

Introduction

Although postoperative ileus (POI) represents a major complication following spinal surgery, limited data is available on its etiology and associated risk factors. Understanding of the pathophysiological factors underlying the development of POI is crucial in identifying potential preventative strategies.

Methods

We retrospectively analyzed the incidence of POI in a consecutive series of patients who underwent lumbar or thoracolumbar fusion surgeries between May 2013 to December 2017 at our institution and analyzed associated risk factors. Sociodemographic, clinical, and operative data were analyzed and binary ordinal logistic regression was performed to identify potential predictors of POI.

Results

A total of 334 patients met all inclusion and exclusion criteria. 56 patients (16.8%; 32 males and 24 females, $p=0.086$) developed POI. Mean length-of-stay (LOS) in the POI group was 8.0 ± 4.5 days versus 4.4 ± 2.4 days in the non-POI group ($p<0.001$). In univariate analysis, fusion surgery = 3 levels was the only factor predictive of POI development (OR 3.203, $p<0.001$). Multivariate analysis revealed that intraoperatively administered opioids in morphine milligram equivalents (MME; 21.2 for the POI versus 18.7 for the non-POI group) also predicted the onset of POI (OR 1.033, $p=0.03$). Multiple other relevant factors including sex, pre-operative opioid use, history of gastroesophageal reflux, and overall opioid administration in MME over the first 72 post-operative hours failed to reveal any statistical significance in either univariate or multivariate analyses.

Conclusions

POI is a well-recognized complication following spinal surgery with no effective prophylactic options identified to date. In this single center cohort, intraoperatively administered opioids in MME was the only modifiable peri-operative factor predictive of POI. Future assessment of potential POI preventative strategies, which is consistent with Enhanced Recovery After Surgery protocol development, will need to account for this critical intraoperative opioid exposure period.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of identifying post-operative ileus associated risk factors following spinal surgery. 2) Discuss the relevance of intraoperatively administered opioids as a modifiable risk factor predictive of post-operative ileus following spinal surgery. 3) Enhanced Recovery After Surgery protocol development aimed at reducing the incidence of post-operative ileus following spinal surgery will need to account for the intraoperative opioid exposure period.

References

- Bungard TJ, Kale-Pradhan PB. Prokinetic agents for the treatment of postoperative ileus in adults: a review of the literature. *Pharmacotherapy*. 1999;19(4):416-23.
- Fineberg SJ, Nandyala SV, Kurd MF, et al. Incidence and risk factors for postoperative ileus following anterior, posterior, and circumferential lumbar fusion. *Spine J*. 2014;14(8):1680-5.
- Luckey A, Livingston E, Tache Y. Mechanisms and treatment of postoperative ileus. *Arch Surg*. 2003;138(2):206-14.
- Taguchi A, Sharma N, Saleem RM, et al. Selective postoperative inhibition of gastrointestinal opioid receptors. *N Engl J Med*. 2001;345(13):935-40.
- Wainwright TW, Immins T, Middleton RG. Enhanced recovery after surgery (ERAS) and its applicability for major spine surgery. *Best Pract Res Clin Anaesthesiol*. 2016;30(1):91-102.