A Quality Improvement Project to Update an Anesthesia Protocol for Bariatric Patients Undergoing Laparoscopic Mini-gastric Bypass Surgery

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Problem Statement

- Standard perioperative protocols based on evidence have become key to promoting positive patient outcomes; however, due to the variety of drugs and individual preferences among providers, **standardized practice protocols related to bariatric surgery remain underutilized** (Narayanan et al., 2017).
- To prevent deleterious effects on the bariatric surgical patient population, appropriate selection and dosing of medications for pain management during the perioperative period is essential.
- Most target-controlled infusions studies do not include obese subjects, and **the effect of obesity on anesthetic drug distribution is still a pertinent question in contemporary anesthesia practice** (Kim et al., 2017).

Project Purpose

This is a quality improvement initiative to develop a new bariatric anesthesia protocol based on:

- Current evidence-based research
- A retrospective analysis that was performed between bariatric surgical patients receiving only intraoperative remifentanil versus those receiving only fentanyl.

Will a new anesthetic protocol that limits the use of remifentanil compared to the in bariatric patients undergoing gastric bypass surgery be adopted by the anesthesia team based on an Organizational Readiness for Change Assessment analysis?

Nursing Theory

This project is a quality improvement initiative based upon the Plan-Do-Study-Act model based on Kurt Lewin's three-stage model for change known as the "unfreezing-change-refreeze" theory that requires pre-existing processes within an environment to be first rejected before being replaced (Burnes, 2004).

Methodology

Setting

The setting for this project is a rural acute care hospital with 193 total beds located in Polk County, Florida. The hospital offers comprehensive bariatric weight loss services, including a bariatric program director, surgeon, nurses, and nutritional team.

Methodology

•Subjects

A retrospective chart analysis was conducted to evaluate postoperative outcomes of 100 bariatric patients undergoing laparoscopic mini-gastric bypass.

An Organizational Readiness for Change Assessment (ORCA) was conducted with 40 participants (30 Certified Nurse Anesthetists; 7 Anesthesiologists; and 3 Anesthesia Physician Assistants)

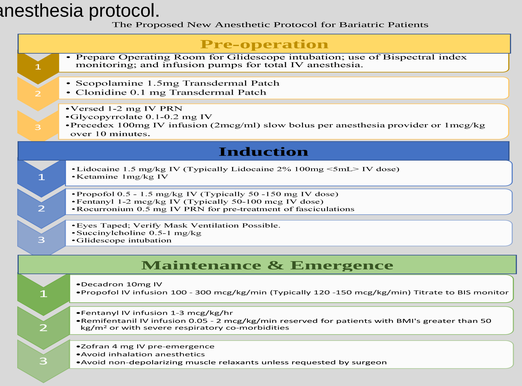
Instruments/Tools.

The Organizational Readiness to Change Assessment (ORCA) tool was developed in the health services framework to assess three elements that influence the implementation of change into practice: evidence, context, and facilitation (Stetler et al., 2011). Each item is scored from 1 to 5, with 5 reflecting the highest readiness to change and 1 indicating a lower willingness for change

Intervention and Data Collection

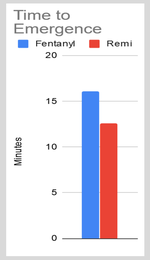
Information was collected from already existing data in the electronic medical record from surgeries taking place January 2017 through November 2018. Measures and indicators reviewed were the type of anesthesia received; emergence times; pain scores reported in recovery unit; and analgesics received in recovery unit.

The newly proposed protocol was drafted based on the results of the retrospective chart analysis and current literature recommendations. Anesthesia staff was notified of a voluntary ORCA survey in September 2020. Two ORCA surveys were presented to the anesthesia team to compare the strength of evidence regarding the existing protocol and the newly proposed anesthesia protocol.

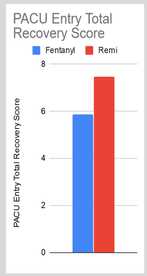


Results

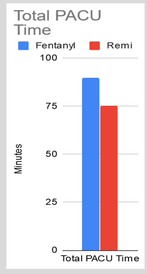
Remifentanil patients had a faster emergence time from anesthesia and were arriving from OR to PACU 3.49 minutes faster.



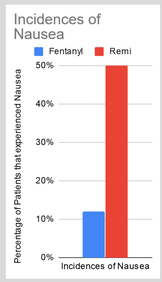
Fentanyl's mean score was a 5.88 (out of 10) versus Remifentanil with a mean score of 7.48 (out of 10).



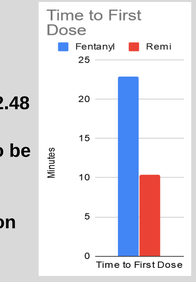
Fentanyl patients had a 14.62 minute longer stay in PACU compared to Remifentanil.

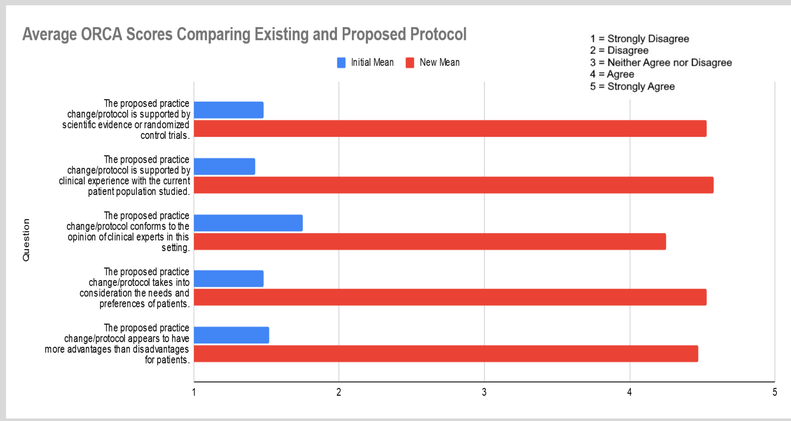


Fentanyl patients had a 12% incidence of nausea versus 50% in the Remifentanil group.



There was a mean of 12.48 minutes longer before fentanyl patients had to be treated for pain. (i.e. Remifentanil patients required pain medication sooner)





Discussion

- Remifentanil provides for a slightly quicker emergence from anesthesia to arrival in PACU (3.49 minutes). Patients receiving Fentanyl had a longer stay in the PACU (14.62 minutes). This may be because the initial Fentanyl recovery scores were lower than the Remifentanil group (5.88 vs 7.48). The fentanyl group needed more time to achieve the 8-10 recovery discharge scores required to exit PACU. However, the Fentanyl group had significantly less patients that experienced nausea (38% less) and possibly better postoperative pain control.
- The results of the ORCA results showed positive mean results positive mean regarding the evidence supporting the newly proposed protocol.

Implications

- The proposed protocol will offer a reasonable and flexible approach to anesthesia management of bariatric surgical patients to facilitate appropriate, consistent perioperative management of these patients to improve postoperative pain and nausea outcomes.
- The ORCA survey assessed a positive willingness of practitioners to adopt the new protocol into practice

Sustainability

Further research is needed to implement and evaluate the proposed protocol once adopted into practice and its effects on the bariatric surgical population. Standard perioperative protocols based on evidence have become key to promoting positive outcomes, and as bariatric surgery continues to gain in popularity, further research and protocol development is needed for this patient population.

References

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Fentanyl can be safely used in this patient population as the analgesic of choice. Remifentanil should be reserved for morbidly obese individuals with BMI's greater than 50 kg/m² and/or those bariatric patients with severe respiratory co-morbidities.

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