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COMPARISON OF POST-CESAREAN SECTION PAIN MEDICATION WITH SPINAL ANESTHESIA METHOD ERACS AND WITHOUT ERACS

Boyke Marthin Simbolon[1], Thoriq Akrom[2], Muhammad Chairul[3]
[1,2,3]Universitas Prima Indonesia, Indonesia
Email: boykemarthins@yahoo.com, thoriqakrom@icloud.com, iyoel168@gmail.com

ABSTRACT

This study focused on the observation of pregnant women after surgery to determine the comparison of drugs and pain scales after surgery with the ERACS method and the method without ERACS. This study aims to determine the comparison of drugs and pain scales in patients after Sectio Caesarea surgery using the ERACS method and without ERACS. Currently, the Enhanced Recovery After Caesarian Surgery (ERACS) method as a perioperative program is popular, because it is considered to have a faster healing time and minimize pain so as to provide comfort to patients. This quantitative study was designed using a Cross-Sectional approach. The research sample was 40 respondents whose Pain Scale was measured using the Visual Analog Scale (VAS) measured with an observation sheet. Based on the results of statistical analysis. In the results of the Univariate test analysis on drug administration and pain scales of both VAS variables after (24 hours). It can be concluded that there is a difference between the amount of pain medication given and the pain scale with the ERACS method and the method without ERACS. The ERACS method has been shown to be more effective in reducing pain after Sectio Caesarea surgery and accelerating patient recovery compared to the method without ERACS. These findings support the use of the ERACS method as a standard of care to improve patient comfort and clinical efficiency.

KEYWORDS *Sectio Caesarean section, ERACS, without ERACS, pain scale, pain medication*

INTRODUCTION

Sectio Caesarea (SC) is a surgical procedure to deliver a fetus through an incision in the abdominal wall and uterine wall. *Sectio Caesarea* is certainly inseparable from the action of anesthesia (Solikhah et al., 2024). A cesarean section is one of the most common surgical procedures performed worldwide. The steady

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increase in frequency in recent years has not been fully clarified, but it could be due to the abundance of obstetric practices, a history of previous cesarean sections, or institutional, economic, social and cultural pressures (Brown et al., 2018).

A cesarean section causes moderate to severe postoperative pain as a result of uterine and somatic pain in the abdominal wall. But they had adverse side effects such as nausea, vomiting, sedation, pruritus, and a delayed risk of maternal respiratory depression, all of which reduced overall patient satisfaction. In addition, these opioid-related side effects can result in other problems for new mothers such as delayed early initiation of breastfeeding and impaired mother/baby bonding (Zipursky & Juurlink, 2021).

Pain after *Sectio Caesarea* surgery is a very important problem faced by patients. *Sectio Caesarea* will result in suffering for the patient therefore the management of postoperative pain should be aimed towards prevention and have different surgical recovery needs that include breastfeeding and newborn care, this can be disrupted if the analgesic given is not satisfactory. Therefore, 2 types of analgetic drugs are given, namely opioids and non-opioids, in patients after *Sectio Caesarean* section (Liu et al., 2020).

ERACS (*Enhanced Recovery After Caesarean Surgery)* is one of the spinal anesthesia methods with faster recovery referring to a series of actions before, during, and after *Sectio Caesarean surgery*. The use of ERACS has been shown to reduce the duration of a patient's medical hospitalization, reduce the likelihood of problems after surgery, and improve patient satisfaction and comfort as well as limit the administration of intraopioid doses, with routine and appropriate use of non-opioid-free analgesics, as well as follow-up therapy for women at high risk of pain (Firdaus et al., 2021).

The purpose of the ERACS anesthesia technique is to reduce the length of the patient's hospitalization. Patients who have had a spinal caesarean section are usually unable to move their body for 12 hours after surgery, but in surgery using ERACS, patients are advised to move a lot in less than 8 hours after surgery (Rusmawati et al., 2024). After that, the rehabilitation process is carried out gradually, starting with tilting the body to the right and left, sitting for 24 hours post-surgery, and then walking. With the ERACS procedure, patients can return home as soon as 24 hours after surgery (Sofjan & McCutchan, 2023).

The implementation of the ERACS program is expected to bring additional benefits such as improving the standard of care and reducing the burden and addiction of opioids. Prioritizing patient safety, ERACS strives to improve patient comfort while providing a superior customer experience (Patel & Zakowski, 2021).

Previous studies on Enhanced Recovery After Caesarean Surgery (ERACS) have shown various benefits in postoperative management. One study by (Sardimon et al., 2022) reported the implementation of ERACS in elective procedures, resulting in faster recovery and decreased postoperative pain. In addition, a study by (Utami & Rosa, 2023) conducted a bibliometric analysis of ERACS, highlighting increased cost efficiency and improved quality of care. Another study by (Agustina et al., 2024) compared ERACS with non-ERACS methods, finding higher effectiveness in early and exclusive breastfeeding initiation. These studies confirm the superiority of ERACS in improving postoperative outcomes for patients undergoing caesarean section.

This study aims to determine the comparison of postoperative pain medication *for Sectio Caesarean* section with spinal anesthesia method ERACS and without ERACS. Based on the descriptions above, the researcher raised the title "Comparison of Post-Sectio *Caesarean Operative Pain Medication* with Spinal Anesthesia Method Eracs and Without Eracs".

RESEARCH METHOD

Researcher Design

This research is a qualitative research with a comparative analytical observational method. With two observations at Sarah Medan General Hospital.

Research Time

The research time conducted by the researcher was in the period March - May 2024.

Research Venue

This research will be conducted at Sarah Medan General Hospital.

Population

The population in the study was a maternal population after *Sectio Caesarean section* using Spinal Anesthesia using the ERACS method and without ERACS.

Sample

The sample used in this study was pregnant women after *Sectio Caesarean section* using Spinal Anesthesia with the ERACS method and without ERACS at Sarah Medan General Hospital.

Sample Research Criteria

Inclusion Criteria

Pregnant women after *Sectio Caesarean* section use Spinal Anesthesia with the ERACS method and without ERACS and are willing to be a research sample.

Exclusion Criteria

- Pregnant women who died after giving birth.
- Pregnant women who experience postpartum complications.
- Postpartum pregnant women who answered the questionnaire incompletely.

Sample Size

For sampling, this study uses purposive sampling. Samples were taken from postoperative patients with *Sectio Caesarean section* using Spinal Anesthesia using the ERACS method and without ERACS that met the inclusion criteria. Samples are taken based on the slovin formula to determine the minimum limit of samples taken.

How Data is Collected

Sampling of the research will be carried out with medical records. Then the health worker will give the available result sheet, several examination results and pain scales regarding the pain medication given after *Sectio Caesarean* section using spinal anesthesia using the ERACS method and without ERACS from the frequency. After all respondents fill out the questionnaire and conduct an examination, the researcher will collect data using Microsoft Excel and continue the analysis test using SPSS.

Data Analysis Techniques

The data that has been collected has been analyzed using two analysis techniques, namely univariate analysis.

RESULT AND DISCUSSION

Description of the Research Location

This research was conducted in August which is located at Sarah Medan General Hospital located on Jalan Baja Raya No.10, Petisah Tengah, Medan Petisah District, Medan City, North Sumatra.

Research Results and Discussion

Characteristics Responden

Based on the results of the study, the characteristics of the respondents included age, pain scale in ERACS and without ERACS, comparison of drugs between ERCAS and without ERACS and comparison of drug groups. This study was analyzed using a descriptive retrospective analysis to determine the comparison of drugs and normality tests.

Age Classification

Table 1. Classification of ERACS Pregnant Women Based on Age Range

Age	Sum	Percentage (%)
20-25	1	5
26-30	9	45
31-36	10	50
Total	20	100

Table 2. Classification of Pregnant Women Without ERACS Based on Age Range

Age	Sum	Percentage (%)
20-25	3	15
26-30	7	35
31-35	7	35
36-40	3	15
Total	20	100

Table 1 shows that the age range of pregnant women with ERACS most occurs in the age range of 31 years to 36 years with a total of 10 patients (50%) and the least occurs in the age range of 20 years to 25 years

with a total of 1 patient (5%) in the August 2024 period at the RSU. SARAH MEDAN.

Table 2 shows that the age range of pregnant women without ERACS most occurred in the age range of 26 years to 35 years with a total of 7 patients each (35%) and the least occurred in the age range of 20 years to 25 years and at the age of 36-40 years with a total of 3 patients each (15%) in the August 2024 period at the RSU. SARAH MEDAN.

Classification Of Pain Scales Based On Time Per 6 Hours

Table 3. Classification of Pain Scale Based on Time Per 6 Hours on ERACS

ERACS Operations							
Time	**No Pain**	**%**	**Pain Light**	**%**	**Keep**	**%**	**Sum**
6 Jam	1	5	12	60	7	35	20
12 Jam	3	15	14	70	3	15	20
18 Jam	1	5	19	95	0	0	20
24 Jam	4	20	15	75	1	5	20

Table 4. Classification of Pain Scale Based on Time Per 6 Hours at No ERACS

Operation Without ERACS							
Time	**No Pain**	**%**	**Pain Light**	**%**	**Keep**	**%**	**Sum**
6 Jam	0	0	11	55	9	45	20
12 Jam	0	0	5	25	15	75	20
18 Jam	0	0	5	25	15	75	20
24 Jam	0	0	11	55	9	45	20

Table 3 shows that Per 6 hours after surgery in pregnant women with ERACS without experiencing the most pain occurred at the 24th hour with a total of 4 patients (20%) and at least in the range of the 6th hour and the 18th hour with the number of 1 patient each (5%), the most mild pain scale was at

the 18th hour with a total of 19 patients (95%) and the least mild pain was in the 6th hour with a total of 12 patients (60%) and on the moderate pain scale the most was at the 6th hour with a total of 7 patients (35%) in the August 2024 period at the RSU. SARAH MEDAN.

Table 4 shows that as of 6 hours after surgery, pregnant women without ERACS with mild pain scales are most at the 6th hour and 24th hour with 11 patients (55%) respectively and on the moderate pain scale the most are at the 12th hour and 18th hour with 15 patients (75%) each in the August 2024 period at the RSU. SARAH MEDAN.

Classification of Types of Drugs After Surgery in Pregnant Women

Table 5. Names of Pain Medications in ERACS.

Type of Drug	Sum	Percentage (%)
Fioramol	17	33,3
Flesh and depth	14	27,5
Trollac	7	13,7
Fiotram	13	25,5
Total	51	100

Table 6. Names of Pain Medications in No ERACS

Type of Drug	Sum	Percentage (%)
Paramol	12	16,7

Sanmol	10	13,9
Flesh and depth	2	2,8
Fetish	14	19,4
Trollac	14	19,4
Tramadol	4	5,6
Fiotram	1	1,4
Analtra	15	20,8
Total	72	100

Table 5 shows the type of drug given to pregnant women using the ERACS method after surgery, the most in the type of drug Fioramol (Paracetamol) with a total of 17 (33.3%) and the least type of drug given to patients is Trolac (NSaid) in the period of August 2024 at the RSU. SARAH MEDAN.

Table 6 shows that the types of drugs given to pregnant women using the method without ERACS after surgery were the most in the type of Analtram (Weak Opioid) with a total of 15 (33.3%) and the least type of drug given to patients was Fiotram (Weak Opioid) amounting to 1 (1.4%) and Etofion (NSAID) amounting to 2 (2.8%) in the August 2024 period at the RSU. SARAH MEDAN.

Classification of Types of Drug Classes

Table 7. Types of ERACS Drug Classes

Drug Class	Sum	Percentage (%)
Paracetamol	17	34
NSAID	20	40
PCT + Opioid Lemah	13	26
Total	50	100

Table 8. Types of Drug Classes Without ERACS

Drug Class	Sum	Percentage (%)
Paracetamol	18	31
NSAID	20	34,5
Weak Opioids	4	6,9
PCT + Opioid Lemah	16	27,6
Total	58	100

Table 7 shows that the drug class given to pregnant women using the ERACS method after surgery is the most in the N-SAID drug group with a total of 20 (40%) and the least drug group given to patients is PCT + Weak Opioids with a total of 16 (26%) in the August 2024 period at the RSU. SARAH MEDAN.

Table 8 shows that the drug class given to pregnant women using the method without ERACS after surgery is the most in the NSAID drug group with a total of 20 (34.5%) and the least drug group given to patients is Weak Opioid with a total of 4 (6.9%) in the August 2024 period at the RSU. SARAH MEDAN.

Cross-tabulation of pain levels in the type of surgery

Table 9. Cross-tabulation of Pain Levels in ERACS and Non-ERACS Surgery

Pain Scale	ERACS		Without ERACS		Total	
	f	%	F	%	f	%
No Pain	1	2,5%	0	0%	1	2,5%
Mild Pain	19	47,5%	4	10%	23	57,5 %
Keep	0	0%	16	40%	16	40%
Total	20	50%	20	50%	40	100 %

Table 9 Based on the results of the analysis, the pain scale of respondents with ERACS had a mild pain level of 19 respondents (47.5%) and no pain, namely 1 respondent (2.5%). Meanwhile, in the group with the method without ERACS, moderate pain was obtained as many as 16 respondents (40%), mild pain 4 respondents (10%).

Discussion

Characteristics Responden

The results of the study on the characteristics of respondents based on age with ERACS surgery showed that the majority of respondents were classified as adults aged 31-36 years as many as 10 respondents (50%) and at the age of 26-30 years

As many as 9 respondents (45%) and at the age of 20-25 years as many as 1 respondent (5%). Meanwhile, without ERACS, the majority of respondents were in the early adult and adult groups, namely 26-30 years and 31-35 years old with 7 respondents each (35%), followed by 20-25 years old and 36-40 years old with 3 respondents each (15%). (Table 4.1,4.2)

This result is in line with research conducted by Ainiyah at the hospital. H.A Zaky Djunaid Pekalongan showed that the majority of respondents were classified as early adulthood, namely 27 respondents (51.9%), followed by late adolescence as many as 13 respondents (25%) and late adulthood as many as 12 respondents (23.1%) (Ainiyah & Ratnawati, 2024).

One of the factors that affects the risk level of a mother during pregnancy and childbirth is her age at that time. The ideal age range for a woman to get pregnant and give birth is between 20-35 years. Psychologically, the age of less than 20 is immature regarding the moral and emotional responsibility of motherhood. While at the age of more than 35 years there is generally a decrease in the elasticity of the pelvic floor, surrounding muscles, and reproductive organs, degenerative diseases such as hypertension can sometimes result in pre-eclampsia. Women in the age range of 35 are more likely to get tired easily if they have a normal childbirth (Safitri et al., 2020).

Healthy reproductive age is the safe age for a woman to get pregnant and give birth, which is 20-35 years old. Intact skin in healthy young adults is a good barrier against mechanical trauma and infection, allowing wounds to heal faster. As we age, changes that occur in the skin are the frequency of use of epidermal cells,

inflammatory response to injury, sensory perception, mechanical protection, and skin barrier function (Ainiyah & Ratnawati, 2024).

Overview of pain levels in ERACS and without ERACS methods

The results of the research at the hospital. SARAH Medan showed that the majority of respondents with the ERACS method experienced mild pain at the 18th hour with the number of respondents experiencing 19 patients (95%) and in moderate pain at the 6th hour after surgery with the number of patients 7 (35%) but in the next 24 hours the moderate pain condition almost disappeared. Meanwhile, the pain scale per 6 hours after surgery with the method without ERACS showed that many patients experienced mild pain and moderate pain, where mild pain in the first 6 hours amounted to 11 patients (55%) and moderate pain was 15 patients at the 12th and 18th hours respectively

a total of 15 patients (75%) (Table 3,4). Based on this, the researcher can conclude that there is a comparison of the pain scale of the two different methods, where the ERACS method is the latest method with faster healing and at 24 hours after surgery, moderate pain and mild pain will disappear over time with the medication given. In contrast to without ERACS, this can be seen from the results of the study of moderate pain in the ERACS method and without ERACS, there is a difference in 24 hours after surgery.

The ERACS system allows patients to move their body faster, which is about two hours after a cesarean section with minimal pain. The ERACS method provides comfort for pregnant women who immediately give birth by SC, which is allowed to fast for only 6 hours. At 2 hours before birth, pregnant women are allowed to consume 200ml of sugary drinks with 500g of glucose. The purpose of drinking water with sugar content is to keep the mother energized during childbirth, reduce anxiety levels in pregnant women and provide a more comfortable feeling. Meanwhile, in SC surgery without ERACS, mothers are advised to fast for 8 hours without eating and sugary drinks with 500g of glucose. This causes pregnant women to feel anxious, lack of energy and less comfortable. Based on this, it was found that the SC method of ERACS provides a more comfortable feeling to the mother than the SC method without ERACS (Mustofa et al., 2019).

Comparison of Drug Types

The results of the study showed that the type of drug given to the ERACS method Fioramol was the type of drug that was given the most to patients with a total of 17 (33.3%) and followed by Etofion as much as 14 (27.5%) and the least drug given was Trolac drug as much as 7 (13.7%) in this ERACS method there were several types of drugs given where from the results of the study there were 5 types of drugs, namely Fioramol, Etofion, Trolac and Fiotram. Meanwhile, the types of drugs in the method without ERACS are more than those in the ERACS method, which is a total of 9 types of drugs including Fioramol, Paramol, Sanmol, Etofion, Fetic, Trolac, Tramadol, Fiotram and Analtram in the most types of drugs in the study is Analtram amounting to 15 (20.8%) and followed by

Fetic and Trolac each amounted to 14 (19.4) and the least type of drug was Phytoram only 1 (1.4%). (Table 5,6).

This is also in line with Karyadi where the drugs used to reduce pain contain fewer opioids than without ERACS and the ERACS method can improve recovery faster than the method without ERACS. But it comes with some side effects including pruritus, nausea, and respiratory depression. Evidence suggests that about

50% of women experience mild respiratory depression In addition, multimodal perioperative pain management is also used in the ERACS method including various techniques and medications that need to be used to reduce pain, improve recovery, and reduce opioid use (Prayanangga & Nilasari, 2022).

In the ERACS method, the most used drug group is in the NSAID drug group with a total of 20 (40%), followed by Paracetamol with a total of 17 (34%), in the lowest group is in Weak Opioids with a total of 13 (26%). Meanwhile, the drugs in the method without ERACS are more numerous, where NSAIDs and Weak Opioids amount to 20 (34.5%) and Paracetamol amounts to 18 (31%). In these results, the researcher assumes that the type of method and type of drug as well as drug class have an effect on the pain scale, where the method without ERACS is more painful and takes longer to heal than using the ERACS method.

This study is in line with the Qoniatul research at H.A Zaky Djunaid Hospital, Pekalongan, the ERACS method has a lower level of pain when compared to mothers who give birth with the method without ERACS. In SC surgery with the ERACS method, the type of anesthesia used is spinal anesthesia by combining anesthesia drugs with additional anti-pain drugs. With minimal pain, mothers can mobilize early so that it can help mothers to overcome pain in postoperative wounds (Ainiyah & Ratnawati, 2024); (Nisak et al., 2023).

The group of pain medications given to patients after *Sectio Caesarean section* with the ERACS method and without ERACS is divided into 4 groups

anti-pain drugs where the paracetamol group consists of 3 types of drugs Fioramil, Sanmol and Paramol. Fioramol contains paracetamol 1g/100ml, Sanmol and Paramol contain paracetamol 500mg. The NSAID class consists of 3 types of drugs: Etofion, Fetic and Trolac. Etofion has a content of Ketrolac Trometamol 30mg/ml. Fetic contains 100mg of Ketoprofen while Trolac contains 30mg of ketrolac. In the PCT+Weak Opioid group, it consists of 2 types of drugs, namely fiotram and analtram have the same content, namely tramadol 37.5mg and paracetamol 325mg. Meanwhile, weak opioids have only 1 type, namely tramadol which contains tramadol HCI 50mg.

According to the researcher's assumption from the results of the research that has been carried out, it is found that the majority of ERACS methods are with mild pain intensity and in the method without ERACS the majority are with moderate pain intensity. The difference between the ERACS and non-ERACS methods from the type of anesthesia used is different, if the ERACS method uses anesthesia with a very small needle combined with anesthesia drugs with additional pain medications such as morphine or fentanyl. Meanwhile, the method without ERACS uses anesthesia with a larger needle size than the ERACS method and uses different doses of painkillers.

Pain Scale Versus ERACS Method and Without ERACS

From the results of this study, it was found that mothers who gave birth with the ERACS method had a lighter level of pain than mothers who gave birth with the method without ERACS. In Table 9, it can be concluded that the pain scale in the ERACS method felt the most mild pain in 19 patients (47.5%) out of 20 ERACS patients and in the absence of ERACS the most patients felt in moderate pain scale as many as 16 patients (40%) and in the mild pain scale only amounted to 4 patients (10%) out of 20 pregnant women patients.

In SC surgery with the ERACS method, the type of anesthesia used is spinal anesthesia by combining anesthesia drugs with additional pain medications such as morphine or fentanyl. Fentanyl is a synthetic opioid agonist derivating phenylpiperidine. As an analgesic, fentanyl has 75 to 125 times the strength of other analgesics. Single dose

Fentanyl given intravenously has a faster onset of about 3-5 minutes for onset and 30-60 minutes for the duration of its work.

The Ministry of Health (KEMENKES) stated that the ERACS delivery method has been proven to be more effective in minimizing postoperative pain. Some of the things that can affect pain reduction after surgery are the administration of NSAIDs and scheduled Non-Opioid pain relievers, both taken orally and through intravenous fluids. Then the administration of small doses of *long-acting* pain medication to the spine during surgery and the injection of anesthesia during surgery is carried out with a small spinal needle. The pain of SC ERACS patients is shorter and milder, which is at least 6 hours, the patient is allowed to move, while in conventional SC, it takes 12-24 hours for the patient not to move and after that it moves slowly. ERACS uses intravenous fluid therapy and a combination of anti-nausea drugs and in conventional SC postoperatively the patient feels nausea due to the effects of anesthesia. Skin tissue damage in ERACS patients can be minimized, while in conventional SC, the wound scar is wide incision.

CONCLUSION

Based on the results of the research that has been carried out comparing postoperative pain medications *of Sectio Caesarea* with ERACS and without ERACS at SARAH Hospital Medan in the August period, the following can be concluded.

a. The results of this study showed that there was a comparison of postoperative pain medication *for Sectio Caesarean* section of the ERACS method with no ERACS with the number of drugs given, where ERACS was less than without ERACS.
b. The patient's pain level after surgery uses the ERACS method. It is milder than what patients feel during childbirth without ERACS where most mothers feel moderate pain after observation for 24 hours after surgery.

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