



Appropriate Pain Management Following Open Muscle Biopsy

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Introduction

- Opiate usage and abuse is a rising concern in the United States.
- In the last 20 years in Colorado alone, opiate prescribing has increased four-fold, with 25% of patients using opiates for unintended purposes, and 29% using opiate prescriptions that are not their own.¹
- The risk of developing a persistent opiate use disorder after a surgical procedure is the same regardless if the procedure was considered minor or major.²
- Over two-thirds of post-operative opiate prescriptions went unused regardless of procedure type.³
- Recently, a study from Indiana University looked at the use of non-opiate pain medications versus opiates following uteroscopic procedures and found no significant difference in pain control between the two groups.⁴
- We proposed to retrospectively study pain control, including the use of opiates, following open muscle biopsy.

Project Design/Methods

- At our institution, we perform open muscle biopsies in an out-patient surgical center using local anesthetic.
- The muscles typically biopsied are the vastus lateralis, biceps, or deltoid.
- To study pain control post muscle biopsy, we retrospectively interviewed patients post biopsy either in person or via phone. The interviews were done 1-3 weeks post biopsy.
- Stage 1:**
 - These patients received a prescription for 3 pills of Oxycodone/acetaminophen (Norco) 5/325mg post biopsy.
 - During the post biopsy phone interview, each patient was asked to rate his/her pain level post biopsy as either mild, moderate, or severe.
 - Additional questions asked included number of opiates tablets used post biopsy and if alternative over-the-counter pain medications were used.
 - A total of 19 patients responded to our interviews between January 2018 and September 2018.
- Stage 2:**
 - Muscle biopsy patients were no longer given a prescription for opiates post biopsy.
 - Instead, the patients were given detailed instructions to manage post biopsy pain using alternating doses of over-the-counter Acetaminophen and Non-steroidal anti-inflammatory drugs (NSAIDs such as Ibuprofen).
 - During the post biopsy phone interview, each patient was asked to rate his/her pain level post biopsy as either mild, moderate, or severe.
 - Additionally each patient was asked if he/she felt his/her pain was adequately controlled on this regimen or if additional (i.e. stronger) pain medication was needed post biopsy.
 - A total of 18 patients responded to our interviews between September 2018 and January 2019.

Results

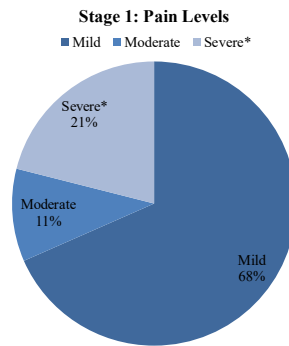


Figure 1: Pain levels post muscle biopsy for patients in Stage 1 (opiate). N=19
*Two patients in severe group had resolution of severe pain levels with removal of compression bandage

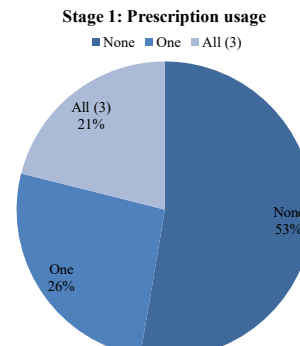


Figure 2: Number of opiate pills used in Stage 1 (zero to three pills). N=19

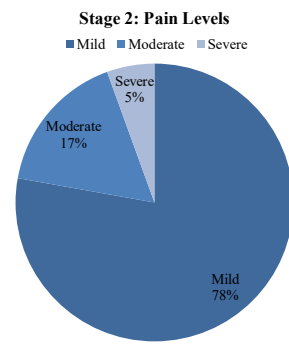


Figure 3: Pain levels post muscle biopsy for patients in Stage 2 (non-opiate). N=18

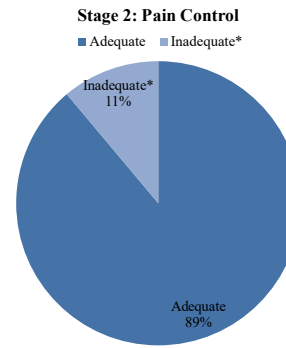


Figure 4: Percentage of patients in Stage 2 who felt non-opiates were adequate versus inadequate
*One patient in inadequate pain control group felt that Tramadol would have been sufficient instead of Oxycodone-Acetaminophen

Discussion/Conclusions

- Health care providers should be making every possible effort to eliminate the unnecessary prescription of opiates.
- In the first stage of our study, we found that 53% of patients did not use their opiate prescription.
- Based on our initial results, we stopped prescribing opiates post muscle biopsy and designed a pain management regimen using over-the-counter Acetaminophen and NSAIDs.
- Our study demonstrates that pain control following muscle biopsy was similar between those who received opiates and those who received non-opiates for pain control post muscle biopsy.
- A larger study may show a higher percentage of patients who would require stronger pain control after a muscle biopsy; although the vast majority of patients we surveyed had quite tolerable pain.
- There may also be differences in anesthetic and surgical technique utilized in our patients that has a greater effect on pain levels and duration of pain.

References

- Colorado ACEP 2017 Opioid Prescribing and Treatment Guidelines
- Brummett, C., Waljee, J., Goesling, J., Moser, S., Lin, P., Englesbe, M., Bohnert, A., Kheterpal, S. and Nallamothu, B. (2018). *New Persistent Opioid Use After Minor and Major Surgical Procedures in US Adults*.
- Fujii MH, Hodges AC, Russell RL, et al. Post-Discharge Opioid Prescribing and Use after Common Surgical Procedure. *Journal of the American College of Surgeons* 2018;226(6):1004-12.
- Large, T., Heiman, J., Ross, A., Anderson, B., & Krambeck, A. (2018). Initial Experience with Narcotic-Free Ureteroscopy: A Feasibility Analysis. *Journal of Endourology*

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