



Postoperative Pain Management Total Hysterectomy with Intravenous Patient-Controlled Analgesia Oxycodone: A Case Series

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ABSTRACT

Introduction: Patient-controlled analgesia (PCA) with intravenous opioids is a more efficient method to achieve better postoperative analgesia. This study aims to describe the use of patient-control analgesia in post-hysterectomy patients. **Case presentation:** There were two total hysterectomy postoperative patients who used PCA as postoperative pain management. Postoperatively, the first patient has given paracetamol tablets 500 mg every 6 hours orally, a santagesic 1 gram every 8 hours intravenously, and oxycodone intravenously with PCA. The second patient was given paracetamol tab 1 gram every 8 hours intravenously, analgesics 1 gram every 8 hours intravenously, and PCA intravenous oxycodone. Both patients felt the effectiveness of PCA as postoperative pain management. **Conclusion:** Multimodal analgesia or balanced analgesia is one method of managing acute postoperative pain. The success of using PCA is very much determined by the knowledge of the patient and the pain management team on PCA tools. Oxycodone provides fairly good analgesia with minimal side effects. **Keywords:** intravenous opioid, patient-controlled analgesia, total hysterectomy, oxycodone

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Introduction

Pain is the most common side effect of surgery, and postoperative pain is so severe that four out of five patients require analgesics after a surgical procedure.^{1,2} Adequate analgesia is essential, not only to prevent unnecessary suffering but also to hasten recovery and improve patient outcomes after surgery. Ample evidence suggests that severe pain and inadequate acute pain management not only prolong hospital stay and delays discharge after surgery but is also a risk factor for chronic postoperative pain.^{3,4} Severe postoperative pain has a significant impact on the short and long-term quality of life, as well as the health care costs for the community. Therefore a proactive approach to pain control should be taken in all patients. Oxycodone, which has a strong analgesic effect and mild side effects, is not only active on μ receptors but also on κ receptors that are associated with visceral pain.^{5,6} Therefore, oxycodone is beneficial for postoperative pain in hysterectomy surgery. The use of oxycodone may be associated with a lower incidence of nausea, itching, and hallucinations when compared with morphine.

Patient-controlled analgesia (PCA) is defined as the administration of analgesics, especially intravenous (IV) opioids, according to patient needs and controlled directly by the patient. This technique is based on the use of a microprocessor on the PCA that is programmed to deliver a number of doses of the opioid when the patient presses the demand button. Provide better titration and increased responsibility for analgesic requirements. Patient-controlled analgesia (PCA) with intravenous opioids is a more efficient method to achieve better postoperative analgesia.⁷⁻⁹ This study aims to describe the use of patient-controlled analgesia in post-hysterectomy patients.

Case Presentation

The first case

A woman, 41 years old, was admitted to the hospital with a diagnosis of uterine myoma. This patient was planned for a total hysterectomy. Based on the history, the patient complained of a lump in the lower abdomen 1 year ago. Menstruation is regular, but menstrual blood becomes heavier. The patient has a history of hypertension. Physical examination showed BP 160/80 mmHg, pulse rate 125x/minute, respiratory rate 20x/minute, and afebrile. Evaluation of investigations within normal limits. The patient is in the ASA II category. Preoperative preparation in the form of premedication dexamethasone 10 mg intravenous 1 hour before



surgery. The anesthetic technique used is subarachnoid block. The anesthetic block target is as high as T6.

Postoperatively, the patient was given paracetamol tab 500 mg every 6 hours orally, analgesic 1 gram every 8 hours intravenously, and intravenous oxycodone with a patient-controlled analgesia program (concentration 1 mg/ml, loading dose 5 mg, demand dose 1.5 mg, lockout interval 7 minute). Pain intensity was observed at rest and with movement using a numerical rating scale (NRS). The results of pain measurements based on NRS and vital signs are presented in Table 1.

Table 1. Follow-up pain scale and vital signs postoperatively for the first patient.

Hours to	NRS		Vital Signs		
	Rest	Move	BP	N	P
4	5/10	7/10	130/80	92	20
8	4/10	6/10	140/80	67	14
12	4/10	5/10	150/80	62	18
24	3/10	4/10	140/80	80	19
48	1/10	1/10	140/80	83	18
PCA evaluation: Dose attempt: 11 Dose given: 10 Given: 20 Residual volume: 28.9 ml.					

The second case

A woman, 45 years old, was admitted to the hospital with a diagnosis of a right ovarian cyst and intramural uterine myoma. This patient was planned for a total hysterectomy and bilateral salpingo-oophorectomy. Based on the history, the patient complained of a lump in the lower abdomen 1 year ago, accompanied by an increase in the amount of blood that comes out during menstruation. The patient has a history of hypertension. Physical examination showed blood pressure 170/90 mmHg, pulse rate 86x/minute, respiratory rate 20x/minute, and afebrile. Evaluation of investigations within normal limits. The patient is in the ASA II category.



Preoperative preparation in the form of premedication dexamethasone 10 mg intravenous 1 hour before surgery. The anesthetic technique used is subarachnoid block. The anesthetic block target is as high as T6.

Postoperatively, the patient was given paracetamol tab 1 gram every 8 hours intravenously, analgesic 1 gram every 8 hours intravenously, and oxycodone intravenously with a patient-controlled analgesia program (concentration 1 mg/ml, loading dose 5 mg, demand dose 1.5 mg, lockout interval 7 minute). Pain intensity was observed at rest and with movement using a numerical rating scale (NRS). The results of pain measurements based on NRS and vital signs are presented in Table 2.

Table 2. Follow-up pain scale and vital signs postoperatively for the second patient.

Hours to	NRS		Vital Signs		
	Rest	Move	TD	PR	RR
4	2/10	2/10	130/80	75	19
8	3/10	3/10	170/100	68	20
12	3/10	4/10	160/90	58	21
24	2/10	3/10	130/90	70	18
48	1/10	2/10	150/90	67	18
PCA evaluation: Dose attempt: 14 Dose given: 8 Given: 17 Residual volume: 31.6 ml.					

Discussion

Total hysterectomy is one of the major operations in the field of obstetrics and gynecology and has moderate postoperative pain intensity. The accuracy of drug selection and drug administration techniques in postoperative pain management greatly determine patient satisfaction. Multimodal analgesia, which combines analgesic drugs from different classes and uses, different analgesic techniques, is recommended in the acute treatment of postoperative



pain because of its synergistic effect to maximize analgesics at lower doses, thereby reducing the risk of drug side effects.¹⁰⁻¹²

In the first case, the patient received a combination of dexamethasone, santagesic, paracetamol, and oxycodone drugs. It can be seen that the combination of these drugs is quite effective in reducing postoperative pain, especially at 24 and 48 hours, although at 4 hours, the patient still feels moderate pain at rest and severe pain when moving. This is because the patient is still afraid to squeeze the dose (PCA), so oxycodone is never accepted. On the third day, the PCA was stopped because the patient had no pain. This indicates that a dose of 1.5 mg is effective enough to relieve pain with a lockout interval of 7 minutes.

In the second case, dexamethasone 10 mg was given 30 minutes before surgery, and after surgery, paracetamol was given infusion every 8 hours, analgesics every 8 hours, and oxycodone with PCA. With good education from doctors about the use of PCA, the effect of reducing pain response is significant. Based on observations, postoperative pain is felt in the first 12 hours after surgery because, after the 12 hours, PCA is almost never again squeezed. Previous studies have shown that oxycodone is more potent than morphine for treating visceral pain.¹³⁻¹⁴ Side effects from the use of oxycodone in the form of itching, nausea - vomiting, and sedation were not found in both cases. This is in line with previous studies, which stated that oxycodone caused fewer side effects than morphine.¹³⁻¹⁴

Conclusion

Multimodal analgesia or balanced analgesia is a method of managing acute postoperative pain. The success of using PCA is very much determined by the knowledge of the patient and the pain management team on PCA tools. Oxycodone provides fairly good analgesia with minimal side effects.

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