



ENHANCED RECOVERY WITH MULTI-MODAL ANALGESIA IN SPINE SURGERY

La Donna Brown, DNP, CRNA

Michelle Ardisson, DNP, RN, ACNP- BC; Joan King, PhD, ACNP- BC, FAANP



INTRODUCTION



- Spine surgery is particularly painful, leading to an increased risk of developing chronic pain.
- The diagnosis and treatment of back pain in the United States is currently estimated at 50 billion dollars annually
- A growing concern of overtreatment of pain has led many providers to employ alternative pain relieving strategies, such as multimodal analgesia to treat perioperative pain.
- The newest evidence-based practice pathways emphasize the use of multimodal analgesia to treat pain as part of a relatively new clinical pathway known as the Enhanced Recovery After Surgery (ERAS).
- The goal of ERAS is to reduce pain and surgical stress.

PURPOSE

- The purpose of this quality improvement project was to implement multi-modal analgesic techniques for patients having elective spine surgery and to evaluate postoperative pain scores, postoperative nausea and vomiting, post anesthesia care unit (PACU) length of stay and post-op opioid administration

PROBLEM STATEMENT

- ERAS clinical pathways demonstrated success in colorectal surgery
- Have **not** been used in elective spine surgeries/ **Not** in use at project site
- Evidence supports that multi-modal analgesia/ERAS clinical pathways, significantly reduces the number of opioids given or needed (80%)
- Implementation of an ERAS clinical pathway promotes consistent use of current evidence based practice guidelines

METHODS

- Retrospective data was collected for patients under going elective spine surgery from August/September 2018 and compared to August/September 2017
- Data gathered: post-operative pain scores, post-op nausea and vomiting, PACU length of stay and opioid equivalents
- Statistical analysis via descriptive statistics

RESULTS

Figure 1. Pre-intervention vs. Post-intervention pain reduction

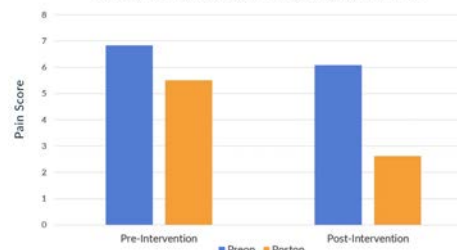


Figure 2. Morphine equivalents pre-intervention vs. post-intervention

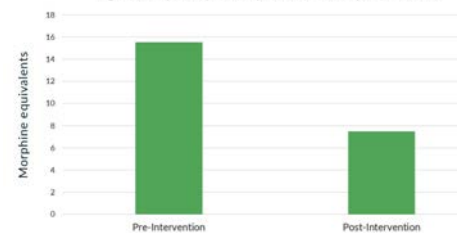


Figure 3. Time spent in the PACU pre-intervention vs. post-intervention



CONCLUSIONS

- Feasible to implement project
- Utilization of multimodal analgesia techniques significantly reduces pain scores and total opioid usage in Spine surgery
- Standardizing treatment creates less variability in care and enhances recovery after surgery
- Additional QI projects needed

REFERENCES

1. Beverly, A., Kaye, A. D., Ljungqvist, O., & Urman, R. D. (2017). Essential elements of multimodal analgesia in enhanced recovery after surgery (ERAS) pathways. *Anesthesiology Clinics*, 35(2), e115-e143. doi:10.1016/j.anclin.2017.01.018
2. Gan, T. J. (2017). Poorly controlled postoperative pain: prevalence, consequences, and prevention. *Journal of Pain Research*, Volume 10, 2287-2298. doi:10.2147/jpr.s144066
3. Ljungqvist, O. (2014). ERAS-enhanced recovery after surgery. *Journal of Parenteral and Enteral Nutrition*, 38(5), 559-566. doi:10.1177/0148607114523451
4. Lohsiriwat, V. (2016). Opioid-sparing effect of selective cyclooxygenase-2 inhibitors on surgical outcomes after open colorectal surgery within an enhanced recovery after surgery protocol. *World Journal of Gastrointestinal Oncology*, 8(7), 543-549. <http://doi.org/proxy.library.vanderbilt.edu/10.4251/wjgo.v8.i7.543>
5. Nelson, G., Kiyang, L. N., Chuck, A., Thanh, N. X., & Gramlich, L. M. (2016). Cost impact analysis of Enhanced Recovery After Surgery program implementation in Alberta colon cancer patients. *Current Oncology*, 23(3), e221-e227. <http://doi.org/10.3747/co.23.2980>
6. Scott, M. J., McEvoy, M. D., Gordon, D. B., Grant, S. A., Thacker, J. K., & Miller, T. E. (2017). American Society for Enhanced Recovery (ASER) and Perioperative Quality Initiative (POQI) joint consensus statement on optimal analgesia within an enhanced recovery pathway for colorectal surgery: Part 2 - from PACU to the transition home. *Perioperative Medicine*, 6(1), 7. doi:10.1186/s13741-017-0063-62.

LaDonna.Brown@Vanderbilt.edu