

## INTRODUCTION

- In this case series, we evaluate the use of a local anesthetic delivery device in preventing opioid abuse relapse in patients with a history of opioid addiction that underwent elective foot and ankle surgery.

## LITERATURE REVIEW

- Opioids are commonly used for post-operative pain control following elective foot and ankle surgery.
- According to the CDC in 2011, opioid-related deaths exceed deaths involving heroin and cocaine combined. The overdose death rate nearly quadrupled between 2008 and 1999.
- With the increase in opioid abuse, a multimodal approach should be utilized.
- Continuous infusion of local anesthetic through a delivery device has been found to provide longer analgesia than a local block with a single shot technique (Wang et al. 2015).
- Such devices provide the benefit of continuous infusion with an adjustable rate of long-acting anesthetic without systemic absorption.
- In this case series, we investigate the use of a local anesthetic delivery device in patients with a history of opioid dependence who underwent elective foot and ankle surgery in an effort to minimize prescription of narcotics post-operatively.

## METHODS

- 3 patients were identified as high risk for opioid abuse based on their reported history of opioid addiction. Additionally, a state-mandated drug monitoring program report was performed to assess pattern of opioid prescriptions prior to surgery.
- All 3 patients underwent elective foot and ankle surgery, including 1<sup>st</sup> metatarsophalangeal joint fusion, lateral ankle stabilization with calcaneal osteotomy, and coalition resection with subtalar joint fusion.
- A local anesthetic delivery device was used with a catheter inserted at the surgical site in all cases at a rate of 2 mL/hour to deliver ropivacaine post-operatively in all 3 patients.
- The patients had the option of increasing the rate of delivery as needed post-operatively.
- The device was removed during the first post-operative visit.
- Post-operative need for narcotics was monitored utilizing the state-mandated drug monitoring reporting system.

## CASE SERIES

- Case 1**
  - Patient #1 underwent 1st Metatarsophalangeal arthrodesis and was managed with Schedule III Tramadol post-operatively.
- Case 2**
  - Patient #2 underwent lateral ankle ligament repair, calcaneal osteotomy, and peroneal tendon repair.
  - This patient was under the treatment of an Addiction Medicine Specialist prior to surgery with Schedule II Percocet 5/325.
  - Percocet 5/325 was used post-operatively with the monitoring of the addiction medicine specialist. No increased requirement of narcotics was required post-operatively.
- Case 3**
  - Patient #3 underwent a gastrocnemius recession, resection of a posterior subtalar facet coalition, subtalar arthrodesis, and Kidner procedure.
  - This patient was under the treatment of an addiction medicine specialist prior to the surgery and through the postoperative recovery period.
  - Schedule II Percocet 5/325 was used for post-operative pain with the approval and monitoring of the addiction medicine specialist. No increased requirement of narcotics was required post-operatively.



Figure 1

- None of the patients experienced surgical site infection or bleeding complications related to the anesthetic delivery device.
- All of the patients completed their postoperative recovery period without a relapse into addiction.
- 1 patient only required tramadol in the post-operative period.
- 2 patients were under the care of an addiction medicine specialist in the perioperative period and did not have a difference in need for Percocet 5/325 postoperatively compared to pre-operatively.
- No patients experienced readmission or presentation to the emergency room in the postoperative period for pain control.

## DISCUSSION

- Prescription of opioids is a common practice in the management of post-operative pain for elective foot and ankle surgery.
- Presently, there are no well-defined clinical recommendations regarding adjunctive pain management modalities for surgical patients at high risk of developing or relapsing into narcotic abuse.
- Local anesthetic delivery device inserted subcutaneously into the surgical site with Ropivacaine at a rate of 2 mL/hour can administer pain relief. The rate of flow can be adjusted by the patient as needed.
- No surgical complications, such as infection or bleeding, related to the device were reported in our patients.
- Patients who required narcotics peri-operatively were monitored by an addiction medicine specialist. No patients had increased requirement of narcotics following surgery.
- The result of our case series suggests that local anesthetic delivery devices may be a useful adjunct for patients with history of opioid addiction undergoing elective foot and ankle surgery.
- Pain control is an important consideration of patient care and the treating physicians should be aware of the potential negative side effects of the medications that they are prescribing.
- To date, there are no well-defined clinical recommendations regarding a pain management regimen for high risk patients with narcotic use.
- The authors recommend preoperative consultation with an Addiction medicine specialist in such cases whenever possible.

## CONCLUSION

- Adjunctive methods of analgesia, such as local anesthetic delivery devices, should be considered in patients with history of narcotic abuse undergoing elective foot and ankle surgery.
- The risk of surgical site complications related to the anesthetic delivery device is minimal.

## REFERENCES

- Morone NE, Weiner DK. Pain as the fifth vital sign: exposing the vital need for pain education. *Clin Ther.* 2013;35(11):1728-1732. doi:10.1016/j.clinthera.2013.10.001.
- CDC. Wide-ranging online data for epidemiologic research (WONDER). CDC, National Center for Health Statistics, Atlanta, GA; 2015
- Wang, J, Liu, GT, Mayo, HG, Joshi, GP. Pain management for elective foot and ankle surgery: a systematic review of randomized controlled trials. *J Foot Ankle Surg.* 2015;54(4):625-35
- Florence CS, Zhou C, Luo F, Xu L. The Economic Burden of Prescription Opioid Overdose, Abuse, and Dependence in the United States, 2013. *Med Care.* 2016;54(10):901-906.