERACS method to calculate the pain score and the quality of recovery following cesarean section.

Methods : The study had a post-test control group and a quasi-experimental design. Participants in this study were mothers who had a cesarean section at RSIA Kendangsari Surabaya. The sample size in this study was 70, namely 35 treatment groups and 35 control groups. The instrument uses VAS (Visual Analog Scale) and obsQor 11

Result : Statistical test for pain obtained P value = 0.000 and for quality of recovery obtained P value = 0.000

Conclusion : There is a sizable distinction in pain scores carried out by the ERACS and Non ERACS methods, where the pain scores carried out by the ERACS method are lower than the non-ERACS methods, and there are differences in the quality of recovery between the ERACS and Non ERACS methods where the recovery quality scores are given by the method. ERACS is higher than non ERACS method

KEYWORDS : Enhanced Recovery After Cesarean Section, Pain, Recovery Quality

ABSTRACT

Pendahuluan: Seksio sesarea merupakan tindakan medis yang diperlukan untuk membantu persalinan yang tidak dapat dilakukan secara normal karena masalah kesehatan bayi atau kondisi kesehatan ibu. Komplikasi seksio sesarea yaitu nyeri dan kualitas pemulihan. Strategi penatalaksanaan nyeri dan kualitas pemulihan yaitu menggunakan metode ERACS. Metode tersebut merupakan teknik baru dalam pembiusan dengan prinsip perawatan perioperatif yang berbasis bukti, pendekatan secara multidisiplin serta dilakukan secara tim, dilakukan audit berkelanjutan dan terus dikembangkan

Tujuan: Penelitian bertujuan untuk mengetahui skor nyeri dan kualitas pemulihan pasca seksio sesarea dengan metode ERACS.

Metode: Penelitian memakai quasi experimental menggunakan post test control class desain. Populasi pada penelitian merupakan bunda yang dilakukan seksio sesarea pada RSIA Kendangsari Surabaya. Besar sampel pada penelitian ini sejumlah 70 yaitu 35 group perlakuan dan 35 group kontrol. Instrumen memakai VAS (Visual Analog Scale) dan obsQor 11.

Hasil: Uji statis¹⁹ untuk nyeri didapatkan nilai $P = 0,000$ dan untuk kualitas pemulihan didapatkan nilai $P = 0,000$

Kesimpulan: Ada perbedaan yang signifikan skor nyeri yang dilakukan metode ERACS dan Non ERACS, dimana skor nyeri yang dilakukan metode ERACS lebih rendah dibandingkan dengan metode non ERACS, serta ada perbedaan kualitas pemulihan antara metode ERACS dan Non ERACS dimana skor kualitas pemulihan yang diberikan metode ERACS lebih tinggi dibandingkan dengan metode non ERACS

KEYWORD : Enhanced Recovery After Cesarean Section, Nyeri, Kualitas pemulihan.

PRELIMINARY

A cesarean section is a medical technique used to help in childbirth when it is unable to do so naturally because of the mother's health or the fetus's condition. This treatment is described as either a hysterotomy to deliver the fetus from within the uterus or surgery to deliver the fetus by opening the abdominal wall, uterine or vaginal walls.¹ Data from the Indonesian Demographic and Health Survey (IDHS) show an increase in the number of cesarean sections in Indonesia from 1991 to 2017 as much as 1.2 - 6.8%. The organization for World Health (WHO) recommends the number of cesarean deliveries in the population ranges from 5-15%. In Indonesia, the rate of cesarean section delivery is still high. Data from Riskesdas (Basic Health Research) in 2018 shows the Caesarean birth rate in Indonesia is 17.6%.² The cesarean section delivery rate at RSIA Kendangsari Surabaya based on the report in the first quarter of 2022 is 72%.

Various problems experienced by patients after cesarean section such as pain that does not go away, as well as a long recovery time are problems that need to be handled properly for patient comfort. Based on research conducted by Nurhayati (2015) shows that post-cesarean section mothers who experience severe pain are 36% while those who experience moderate pain are 64%.³ Pain after cesarean section affects the

mother's postpartum period, for example, it can reduce the quality of breastfeeding, postpartum depression and the length of hospitalization. ⁴ Along with the increasing public interest in caesarean section, perioperative services have also increased. To increase the clinical benefits of caesarean section, the ERACS method is an effective way to do it. ERACS is a perioperative, intraoperative, and postoperative management that aims to accelerate the patient's recovery. ⁵

Cesarean section is one of the main options to save the mother and fetus. The cause of delivery by cesarean section can be due to problems with the mother or baby. There are several indications for cesarean section, namely breech babies, fetal distress, surgical scars, placenta previa. ⁶ Many problems experienced by mothers after cesarean section are prolonged pain that affects the quality of recovery. Therefore, the ERACS method is used to reduce pain because of the application of various pain treatments and the dose of anesthetic drug administration is reduced so that by decreasing the dose, the recovery process is faster. A brief mobilization can speed up the recovery process. ⁷

ERACS is an evidence-based treatment created to reduce the opportunity for healing while minimizing the surgical stress reaction. In order to apply ERACS, the Society for Obstetric Anesthesia and Perinatology (SOAP) offers a number of guidelines both preoperative, intraoperative, postoperative focusing on recovery after Caesarean section. ERACS is to assist all women with evidence-based, patient-centered care with appropriate standards, a multidisciplinary approach that optimizes recovery after cesarean section and improves maternal and newborn health. ⁹

Discuss the ERACS method because it , make reduces pain in mothers, and makes it easier to return to normal activities. ¹⁰ Most studies show a reduction in hospitalizations, a reduction in hospital costs, a reduction in opioid use, and an increase in maternal-infant bonding during hospitalization. Several studies have also proven that ERACS can reduce postoperative pain. Still, its impact on the quality of recovery of mothers after cesarean section is unknown. ¹¹ So far, there has been no published study on the effectiveness of the ERACS method on pain scores and the quality of recovery after cesarean section. This study aimed to determine whether the ERACS method can accelerate the rate of recovery and reduce post-cesarean pain.

METHOD

Research design

The study used ¹³ a quasi-experimental study with a post test control group design, which compared ²⁴ the level of postoperative pain and the quality of recovery 24 hours after surgery in 2 groups, namely the group that did ERACS and the group that didn't do ERACS.

Research Population

The population in this study were mothers who had a cesarean section in July - August 2022. The inclusion criteria in this study were mothers with a minimum education of D3 and a normal BMI, while the exclusion criteria were mothers who had an emergency cesarean section. The sample size in this study was 70 mothers who had cesarean section, namely 35 treatment groups and 35 control groups. Determination of the sample size is calculated based on the software power and sample size. From the calculation version, it was found that the sample size was 35 mothers giving birth per group.

Research location and time

The research was conducted at RSIA Kendangsari Surabaya. Data collection was carried out in July – August 2022.

Research Instruments and Data Collection Methods.

To assess post-cesarean pain, the VAS (*Visual Analog Scale*), questionnaire was use and the ObsQoR 11 was used to assess the quality of the patient's recovery. ObsQor 11 has been tested for validity which has an internal consistency of 0.85 and the reliability of the correlation coefficient $r_i > 0.6$. ¹² VAS questionnaires were administered at 24 hours postoperatively, and ObsQoR-11 was also administered at 24 hours after surgery.

Description of intervention

²⁵ Respondents who met the inclusion criteria were given the choice to use the ERACS method or not. Determination of the sample into the treatment or control group was not randomized. Researchers collaborated with obstetrics and gynecology specialists as well as anesthesiologists for cesarean section. The ERACS method used follows the SOP in the Hospital.

Table 1 Intervention Description

Preoperative	Education, optimizing the condition of pregnant women, preparing for breastfeeding as early as possible, fasting solid food 6 hours before surgery, carbohydrate/sweet drinks 2 hours before surgery, inserting an infusion 2 hours before surgery, administering drugs - paracetamol 1 gram and omeprazole 40 mg drip NaCL 100 cc, given adequate intravenous fluids to avoid blood pressure drops and nausea and vomiting.
Intraoperative	Optimizing temperature, warmed IV fluids, giving <2 liters of infusion fluids, anesthetic technique by an anesthesiologist, spinal low dose bupivacaine 10 mg combined with fentanyl 2 mcg and morphine 75 mcg, spinocan size 27, administration of antibiotics to prevent infection, if possible in initiate early breastfeeding in the operating room by observing the condition of the mother and baby.
Postoperative	Chewing gum to stimulate intestinal peristalsis, the initial oral intake may take 60 minutes if the patient is not nauseous and continues a regular diet, early mobilization may sit 0-6 hours and continue with walking as tolerated, can walk then the catheter is removed 6 hours after surgery, given oral therapy paracetamol 1000 mg every 8 hours and 600 mg of ibuprofen each day 6 hours given after administration of ketorolac 30 mg IV.

Data Management and Analysis

Data obtained directly/primary data. Data was collected by filling out data collection sheets and questionnaires . Data were analyzed univariably with frequency tabulation, bivariate with *independent sample T test*, then continued with Pearson correlation test to determine the correlation of age and parity with pain and quality of recovery.

Ethical considerations

This research has been approved by the ethics commission of the University of Nadhatul Ulama Surabaya under Number 206/EC/KEPK/UNUSA/2022.

RESULTS AND DISCUSSION

Table 2. Demographic Data of Respondents

Characteristics	ERACS		P
	Yes Mean±SD	Not Mean±SD	
Age	29.94 ±2.743	29.60±3.704	0.661
parity	1.74±780	1.57±698	0.336

Table 2 shows the proportion of respondents' demographic data. The research variables, namely age and parity, between the two groups were homogeneous.

Table 3 . Effect of ERACS on post-SC nyeri pain

ERACS	Postoperative Pain		P
	Mean ± SD	95% CI	
Yes	2.20±0.406	-2,292- (-1,879)	0.000
Not	4.29±0.406		

Table 3 shows that the mean postoperative pain ERACS participants' scores were lower than those of non ERACS participants. From the Independent Sample T Test, it was found that the P value < 0.000 with 95% CI -2.292–(-1.879). This shows that the decrease in labor pain scores after being given the ERACS method is not only statistically significant but also clinically significant.

Table 4. Effect of ERACS on the quality of post-SC . recovery

ERACS	Recovery Quality		P
	Mean ± SD	95% CI	
Yes	90.57±2,800	15,193-18,292	0.000
Not	73.83 ± 3.642		

Table 4 shows that the mean quality of recovery scores in the group using the ERACS method was higher than in the group not using the ERACS method. From the Independent Sample T Test, it was found that the P value < 0.000 with 95% CI -15,193–(-18,292). This shows that the improvement in the quality of recovery scores after being given the ERACS method is not only statistically significant but also clinically significant.

Table 5 . Pearson Correlation Test Analysis Between Age, Parity with Post SC . pain

Variable	Post SC pain		P
	n	Correlation coefficient	
Age	70	-0.067	0.579
parity	70	-0.124	0.307

Table 5 shows the correlation between age and postoperative pain, the P value = 0.579 with a correlation coefficient of -0.067. Negative correlation means that the higher the age, the lower the decrease in post-SC pain scores. From the Pearson correlation test, it was found that the P value > 0.05 so that the correlation between age and postoperative pain score reduction was not statistically significant. The results of the Pearson correlation test between parity and postoperative pain showed P value = 0.307 with a correlation coefficient of -0.124. Negative correlation means the higher the parity, the lower the decrease in postoperative pain scores. From the Pearson correlation test, P value > 0.05 so that the correlation between parity and postoperative pain was not statistically significant.

Table 6. Analysis of Pearson Correlation Test Between Age, Parity and Quality of Recovery

Variable	Recovery Quality		P
	n	Correlation coefficient	
Age	70	0.099	0.414
parity	70	0.108	0.373

Table 6 shows the results of the Pearson correlation test between age and the quality of postoperative recovery, the P value = 0.414 with a correlation coefficient of -0.099. Negative correlation means that the higher the age, the lower the quality of postoperative recovery. From the Pearson correlation test, it was found that the P value > 0.05 so that the correlation between age and decreased quality of postoperative recovery was not statistically significant. The results of the Pearson correlation test between parity and recovery quality showed P value = 0.373 with a correlation coefficient of -0.108. Negative correlation means the higher the parity, the lower the decline in the quality of postoperative recovery. From the Pearson correlation test, it was found that the P value > 0.05 so that the correlation between parity and the quality of recovery was not statistically significant.

Women's health reaches its peak at the age of 20-35 years. In terms of biology, this age is the right time to get pregnant because the fertility rate is very high and the eggs produced are very abundant. The risk of giving birth to a baby with defects is smaller because the quality of eggs produced at this age is generally still very good.¹³ Therefore, both ERACS and non-ERACS deliveries in this study were mostly in the age range of 20-35 years.

Many things are the causes or indications for a mother to have a cesarean section, both ERACS and non-ERACS. From research conducted at DKT Gubeng Pojok Hospital Surabaya in 2016 showed that the number of mothers giving birth to sectio caesarea in the age group 20-35 years experienced the most sectio caesarea with indications of sectio caesarea, premature rupture of membranes and position abnormalities.¹⁴ This is also related to the number of respondents based on parity. In this study, most of the respondents were multiparous, they chose the most cesarean section with indications of previous cesarean section.

Delivery by cesarean section can lead to higher complications than vaginal delivery or vaginal delivery. Complications that can arise in post-sectio caesarea include hemorrhage, bladder injury, infection, swelling in the lower limbs, the possibility of thrombosis, the possibility of functional impairment, decreased suppleness of the abdominal and pelvic floor muscles, pain in the location of the incision, and problems with lactation.³ Based on the Pan study (2020) the postoperative pain assessment was lower in the ERACS group than in the control group at rest and movement. In the ERACS group the incidence of nausea was significantly lower than in the control group.¹⁵

ERACS can relieve pain in postoperative patients via an intraoperative route to induce multimodal analgesia, including intrathecal 50-150 grams of morphine or epidural morphine administration (1-3 mg).¹⁶ To control pain, post ERACS patients usually receive an intrathecal opioid every 6 hours, cetaminophen and nonsteroidal pain relievers anti inflammatory medicines (NSAIDs). The patient was scheduled to receive acetaminophen was administered intravenously (IV) for 24 hours before being taken orally. Inpatient pain management aims to separate the administration of opioids from other analgesics (such as NSAIDs and acetaminophen). Implementation of the ERACS program was linked to decreased inpatient and outpatient opioid exposure and adjustments in surgical care in patients having elective cesarean sections without deteriorating the surgical results.⁸

ERACS is a cesarean section recovery program that has been evaluated for its benefits such as minimizing complications and producing faster functional recovery. The implementation of the ERACS program has also been evaluated to provide other benefits, such as improving the quality of care and aiming to provide patient comfort with a superior service experience and accelerate the process of patient care and recovery by prioritizing patient safety. Early mobilization in the ERACS protocol reduces the incidence of postoperative infections such as postoperative wound infections, and urinary tract infections. Proper use of analgesics and intraoperative heating can improve

patient comfort during surgery. Early postoperative oral nutrition is also very important to maintain body homeostasis, speed up recovery, and enable the patient to return to activities.²

Liu, Du, and Yuu (2020) developed a modified ObsQoR 11 score from ObsQoR 15. Assess the quality recovery ObsQoR-11 by bodily health (vomiting, dizziness, chills), pain treatment, physical independence (mobilization, personal cleanliness), emotional state (controllable, comfortable), and the capacity to care for the infant are some of the important factors that are measured.¹⁷ With the ERACS method the patient will be able to mobilize faster, so that the patient's recovery will also be faster.

The results of research conducted by Metasari and Sianipar (2018) show that early mobilization has an effect on reducing pain. The results of the study found that in moderate and mild pain, the level of pain decreased with early mobilization. Given the great responsibility of the mother for the recovery and care of the baby, early mobilization is an effort to gradually gain independence from the patient. In addition, early mobilization can train the mother's independence.¹⁸

This study found that age and parity were not a barrier to the ERACS method, because the results showed that age and parity were not correlated with post-cesarean pain scores and post-cesarean recovery quality. This concurs with the findings of studies by Jasim (2017) that there is no relationship between parity age and postoperative pain scores. Numerous factors, such as the length of the procedure due to larger dissection and lower levels of dermatomal sensory anesthesia at the moment of the incision, may enhance the nociceptive input to the spinal cord and induce central sensitization.¹⁹ As for the quality of post-cesarean maternal recovery, apart from the use of anesthetic drugs, it is also influenced by early mobilization and breastfeeding, because there are efforts to improve postoperative recovery by increasing the bond between mother and baby.²⁰

CONCLUSIONS AND RECOMMENDATIONS

ERACS is effective in reducing pain after cesarean section and improving the quality of postoperative recovery. The ERACS method can be an alternative method to reduce postoperative morbidity.

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