Utilization of an Ultrasound-Guided Transversus Abdominus Plane Block with Liposomal Bupivacaine in Multimodal Pain Management of Abdominal Gynecological Surgeries

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Background

Acute postoperative pain is an important health care concern for patients undergoing any surgery and poor perioperative pain control can only amplify this concern. With the U.S. Opioid crisis, U.S. epidemic, large U.S. Cohort studies have estimated the rate of opioid abuse as high as 20-25% among our patients. (3) Most US practitioners’ goal has been to reduce opioid prescribing, but the rate still remains high with 51.4 prescriptions filled per 100 patients in 2018. (2) The overuse of opioids is an unfortunate result of patient dissatisfaction and other complications due to inadequate or undertreatment of postoperative pain. The administration of an ultrasound-guided transversus abdominis plane (TAP) field block with liposomal bupivacaine (Exparel) in conjunction with bupivacaine is a field block technique designed to safely and effectively produce single-shot, short, and long-acting postsurgical analgesia to the abdominal wall for gynecological surgeries as part of multimodal postsurgical pain management (Michigan OPEN care process). The objective of this study is to reduce postoperative pain scores in the short-term and long-term (POD 0 through POD 2) while reducing total opioid consumption (morphine equivalents), and postoperative nausea and vomiting.

Aim

Aim Statement 1: Reduce average postoperative pain scores on a 10-point verbal rating scale at discharge from the PACU (outcome), in adult Veterans at the John D. Dingell VAMC undergoing general anesthesia for in-patient, abdominal wall gynecological surgery.

Aim Statement 2: Reduce average postoperative pain scores on a 10-point verbal rating scale POD 0 - POD 2 (outcome), from baseline

Aim Statement 3: Reduce total opioid consumption (MME) during POD 0 - POD 2, by 25%

Aim Statement 4: Reduce postoperative nausea and vomiting as evidenced by administration of antiemetic (outcome) during POD 0 - POD 2, by 25% baseline.

Aim Statement 5: Ensure perioperative provider compliance in opioid-sparing, multimodal acute pain management and/or Exparel TAP block education and training programs (process measure), to 95% provider compliance

Aim Statement 6: Ensure provider compliance in preoperative patient and family education regarding opioid-sparing, multimodal pain management

Aim Statement 7: Ensure 95% provider compliance with adherence to administration of an Exparel TAP block

Methods

All patients were adult Veterans at the John D. Dingell VAMC undergoing general anesthesia for in-patient, abdominal wall gynecological surgery. The Pre-implementation group received TAP Blocks (n=12); All Post-implementation group received TAP Blocks and Exparel and Education training (n=24)

Results

Summary of Results

• There was 100% compliance in providers undergoing education and training programs for implementing perioperative multimodal pain management measures.

• 100% of patients received patient education regarding multimodal pain management.

Multimodal postsurgical pain management using TAP field blocks with liposomal bupivacaine (Exparel) in conjunction with provider education and training programs along with patient education programs resulted in:

• Significant reduction in post-operative pain in the 48hr post-operative period

• Significant reduction in post-operative opioid consumption

• Significant reduction in post-operative antiemetic use

Discussion

Implementation of these techniques using Lean methodology, evidence-based practices with a united multidisciplinary team approach resulted in safe and effective opioid-sparing, multimodal management of acute postoperative pain, thus reducing pain scores, total opioid consumption, postoperative nausea and vomiting.

The success of this pilot project will form a template foundation for addition future projects looking to improve the perioperative pain management process.

References