Retrospective Study Examining Impact of Implementation of a Bariatric Enhanced Recovery After Surgery Protocol on Post-Operative Opioid Consumption at a High-Volume Bariatric Centre in Ontario

Alen Antoun MDCM; Olivia Lovrics MD; Brendan Levac MD; Precious Adekoya BMSc; Kristen Blayer-Sheerin BAHIS; Karen Barlow HBSc; Harsha Shanthanna MD, PhD; Rafik Bolis MD, MSc; Karim Ramji MD, MBA; Mehran Anvari; MD, PhD; Scott Gmora MD; Vanessa Boudreau MD

Introduction

- Enhanced Recovery After Surgery (ERAS) protocols have been shown to improve outcomes after abdominal surgery.
- Bariatric ERAS (B-ERAS) protocols have been implemented but their full impact on patient outcomes is still being demonstrated
- A B-ERAS protocol was implemented in 2020 in our high-volume bariatric centre which includes pre-operative analgesia, nausea prophylaxis, intra-operative regional anesthesia, and multi-modal post-operative analgesia
- Around the same time, opioid conscious/opioid reduction initiatives were also introduced at our hospital.

Study Objective

The purpose of this study is to determine the effect of B-ERAS implementation on post-operative outcomes in patient undergoing Roux-en-Y gastric bypass, vertical sleeve gastrectomy or DS/SADI, specifically with regards to opioid use and post-operative pain management.

Methods

Study Design

- Retrospective chart review

Patient Population

- Patients who underwent bariatric surgery in the year prior to B-ERAS implementation were compared to patients who underwent surgery in the year after implementation

Data Collection

- Ontario Bariatric Registry (OBR) provided patient demographics, medications, re-admissions, and post-operative complications
- Pain scores and medication administration were recorded by nursing staff post-operatively and collected retrospectively from patient's electronic medical records

Statistical Analysis

- Univariate analysis of continuous variables was performed with two sample t tests for normally distributed variables and the Mann–Whitney U test for non-parametric continuous data.
- Pearson's $\chi 2$ test with Bonferroni correction used for categorical data.

Results

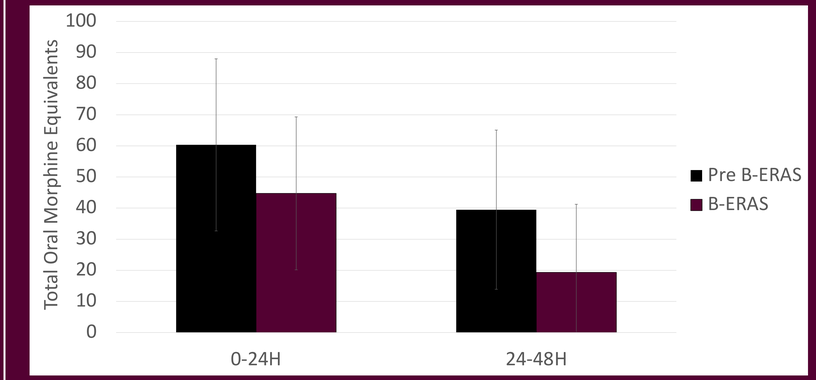


Figure 1. Post-operative opioid consumption comparing Pre-B-ERAS and B-ERAS groups. P= 5.67E-7 between 0-24H and p=6.38E-7 at 24-48H

- Three hundred patients included, 150 in Pre-B-ERAS group and 150 in B-ERAS group
- Lower average total morphine equivalent intake in B-ERAS group (Figure 1)

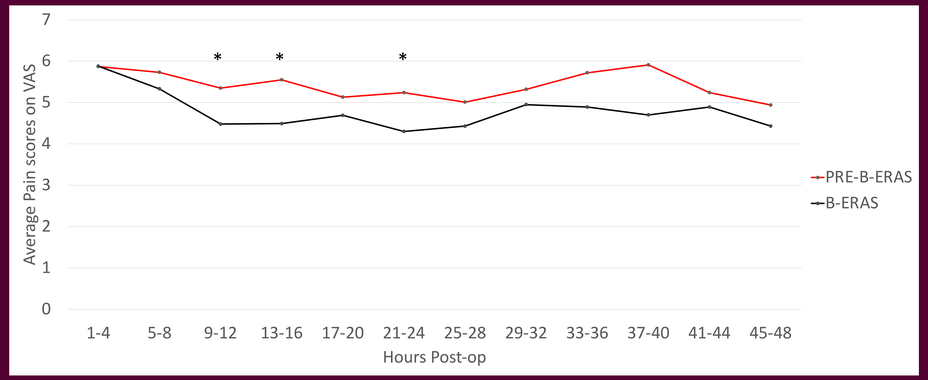


Figure 2. Post-operative average self reported pain scores using visual analog scale in Pre-B-ERAS and B-ERAS groups. Asterisk at time points when p-value <0.05. VAS – Visual Analog Scale (1-10)

- Lower pain scores at time intervals 9-12H, 13-16H, and 21-24H post-op (Figure 2)
- No difference in post-operative adverse events between both groups

Discussion

- This study demonstrates the benefits in implementation of a B-ERAS protocol, first in reducing post-operative opioid consumption and second in reducing post-operative pain without contributing to additional adverse events.
- Opioid reduction, in turn, may help with nausea, bowel function and return to normal activity
- Our work adds to existing literature demonstrating advantages of standardization in post-operative pathways before and after bariatric surgery. Similar pathways and standardization at our institution have led to success with same day discharge (<12hours) programs after bariatric surgery.
- As the scope of bariatric surgery continues to expand, with more patients qualifying for surgery and more centres offering surgery, standardized pathways can help ensure consistently favorable and predictable patient experiences while ensuring positive clinical outcomes

- **Limitations**:
  - Pain scores and medication consumption were only measured in the inpatient setting, and many patients are discharged on post-operative day 1.
  - Pain scores at 24-48H based on fewer number of patients in ERAS group as majority were discharged in the first 24H
- **Future work**:
  - We now seek to evaluate pain scores and opioid usage patterns among patients post discharge
  - Standardization of peri-operative pain/nausea protocols across the multiple centers in the Ontario Bariatric Network is underway

Key Takeaway

Bariatric ERAS protocols provide value after weight loss surgery in decreasing opioid consumption while decreasing patient's self-reported pain levels.