



Post-C-Section Pain Management with the Enhanced Recovery after Surgery and Multimodal Analgesia Methods: A Case Series

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ABSTRACT

Introduction: This study aims to present the management of postoperative c-section pain using multimodal analgesia. **Case presentation:** There were two patients who received multimodal analgesia as a treatment for postoperative C-section pain. The first patient, a woman 15 years old, will undergo a Caesarean section operation with indications G1P0A0, term pregnancy, and cephalopelvic disproportion (CPD). The second patient, a 23-year-old woman, will undergo a Caesarean section operation with indications G1P0A0, term pregnancy, and 1x umbilical cord. Physical examination of both patients showed vital signs within normal limits. Laboratory evaluation within normal limits. Both patients were included in the ASA II category. The anesthetic method used intraoperatively was subarachnoid block with hyperbaric bupivacaine 0.5% 10 mg and morphine 50 mcg. Lidocaine infiltration injection is performed intraoperatively in combination with the following; lidocaine 2% (3 ampoules), dexamethasone 4 mg, ketorolac 60 mg, and morphine 4000 mcg dissolved in aquabides into 20 ml subcutaneously. **Conclusion:** A multimodal analgesia is an appropriate approach for postoperative pain management in patients undergoing cesarean section.

Keywords: acute pain, analgesic, C-section, lidocaine, postoperative pain.

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Introduction

Post-cesarean section pain management aims to provide patient comfort, inhibit nociceptive impulses, and blunt the neuroendocrine response to pain.¹⁻³ This aims to accelerate the return of physiological function and allow early mobilization so as to prevent the risk of postpartum thromboembolism. The enhanced recovery after surgery (ERAS) method was first developed in the 1990s – 2000s and focused on recovery after colorectal surgery.¹ Since 2012, the National Institute for Health and Care Excellence (NICE) has provided guidelines for implementing the ERAS protocol in their obstetric units.^{2,4,5}

Giving a combination of non-opioid analgesia with scheduled doses has been shown to reduce post-cesarean section pain without the use of opioids.^{6,7} This can reduce the use and side effects of opioids in women undergoing cesarean section and breastfed infants. This study aims to present the management of postoperative c-section pain using multimodal analgesia.

Case Presentation

In this study, there were two patients who received multimodal analgesia as a postoperative C-section pain management. The first patient, a woman 15 years old, will undergo a Caesarean section operation with indications G1P0A0, term pregnancy, and cephalopelvic disproportion (CPD). The second patient, a 23-year-old woman, will undergo a Caesarean section operation with indications G1P0A0, term pregnancy, and 1-time late post partum. Physical examination of both patients showed vital signs within normal limits. Laboratory evaluation within normal limits. Both patients were included in the ASA II category.

The patient fasted 8 hours before surgery. Premedication was given in the form of intravenous dexamethasone 0.1-0.2 mg/kg BW, 4 mg intravenous ondansetron, and 1 gram of intravenous paracetamol drip for 15-30 minutes. The anesthetic method used intraoperatively was subarachnoid block with hyperbaric bupivacaine 0.5% 10 mg and morphine 50 mcg. Lidocaine infiltration injection is performed intraoperatively in combination with the following; lidocaine 2% (3 ampoules), dexamethasone 4 mg, ketorolac 60 mg, and morphine 4000 mcg dissolved in aquabides into 20 ml subcutaneously.

Postoperative management includes 2L of oxygen, observation of vital signs and fluid balance for 24 hours, 14 drops of ringer lactate intravenously, paracetamol tablets 1000 mg/6 hours, ibuprofen tablets 400 mg/6 hours, injection of ondansetron intravenously 4 mg/8 hours and right-left oblique mobilization as early as possible. Early mobilization began in the



treatment room. Early mobilization can improve pulmonary tissue function and oxygenation, increase insulin resistance, and reduce the risk of thromboembolism, as well as shorten the duration of hospitalization. Catheter removal is done no later than 6 hours after the procedure to reduce the risk of urinary tract infections. The results of observations of postoperative pain are presented in Table 1.

Table 1. Results of observations of postoperative pain.

Patient 1					
Hour	NRS		Vital sign		
	Rest	Move	Blood pressure (mmHg)	Pulse rate/minute	Respiratory rate/minute
0	0/10	0/10	120/70	74	18
4	0/10	0/10	110/70	72	18
8	0/10	0/10	110/80	82	16
12	1/10	1/10	120/70	80	18
24	1/10	1/10	120/80	84	18
Patient 2					
0	0/10	0/10	110/70	78	18
4	0/10	0/10	115/69	86	16
8	0/10	0/10	120/80	84	16
12	0/10	1/10	120/80	72	16
24	1/10	1/10	110/70	74	18

Discussion

Intraoperative anesthesia in C -Sections are generally performed under neuraxial anesthesia (spinal technique, epidural, or spinal-epidural combination).⁸⁻¹⁰ This technique allows the administration of neuralgia drugs for postoperative analgesia. Neuraxial administration of opioids is currently the gold standard for providing effective post-cesarean section analgesia. Results were reported in studies comparing the administration of intrathecal opioids with PCA opioids or intramuscular opioids after cesarean section.⁹⁻¹²

Neuraxial opioids also provide post-cesarean section analgesia that is superior to non-neuraxial regional techniques.¹³ Multimodal analgesia balances the effectiveness of analgesia



drugs, maximizing efficacy while minimizing side effects. The rationale for multimodal analgesia is optimizing the additive or synergistic effects of several types of analgesia or different drug classes while reducing the dose and minimizing the side effects of drugs with different mechanisms of action.^{14,15} Although the efficacy of analgesia drugs is the main goal, secondary goals that are no less important include minimizing drug transfer to breast milk and reducing maternal side effects that can interfere with breast milk or the breastfeeding process.

In this study, a combination of drugs was used in the management of postoperative pain, namely local anesthetics (lidocaine), steroids (dexamethasone), non-steroidal anti-inflammatories (ketorolac and paracetamol), and opioids (morphine). Several studies have shown superior analgesia when given orally at scheduled intervals compared to when needed.^{16,17} The most recent recommendations from ACOG are supported by several studies recommending the use of opioids only as rescue analgesia and not as drugs administered routinely.^{5,18} Giving a combination of non-opioid analgesia with scheduled doses has been shown to reduce post-cesarean section pain without the use of opioids. This can reduce the use and side effects of opioids in women undergoing cesarean sections and babies who are breastfed.

Good analgesia promotes successful breastfeeding and mother-infant bonding, but analgesia drugs have the potential to be introduced to the baby through breast milk. Postoperative analgesia drugs for lactating women are administered by considering the following general principles. Opioid-sparing multimodal analgesia is preferred because more opioids are secreted into breast milk and can cause neonatal sedation.¹⁹ It is advisable to use the lowest effective dose and administer intrathecal versus intravenous opioids whenever possible.

Lidocaine produces nerve blocks more rapidly and more intensely and lasts longer in duration than procaine. Unlike procaine, lidocaine is effective topically and is very potent as an anti-cardiac dysrhythmia drug. For this reason, lidocaine is used as the standard against which other anesthetics are compared. Lidocaine can cause a reversible block of conduction of central and peripheral nerve impulses after regional anesthesia or peripheral nerve block. Lidocaine works by preventing the transmission of nerve impulses by blocking the flow of sodium ions through sodium channels during resting action potentials.^{20,21}



Conclusion

A multimodal analgesia is an appropriate approach for the management of postoperative pain in patients undergoing cesarean section.

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