

Use of Liposomal Bupivacaine (Exparel) for Reduction in the Use of Postoperative Narcotics in an Obese Patient Undergoing Modified Radical Mastectomy

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Abstract

Background: Obesity, particularly in the setting of comorbid disease, presents a unique challenge. Clinicians are pursuing areas of multimodal analgesia in an effort to minimize narcotic dosages. Post-operatively, their pain management can be even more challenging, which includes appropriate use of narcotics in a patient that has a high probability of sleep apnea. **Aim:** To show that the use of liposomal bupivacaine (Exparel) can provide effective post-operative pain relief and decrease the use of post-operative narcotics. **Case:** We report on a 62 years old female with a history of hypertension, obesity and a greater than a 40 pack year history of smoking who presented for a modified radical mastectomy with a lymph node dissection. At the end of the case, the patient's wound was infiltrated with both free bupivacaine and Exparel that minimized her need for post-operative narcotics. **Conclusion:** We believe that the use of extended release local anesthetics should be considered when there is a need to reduce the use of post-operative narcotics.

Keywords

Liposomal Bupivacaine, Exparel, Narcotic Sparing

1. Introduction

Obese patients are known to present challenges to the anesthesia care team. Obese patients have a higher inci-

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dence of difficult intubation and difficult ventilation. Additionally, a significant percentage can have undiagnosed sleep apnea and may suffer from hypoxia and hypercarbia in the post-operative period. Compounding obesity with significant chronic obstructed pulmonary disease (COPD) makes these cases very high risk for post-operative complications. The use of narcotics to provide analgesia in the post-operative period after modified radical mastectomy is very common and entails even a greater risk in these patients. After a modified radical mastectomy, the wound is usually infiltrated with bupivacaine, which provides 4 - 6 hours of pain relief. We are reporting on a 62 years old female with a history of hypertension, obesity and a greater than a 40 pack year history of smoking who presented for a modified radical mastectomy.

2. Case Presentation

2.1. Preoperative

A 62 years old female presented for a radical mastectomy and lymph node dissection. She was classified as an ASA 3 with and past history of general anesthesia without complications and no family history of problems with anesthesia. Past medical history included hypertension (HTN), a 40 plus pack year history of smoking: chronic obstructed pulmonary disease (COPD) and significant obesity: her height was 61 inches, weight was 88 kg with a BMI of 37. She reported no drug allergies and was on HCTZ,, Amlodipine, Fosinopril, Metoprolol for her HTN, Simvastatin for high cholesterol, Asastrozole for her breast cancer and on aspirin a day. Her airway had a normal appearance and was classified as a Mallampati 2. Physical exam was significant for her obesity and very distant bilateral breath sounds. A discussion was had with the surgeon preoperatively with respect to the use of long acting bupivacaine and to minimize the use of narcotic postoperative, secondary to her weight and long smoking history.

2.2. Intraoperative

Anesthesia was induced via IV with 2 mg of midazolam, 150 mcg of fentanyl and 200 mg of propofol. 53 mg of rocuronium was used for muscle relaxation. The patient was easily intubated with a 7.0 cuffed tube and the cuff was sealed at 25 cm H₂O. The tube was secure at 21 cm and the patient had bilateral breath sounds. The case proceeded uneventfully for the next few hrs. Anesthesia was maintained with sevoflurane. Patient was also given 30 mg of ketorolac and 1000 mg of IV acetaminophen near the end of the case. Prior to skin closure the wound was infiltrated with approximately 40 ml of 0.25% bupivacaine. A 20 ml vile of Exparel was diluted to 40 ml and infiltrated in the same area as the regular bupivacaine. Muscle relaxation at the end of the case was reversed with neostigmine and glycopyrrolate and the patient was extubated uneventfully.

2.3. Postoperative Course

Patient had no pain in the recovery room. The patient did not receive any narcotic in the PACU and was discharged to a regular floor. The patient highest pain score while in the hospital was 2 on a scale of 0 - 10. Patient did not receive any addition pain medications during her hospital stay. She was discharge home 30 hrs post-operatively in little to no pain. A follow up phone call to the patient revealed that she had little pain for over 60 hours. After 60 hours her pain level was 2 out of 10 and did not require any narcotics. Additionally, the patient did not complain of nausea nor have postoperative vomiting.

3. Discussion

Patients with significant obesity can be challenging. A significant percentage can have undiagnosed sleep apnea. Additionally, patients with long standing smoking history have a high probability of COPD. Either of these co-existing diseases can have postoperative respiratory difficulties. Risk factors for difficult postoperative pain management are listed in [Table 1](#). The risks of these difficulties are potentiated by the use of narcotics postoperatively. The combination of COPD and obesity give this patient a significant risk of a significant postoperative respiratory event making their postoperative pain management a significant challenge. There is a need for a multi-modal approach to the control of postoperative pain and reduce the use of narcotics which has been the mainstay of treatment of post-operative pain [1] [2]. The overall objective would be to minimize or not use narcotic for postoperative pain in patients with significant risk factors for difficult post-operative pain management.

Table 1. Risk factors for difficult postoperative pain management.

<i>Risk factor</i>
Obesity
COPD
Preoperative chronic pain
History of narcotic abuse
History of alcohol use/abuse
Significant history of nausea or vomiting with narcotics
Stroke with significant residual
Dementia
Frail elderly patients
Extremely difficult airway

Exparel, liposomal bupivacaine, is a sustained released bupivacaine. It is FDA approved for infiltration into the wound. Infiltration with regular bupivacaine only gives 4 - 6 hours of pain relief, whereas, Exparel has been noted to last up to 96 hrs [3]. We like to think of this slow release bupivacaine as an infusion, and therefore give regular bupivacaine as a bolus. You can give up to 50% (133 mg of regular bupivacaine) of the total bupivacaine in an Exparel vial (266 mg of bupivacaine). The use of Exparel in the wound reduced or eliminated the need for post-op opioid consumption in this patient. This is the first report of the use of Exparel in an obese patient with a significant smoking history to reduce the use of post-operative narcotics. The use of liposomal bupivacaine significantly reduced the use of post-operative narcotics in this patient. We believe that the use of extended release local anesthetics should be considered when there is a need to reduce the use of post-operative narcotics.

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