

# Postoperative Pain Management in Obese Patients



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## Introduction

Postoperative pain management is the most important step in the process of returning to normal life after surgery for patients. Patient satisfaction increases and hospitalization time decreases with a good pain control. The presence of postoperative pain limits the mobilization of the patients and therefore causes serious complications such as surgical site infection, pulmonary infections and pulmonary thromboembolism. The number of these complications increases in obese patients and leads to worse outcomes. If postoperative pain control is insufficient in obese patients, serious complications such as hypertension, tachycardia, myocardial ischemia, pneumonia, hypoventilation, surgical site infection and chronic pain may develop and as a result of this, morbidity and mortality rates may increase. In this mini review, we aimed to present approaches and treatment options for postoperative pain management in obese patients.

## Postoperative Pain Management

The main purpose of postoperative pain treatment in obese patients is; to provide effective analgesia by minimizing drug side effects without causing especially respiratory complications. Various multimodal analgesia options are used for this purpose. These are non-opioid analgesics, systemic opioids, epidural analgesia, peripheral nerve blocks and surgical site infusions [1].

## Non-Opioid Analgesics

Multimodal analgesia is a technique that aims to reduce the dose and side effects of drugs when used individually and provides pain treatment as a result of additive or synergistic

effect caused by the use of two or more different analgesics together [2]. Nonsteroidal anti-inflammatory drugs (NSAIDs) are frequently used in multimodal analgesia. NSAIDs act by inhibiting the cyclooxygenase enzyme. It is an effective drug group in postoperative pain; however, it should be used with caution in selected patients because of platelet dysfunction, renal and gastrointestinal side effects [3]. When used in combination with regional anesthesia techniques, they provide effective analgesia without any serious side effects [1]. NSAIDs also have anti-inflammatory and antipyretic effects.

Paracetamol is commonly used in the treatment of postoperative pain [4]. It has opioid sparing effect and low side effect profile [5]. It has been shown in studies to reduce the need for opioids when using alone or in combination [4]. Plasma concentration levels in obese and non-obese patients were unchanged in studies, therefore the dose of paracetamol should be given according to ideal body weight [6].

## Systemic Opioids

Systemic opioids are among the most effective analgesic agents. It is used as a rescue drug in cases where postoperative pain cannot be treated by other methods [1]. They have side effects such as respiratory depression, sedation, constipation and postoperative nausea and vomiting (PONV). They should be used with titration because of the high risk of respiratory depression and hypoventilation in obese patients [7]. In addition, the use of opioids as iv patient-controlled analgesia instead of oral, intramuscular or intravenous (iv) single dose

administration has been shown to increase patient satisfaction, decrease pulmonary complications, and provide more effective analgesia [8].

### Epidural Analgesia

Epidural analgesia is a widely used method and it is known that provides more effective analgesia than other techniques in the studies [9]. In addition to providing good pain management, epidural analgesia technique has been shown to reduce postoperative pulmonary complications and have beneficial effects on pulmonary functions [10]. Other benefits of epidural analgesia are less drug using in postoperative period, less PONV and early mobilization [11]. However, it should be kept in mind that the epidural technique has complications such as nerve injury, epidural hematoma or hypotension, pruritus and urinary retention [12].

### Peripheral Nerve Blocks

Peripheral nerve blocks performed with local anesthetics, which are an important part of multimodal analgesia, are frequently used in both anesthesia and postoperative pain management of obese patients [1]. Due to increased fat tissue in obese patients, landmarks cannot be palpated or the image quality of ultrasonography decreases, so peripheral nerve blocks may fail. However, it has been shown that the success rate in peripheral nerve blocks of obese and non-obese patients is not very different depending on the experience of anesthesiologist [13]. Especially continuous peripheral nerve blocks provide a good pain control, reduce the need for opioids, and prevent side effects such as sedation and PONV caused by opioids [14].

### Surgical Site Infusions

Local anesthetic infiltration to the surgical site can be performed, before the incision or before the closure of the skin in the postoperative period. Although its alone administration does not provide analgesic benefit, its efficacy in multimodal analgesia has been proven in studies. Studies have shown that local anesthetic infiltration becomes better postoperative pain, increases patient satisfaction, decreases PONV and opioid consumption [8].

### Adjuvant Drugs

Adjuvant drugs are used to reduce the need for opioids in the multimodal analgesia technique. For this purpose, clonidine,

dexmedetomidine, magnesium and pregabalin are adjuvant drugs used in postoperative pain management of obese patients [1]

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