

Development of Evidenced-Based Practice Guidelines for Female Patients Undergoing Anesthesia for Breast Cancer Surgery

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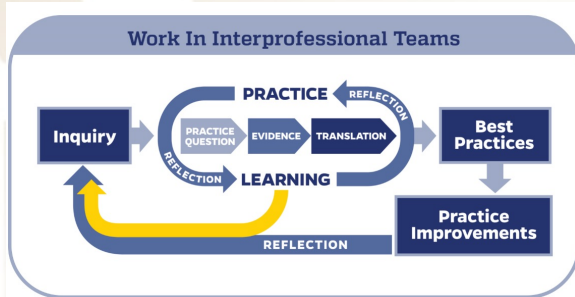
Abstract

- In women, breast cancer is the second most common cancer diagnosis, following skin cancer, with approximately one in eight women developing breast cancer in their lifetime.
- Treatment options for a breast cancer patient usually include chemotherapy, radiation and often surgery.
- Within the last few decades, research has shown a correlation between the use of anesthetic medications & opioids and breast cancer metastasis & decreased natural killer (NK) cells postoperatively.**
- This project aims to create an evidence-based practice guideline for patients undergoing breast cancer surgery.
- Interventions will include a paravertebral block, total intravenous anesthesia (TIVA), and non-opioid analgesics.

Objectives

- Develop EBP guidelines for female breast cancer patients undergoing breast cancer surgery
- Apply John's Hopkins EBP Model to develop an implementation plan
- Increase anesthesia awareness and provide knowledge of metastasis rates to anesthetic technique with breast cancer patients to anesthesia providers
- Monitor and measure outcomes regarding NK cell activity & metastasis rates
- Refer to John Hopkins EBP model to redirect project if outcomes are less than desirable

Figure 1. The Johns Hopkins Evidence-Based Practice Model for Nurses and Healthcare Professionals



Model for Project Framework

- John's Hopkins EBP Model (see below)
- Inquiry: lack of guidelines for anesthesia for breast cancer surgery patients
- Practice Question: PICOT
- Evidence: literature review
- Translation/Best Practices: development and implementation of anesthesia best-practice guidelines
- Practice Improvements/Reflection: did the new EBP guidelines improve patient outcomes? Redirect and adjust guidelines as necessary

PICOT Question

In female patients undergoing breast cancer surgery, how would the development and implementation of evidence-based practice anesthesia guidelines versus a traditional anesthetic approach affect NK cell activity and metastasis rates?

Timeline

- 2 years for anesthesia guideline implementation
- First 6 months includes anesthesia guideline preparation (connecting with pharmacy, QI department, IT, and educating anesthesia staff)
- 10 years for data collection & monitoring patient metastases rates

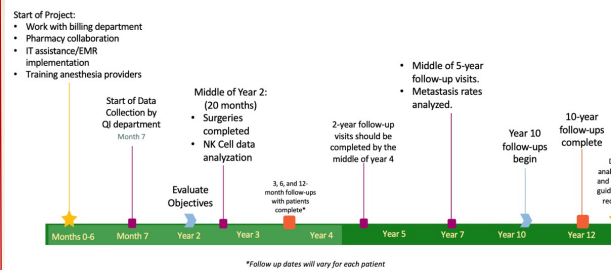


Figure 2. Timeline.

Summary of Evidence

- The results of the literature review were nonunanimous; many articles supported the use of TIVA and regional anesthesia showing decreased metastasis rates or increased NK cell activity postoperatively.
- Other articles did not show a decrease in metastasis rates or change in NK cell activity.
- None of the articles reviewed showed poor outcomes or increased metastasis rates with the use of TIVA, a paravertebral block or non-opioid analgesics.
- Other benefits of TIVA, regional anesthesia and/or opioid-free anesthesia include decreased post-operative pain levels, decreased inflammation and reduced postoperative nausea and vomiting (PONV).

Project Team

- Project team leader
- Chief CRNA of a hospital
 - Both will be responsible for educating anesthesia providers – anesthesiologists, CRNAs, AAs & SRNAs
- Various stakeholders:
 - Surgeons
 - Oncologists
 - Chief CRNA
 - Chief anesthesiologist

Budget

- The total cost is approximately \$29,438.
- Costs include purchasing a new ultrasound for the paravertebral blocks, the one-hour costs for anesthesia education for 15 CRNAs and 8 anesthesiologists, and poster supplies.
- Cost may be lower if there are functioning ultrasounds owned by the hospital and if the anesthesia department already has educational time built into the providers' salary.

Limitations & Barriers

- Potential for lack of anesthesia staff compliance with the guidelines
- Patient eligibility due to opioid requirements
- Lack of patient follow up due to length of study

Target Population & Setting

- Ideal setting = a mid-sized inpatient hospital or cancer hospital in the Mid-West U.S.
- Patient population includes female patients undergoing breast cancer surgery
- Inclusion criteria = female patients between the ages of 18-65 and those with ASA scores between I and III

Project Intervention/Implementation

- IT department creation of "pop-up" alert on Epic
- QI dept. to create metrics for guideline measurement
- 1-hour educational information session for anesthesia providers
- Implementation of guidelines on appropriate patients including the use of a paravertebral block, total intravenous anesthesia (including propofol), and non-opioid analgesics (including Ofirmev and Toradol).

References



Monitoring & Data Collection

- Plasma levels drawn 1 hour prior to surgery, immediately postoperatively (within the first hour) in the post-anesthesia care unit, 12 hours, 24 hours, and preoperative nurse 48 hours postoperatively to monitor NK cell counts
- Patient follow-up should occur at 3 & 6 months, 1-, 2-, 5- and 10-years post-op. During these follow-up visits, a CBC with differential should be drawn (at all follow-up appointments); a PET scan and a mammogram should be completed to evaluate for metastasis (at 6 months, 1, 2, 5 & and 10-year visits).

Conclusion

- There are numerous benefits of using a TIVA/regional/non-opioid anesthetic for breast cancer patients.
- CRNAs, AAs & MDs should use the best practice anesthesia guideline when able.

