

Perioperative Management of a Patient Receiving Suboxone®

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Abstract

The use of Suboxone® in the treatment of opioid addiction and/or chronic pain is gaining popularity, and these patients are presenting for surgery more frequently than ever before. The perioperative case management of these patients is complex, especially when they present for elective outpatient surgical procedures.^{1,3,4,5} This case study evaluated the techniques utilized for analgesia during the preoperative, intraoperative, and postoperative period for a patient undergoing a total laparoscopic hysterectomy. Analysis of this case and a review of complementary research articles, revealed that perioperative continuation of suboxone therapy paired with administration of a multimodal analgesia technique, resulted in higher patient satisfaction ratings, a decreased length of hospital stay, and a reduced incidence of chronic pain develop.^{1,2,3,4,5} These findings are limited to outpatient surgical procedures when postoperative pain is expected to be mild/moderate thus, it is imperative that the anesthesia plan be tailored to the individual patient and surgical procedure after analysis of the risks vs benefits profile.



Purpose

- To explore the perioperative case management of a patient on Suboxone® therapy who presents to the hospital for an elective outpatient surgical procedure

Introduction

- Suboxone® is a sublingual film combination of buprenorphine and naloxone prescribed for treatment of opioid use disorder (OUD) and chronic pain.¹
- >2.2 million people are prescribed a buprenorphine containing medication and >145 million tablets are sold in the USA each year.^{2,4}
- The pharmacodynamics of Suboxone® provide significant analgesic potency (~30x morphine) while reducing the incidence of abuse.^{1,3}
- Use of an evidence-based pain management technique is important for this patient population because inadequate analgesia can lead to an exacerbation of a chronic pain state or relapse of an OUD.



Figure 1: Receptors involved in pain transmission.⁴

Pharmacokinetics and Pharmacodynamics

- Buprenorphine displays high affinity binding with partial agonist effects at mu opioid receptors as well as antagonist effects at kappa receptors.^{1,2,3,4}
- Partial agonism of mu opioid receptors creates a ceiling effect for analgesia and high affinity binding with slow dissociation from the receptor interferes with the effectiveness of subsequently administered full mu receptor agonists.^{1,2,3,4}

Case Study

Preadesthetic Evaluation

- 31-year-old, 77.1 kg, 157.5 cm female presented for a Davinci-assisted total laparoscopic hysterectomy
- PMH: bipolar 1 disorder, schizoaffective disorder, borderline personality disorder, anxiety, depression, fibromyalgia, migraine, asthma, osteoarthritis, GERD, carpal tunnel syndrome, smoker (4.5 pack-years), medical marijuana use (2 joints/day)
- PSH: D&C first trimester (2008), diagnostic & surgical arthroscopy left knee ACL debridement and partial medial meniscectomy (2013)
- Medications: Suboxone 8-2mg, albuterol, clonazepam, ibuprofen, melatonin, ondansetron, pregabalin, risperidone, cariprazine. (None taken morning of surgery)
- Anesthetic plan: GETA + quadratus lumborum type 2 bilateral PNB
- Preoperative medications: acetaminophen 1 g PO, celecoxib 400 mg PO, gabapentin 600 mg PO, scopolamine 1 mg patch, glycopyrrolate 0.1 mg IV, famotidine 20 mg IV, dexmedetomidine 20 mcg IV, cefotetan 2 g IV
- VS: BP=99/75, HR=88, RR=23, SpO₂=98%, T=97.7°F

Intraoperative Management

- Standard monitors applied, preoxygenation
- IV induction: 2% lidocaine 100 mg, ketamine 40 mg, esmolol 20 mg, propofol 100 mg, rocuronium 50 mg, magnesium sulfate 2 g
- DL x1, grade I view, 7.0 ETT passed easily → +EtCO₂ & BBS
- Post-induction: bilateral quadratus lumborum type 2 peripheral nerve blocks were performed using 40 mL of 0.5% ropivacaine and 150 mcg buprenorphine on each side
- Maintenance: lidocaine 2 mg/kg/hr, dexmedetomidine 0.2 mcg/kg/hr, esmolol 10 mg/kg/min
- Reversal: glycopyrrolate 0.6 mg, neostigmine 3 mg
- Extubated awake, SpTV 350 mL, RR 17, SpO₂ 100%, EtCO₂ 44

Postoperative Management

- VAS pain reported from 4/10 to 8/10 while in PACU
- Postoperative Medications: tramadol 50 mg PO x1, oxycodone 5 mg PO x1
- Time of arrival in PACU/Time of Discharge/Total PACU time: 1024 / 1245 / 141 minutes (2 hrs, 21 min)
- VAS pain at discharge: 6/10 (Patient reported baseline pain level as 6/10 due to preexisting chronic pain condition)

What worked Well?

- Use of adjunct medications/multimodal technique

What could have been done differently?

- Patient education prior to the day of surgery

Discussion (Preoperative)

- Interruption of Suboxone therapy can result in relapse and poor analgesia.^{1,2}
- Early collaborative communication between the prescribing physician, surgeon, and anesthetist.^{1,2,3,4,5}
- Clear communication to the patient about the anesthetic plan for pain management in order to set realistic expectations for postoperative pain levels.⁴
- Administration of non-steroidal anti-inflammatory drugs (NSAIDs), acetaminophen, celecoxib, pregabalin, and/or gabapentin.^{2,4}
- Regional anesthesia, if applicable to the surgical procedure.^{1,2,3,4,5}

Discussion (Intraoperative)

- Use of regional anesthesia if not performed preoperatively.^{1,2,3,4,5}
- Use of non-opioid adjunct medications such as ketamine, dexmedetomidine, lidocaine, and esmolol.^{1,2,3,4}
- The use of full mu receptor agonists is acceptable; however, they should be used for breakthrough pain after the administration of regional anesthesia and adjunct medications.^{2,4}

Discussion (Postoperative)

- Use of regional anesthesia if not already provided.^{1,2,3,4,5}
- Administration of NSAIDs, COX-2 inhibitors, acetaminophen, and full mu receptor agonists.^{1,2,3,4}
- The use of full mu agonists is safe; however, they should only be administered once regional anesthesia and adjunct medications have failed to provide adequate analgesia.^{2,4}
- Administration of second daily dose of Suboxone but consider reducing the dose if inadequate analgesia persists.²
- Ensure to provide education to the patient about continuing their Suboxone therapy as prescribed upon discharge.^{1,2,3}
- Encourage patient to follow up with prescribing physician after being discharged.⁴

Conclusion

- Selection of an appropriate patient.^{1,3,4}
- Perioperative continuation of Suboxone as prescribed.^{1,2,3,4,5}
- A team approach with clear communication is imperative.^{1,2,3,4,5}
- Multimodal approach that provides inhibition of various receptors.⁴
- Conservative use of opioids as rescue therapy.^{2,4}
- Appropriate patient education postoperatively.^{1,2,3}
- Uncontrolled acute postoperative pain is associated with the development of chronic pain, longer hospital admission, and poor patient satisfaction.³

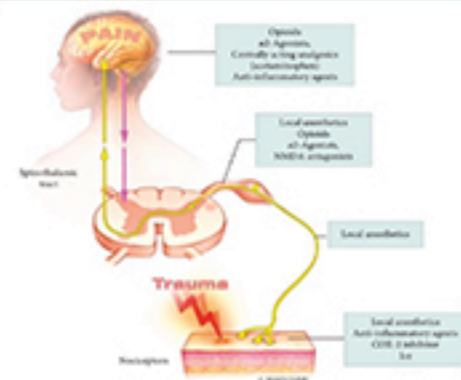


Figure 2: Sites of action along Spinothalamic tract.⁴

References

- Goel A, Azegovic S, Lamba R, et al. The perioperative patient on buprenorphine: a systematic review of perioperative management strategies and patient outcomes. *Can J Anaesth*. 2019;66(7):209-217. doi:10.1007/s12630-019-1255-3.
- Goel A, Azegovic S, Weissman JS, et al. Perioperative Pain and Addiction: Interdisciplinary Network (PAIN) clinical practice advisory for perioperative management of buprenorphine: Results of a modified Delphi process. *Br J Anaesth*. 2019;123(2):e333-e342. doi:10.1016/j.bja.2019.03.044.
- Jones AB, Kaye AD, Uman RD. Buprenorphine formulations: Clinical best practice strategies recommendations for perioperative management of patients undergoing surgical or interventional pain procedures. *Pain Physician*. 2018;21(1):e1-e12. PMID:2957325.
- Moran SH, Bailey CL, Khouri N. Perioperative management of a patient taking Suboxone® at the time of ambulatory surgery. *Case Rep Anesthesiol*. 2020;2020:5628348. doi:10.1155/2020/5628348.
- Morita D, Thomas K, Johnson J, Scott B, Cortina S, Berger L. Continuation of buprenorphine to facilitate postoperative pain management for patients on buprenorphine opioid agonist therapy. *Pain Physician*. 2020;23(2):E163-e174. PMID:32214293.