



## Cross-Sectional Study on Postoperative Pain Management Efficacy in Obstetric Anaesthesia

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### Abstract

Postoperative pain treatment in obstetric anesthesia is essential to postpartum women's health and recovery. Early mobilization, breastfeeding, and mother-infant bonding are all facilitated by effective pain management. The surgical areas where patients have the most severe postoperative pain are obstetrics and gynecology. The majority of current postoperative pain management strategies depend on systemic non-opioid and opioid analgesics. These are then added with peripheral nerve blockades, regional analgesia techniques, and, in certain situations, the administration of additional painkilling medications. However, due to many physiological, psychological, and systemic aspects, obtaining good pain management is still difficult. The purpose of this study is to evaluate the effectiveness of postoperative pain management techniques in obstetric anesthesia, will highlight major obstacles, and will make suggestions for enhancing pain relief and patient satisfaction.

### 1. Introduction

The well-being of babies and mothers in the early postpartum phase can be greatly impacted by inadequate postoperative pain management in obstetric patients. Inadequate pain management can also have a detrimental effect on a baby's regular development by interfering with nursing behaviours like breastfeeding. Inadequate pain management can significantly affect the patient's ability to function and quality of life. Over time it may have additional effects on the patient's health. Childbirth and obstetric surgery, like other procedures, result in complex biphasic damage that has significant implications for pain management. In this article, the importance of postoperative pain management and its challenges will be discussed. Secondary qualitative data analysis and thematic data analysis will also be there.

#### 1.1 Importance of postoperative pain management Efficacy in obstetric Anaesthesia

Postoperative pain management reduces the adverse effects of immediate postsurgical pain and facilitates the patient's smooth return to normal activity. Reducing the patient's suffering is the primary goal of pain management instead of reducing their level of pain. This situation highlights the principle that pain can be related to both the significance and the intensity of suffering. A

patient's suffering when they have chronic pain. It may be primarily caused by a constant sense of hopelessness and feeling helpless. High pain scores indicate this. This suggests that a higher priority should be placed on the patient's satisfaction and well-being in the postoperative setting [1]. A delayed recovery is the result of inadequate management of post-operative pain. Patients with inadequately managed pain commonly show an inability to move around. It leads to a delayed return of activity and reduced ability for recovery.

#### 1.2 Challenges in Postoperative Pain Management

Despite significant advancements in the knowledge of pain physiology, causes of pain, and the pharmacology of strong analgesics, postoperative pain management continues to be a serious medical issue. Inadequate management of postoperative pain affects postoperative recovery in many ways. It affects perioperative morbidity and hospital stays' length. Although there have been some improvements in the management of postoperative pain, postoperative pain management is still not a satisfactory method in many locations [2]. This does not suggest that simple treatments involve less pain while major operations are always linked with very acute pain. According to patient surveys, analgesia is not always effective after frequent and routine procedures while patients give major operations positive ratings. Expectations from the patients may be one of the causes



of these differences. Major surgical patients typically expect and tolerate pain.

### 1.3 Objectives

- To evaluate patients' satisfaction with the postoperative management.
- To determine the efficacy of postoperative pain management on obstetrics anesthesia.
- To analyse the impact of postoperative pain management works on obstetrics anesthesia.
- To determine the challenges of postoperative pain management works on obstetrics anesthesia.

## 2. Literature Review

### 2.1 Overview of Postoperative Pain Management

One of the most important steps toward enhancing one's health and well-being can involve surgery. However various types of discomfort and distress are frequently experienced along the path to recovery. To guarantee a quicker and more effective recovery, it is critical to understand the importance of managing postoperative pain. There is more to managing post-operative pain than comfort. Maintaining control over pain following surgery is important to a speedy recovery and improved quality of life [3]. Effective pain treatment has been found to help avoid problems, enhance mobility, lessen stress, improve sleep quality, and even stimulate early movement.

Patients in the obstetrics and gynecology departments rate more highly on pain than patients in any other surgical department, which is evidence of this. High amounts of discomfort have also been recorded after gynecological procedures. Particularly, uterine open procedures are linked to terrible discomfort. The latter is similar to pain ratings following spondylodesis. Significant postoperative discomfort is also linked to seemingly simple laparoscopic procedures like adenectomies along with complex procedures performed on the female breast.

Many of the medications used to treat postoperative pain make their way into breast milk, where they may have an impact on the newborn as well [4]. A cesarean section is the procedure that lactating women have most frequently. Furthermore, nursing mothers could have to have many painful medical procedures performed on them. As such, it is imperative to administer sufficient analgesia. In addition to being safe and effective, the analgesic plan should have few side effects that might prevent the woman from nursing and caring for her child. There has

yet to be an ideal method for managing postoperative pain following cesarean delivery.

### 2.2 Advancements of Postoperative Pain Management

After surgery, it is critical to manage pain well to avoid adverse effects. Both peripherally and centrally released mediators and neuronal sensitization might result from acute pain symptoms. New pharmacological medicines and multimodal analgesics have been developed for managing postoperative pain as a result of advances in the awareness of molecular causes [5]. Extended-release epidural morphine and analgesic adjuvants like capsaicin, ketamine, gabapentin, pregabalin, dexmetomidine, and tapentadol are among the latest pharmaceutical drugs used to treat postoperative pain. Another intriguing direction for research is the more recent postoperative patientcontrolled analgesia (PCA) in forms like intranasal, local, transdermal, and pulmonary.

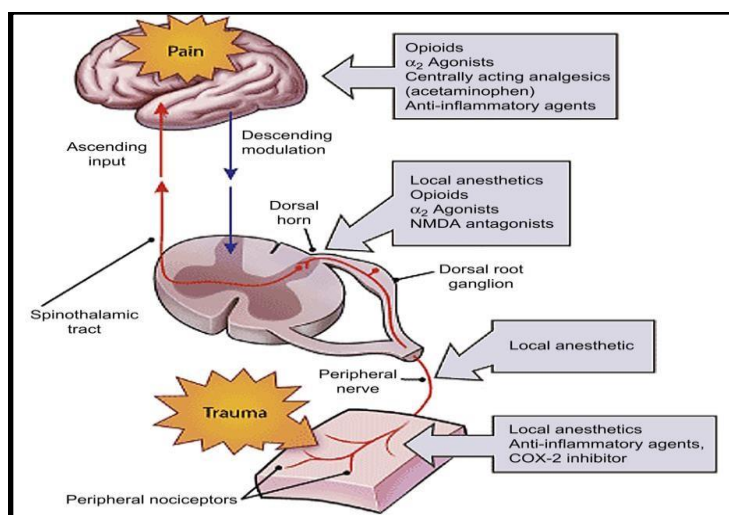


Figure 2.2.1: Multimodal pain treatment

### Molecular mechanisms

Understanding the latest developments in central sensitization is vital as it affects post-surgical and posttraumatic pain. Primary mediators such as prostaglandins, 5 hydroxytryptamine, leukotrienes, and bradykinins are released during peripheral sensitization. At the site of injury, these main mediators promote the production of peptides such as cholecystinin and calcitonin gene-related protein (CGRP). Peripheral sensitization is also associated with histamine-induced vasodilatation, nerve growth factor release, and reflex sympathetic efferent norepinephrine release. New pharmacological medicines and multimodal analgesia have been developed as a result of advances in the study of the molecular mechanisms behind pain [7]. The significant developments in nonpharmacological pain management are helpful for medical professionals managing postoperative pain.

### Advances in pharmaceutical products

Non-steroidal anti-inflammatory drugs administered intravenously may help reduce patients' feelings of nausea and drowsiness [8]. Three stages of double-blind placebo-controlled clinical trials were the first to demonstrate the effectiveness of fentanyl ITS in managing severe postoperative pain. The current emphasis of postoperative pain study and research is to identify a drug that can be administered locally to

provide long-term pain management at the surgery site. DepoDur™, a new single-dose extended-release epidural morphine (EREM) medication, maybe an initial step toward achieving this analgesic objective.

### 2.3 Benefits of Postoperative Pain Management

#### Less stress

The body experiences distress as a result of an increase in blood pressure. This causes a significant level of stress when experiencing pain. An effective pain management treatment strategy can help reduce stress. Patients can experience some discomfort as they try to improve their mobility and range of motion. This would enable people to exercise more, which would improve their mood [9].

#### Controlled Comfort

Appropriate pain management methods aid in both comfort and pain control. Experts in pain treatment would suggest gradually resuming different activities that promote pain recovery. Before people feel uncomfortable, they will gradually notice a difference in the intensity of the discomfort. For many individuals, control is vital to effective pain treatment [10].

#### Better standard of living

Having a decent quality of life is related to managing the pain. Controlling pain has a beneficial impact on recovery. Managing pain can lower blood pressure, heart



rate, and stress. The quality of life is impacted by mental abilities, inspirational emotional, social, and physical elements of pain. For improving well-being and increasing functional capacity, pain treatment may relieve worry and mental

suffering. It also helps people to happily carry out their responsibilities to their families, friends, and jobs [11].

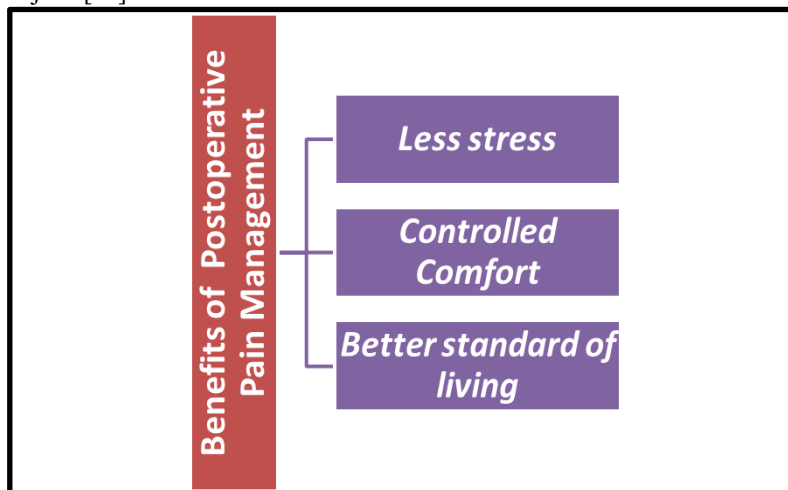


Figure 2.3.1: Benefits of Postoperative Pain Management

## 2.4 Gap in Literature

The lack of published research on a subject or its absence is referred to as a "literature gap". There are also some gaps in this chapter. Challenges and limitations of postoperative management are not discussed here. To fill these gaps, further investigation is needed. Correctly determining the gaps in the literature improves the development of a full investigation, which raises the standard. Reading the chapter through and making the necessary revisions takes time. **3. Methods**

### 3.1 Data Collection Method

The procedure that can collect and arrange data from multiple sources is known as the data-collecting method. Primary and secondary data collecting techniques are the two different categories of data collection procedures. Researchers use secondary qualitative data methods for data collection. Researchers use the secondary data collection method from medical-based data, medical-related journals, and papers published after the year of 2019. Secondary data offer an additional viewpoint that increases the study's credibility and makes it trustworthy for more investigation.

### 3.2 Data Analysis Method

The methodology used for data analysis is the most important part of the study. The process of examining gathered data using methods appropriate for the topic of study is known as data analysis. The data analysis technique determines responses to the particular study objectives. In this study, the researcher uses thematic data

analysis. The results of the study will be improved by the collection of secondary data from medical-related data and articles.

### 3.3 Inclusion Criteria

Here the researcher will gather information from the articles which are published after 2019. The articles will be written in simple English language. Only this type of article will be taken.

### 3.4 Exclusion Criteria

The researcher will not take any information from the articles which are published before 2019. Without English, no other language's article will not be taken.

## 4. Thematic Analysis

### 4.1 Theme 1: Relationship between the type, intensity, and use of opioids during childbirth in patients with and without opioid use disorder

The complicated process of pain is impacted by the social, psychological, and biological aspects of the individual. There are several components of pain, such as the sensory-related, psychological, and affective aspects.



They can all have various effects on how a patient feels about the type and degree of their suffering. The 11-point (0–10) numeric rating scale (NRS) is now used exclusively to determine pain severity in postpartum clinical pain assessments [12]. Additionally, postpartum analgesia treatments are still based on an all-in-one philosophy, frequently treating medium to serious pain with opioids irrespective of the type of pain. Individualized postpartum pain care is lacking, and this could have a differential impact on patient-specific populations with more complex pain experiences, like those with opioid use disorder (OUD). Severe post-traumatic pain is common in OUD patients, probably due to hyperalgesia and the poor efficacy of opioids when combined with other systemic opioids like buprenorphine [12].

#### 4.2 Theme 2: Evaluation of the use of postoperative nausea and vomiting prophylaxis following cesarean delivery

Patients frequently experience postoperative nausea and vomiting (PONV), which can be disturbing [13]. Patients have reported feeling less satisfied with this typical side effect of anesthesia and surgery. It can even be more upsetting to them than their post-operative discomfort. In 80% of cesarean deliveries, regional anesthetic is used, but general anesthesia is used in 20% of cases. Adverse consequences of regional anesthesia during cesarean delivery include arterial hypotension, headaches following dural puncture, inadequate anesthetic, back pain, and psychological distress. Post-operative nausea and vomiting (PONV) is still a common occurrence even with the advancements in anesthetic and surgical methods [14]. As the sympathetic

nervous system is blocked during spinal anesthesia during a cesarean section, arterial hypotension is the primary cause of risk for nausea and vomiting.

#### 4.3 Theme 3: Challenges of postoperative pain management efficacy on obstetric anesthesia

##### Physiological Considerations

Hormonal changes after childbirth can impact how pain is perceived and how analgesics are processed. Significant healing processes that the body goes through, such as uterine involution, might hurt even more.

##### Psychological and Emotional Factors

Postpartum depression or anxiety might make pain management more difficult. They may worsen the feeling of pain. Either too much sedation or insufficient pain control may hamper bonding and breastfeeding, which is why effective pain management is so important.

##### Healthcare System and Provider Challenges

The quality of care may suffer in some healthcare settings due to a lack of access to specialized pain management services. Pain outcomes for treatment may be impacted by differences in the obstetric anesthetic training and experience of the providers. Although it can take some time, it is essential to make sure patients are aware of their pain management options and any possible side effects.

##### Communication

To evaluate patients' pain levels and modify treatment programs appropriately, clear communication between medical professionals and patients is necessary. Effective pain management depends on making sure patients are understood and that their concerns about their pain are taken seriously.

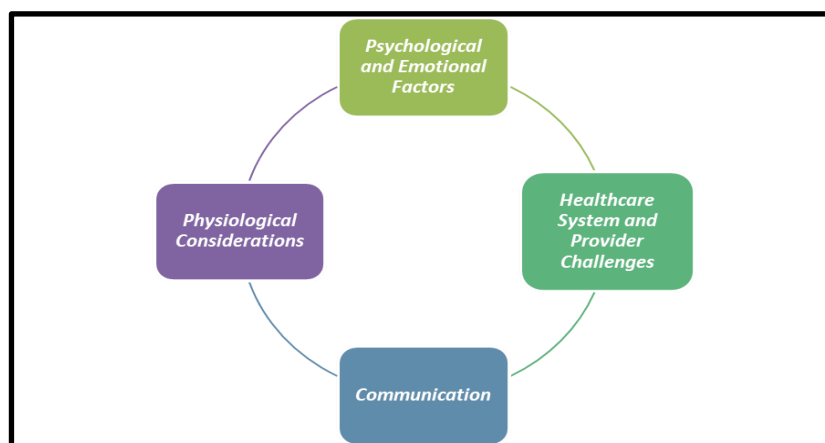


Figure 4.3.1: Challenges associated with postoperative pain management efficacy on obstetric anesthesia



## 5. Discussion

Acute and chronic pain are the two categories into which postoperative pain, also known as post-surgical pain (PSP), is subdivided. Acute pain is felt within the first seven days following surgery. Surgery-induced acute damage results in both emotional reactions of fear and nervousness and the sensitivity of peripheral pathways. Healthcare providers have a major duty to prevent and manage PSP, which is an established element of perioperative management. Evidence suggests that PSP is frequently mismanaged. Up to 40% of patients report experiencing acute pain that affects their ability to recover. Modern anesthesiology has evolved from the intraoperative to the perioperative phases of practice. One of the most essential components of providing proper post-surgical treatment for patients is postoperative pain management. However, there are some challenges present in postoperative pain management. Proper education and awareness of this management can reduce the obstacles.

## 6. Conclusion and Recommendations

### 6.1 Conclusion

The study showed that different pain treatment strategies had differing degrees of efficacy. In general, multimodal analgesia techniques had more favorable outcomes than single-modality interventions. Effective communication between healthcare practitioners and patients, along with individual pain treatment programs, has been associated with high levels of patient satisfaction. Patients expressed more satisfaction and improved pain control after receiving thorough information about their available pain management choices. Techniques for managing pain had to be carefully considered to prevent negative impacts on care. Healthcare professionals can improve the success of pain treatment for postpartum women. They solve the issues that have been identified and put the suggested techniques into practice. This will result in better outcomes and increased satisfaction.

### 6.2 Recommendations

Obstetrics and gynaecology also require significant improvements in postoperative pain treatment. Creating and putting into practice established pain management procedures assists in ensuring postpartum women receive reliable and efficient pain relief. The standard of care can be raised by giving medical professionals more education and training in obstetric anesthesia and pain management. The requirements of postpartum women can be met by using a multidisciplinary strategy involving obstetricians, anesthesiologists, pain specialists, and mental health specialists [15]. Patient satisfaction and pain results from

therapy can be improved by providing patients with better information about available pain management alternatives.

### 6.3 Research Limitations

The research paper has many limitations. Here only secondary data analysis is done. Primary data analysis is not done due to monetary issues and lack of time. Here, postoperative pain management efficacy in obstetric anaesthesia is discussed only. Postoperative pain management in another field of medicine is not discussed here.

### 6.4 Future Scope

The researcher can use this paper for their future work. The secondary data analysis will help them to gather more information about this topic. They will apply postoperative pain management study to another field of medicine with the help of this paper.

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