Post-operative pain control in patients who have received the breast enhanced recovery after surgery protocol

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Introduction

Increasingly, many different surgical subspecialties have adopted enhanced recovery after surgery (ERAS) programs to facilitate improved patient experiences. Using fewer narcotics while employing other pain modalities to reduce patients' pain is critical in the setting of the United States' current opioid crisis.

Based on data from the CDC:

•128 people die every day in the US from opioid overdose totaling 46,802 Americans in 2018 [1,4]

•1.7 million Americans engage in substance abuse of opioids [2]

•Financial losses of opioid abuse are about $78.5 billion per year [3]

In 2015, the Enhanced Recovery after Surgery Society established a set of consensus guidelines for breast surgical oncology:

1. Preoperative: patient education, scopolamine patches, and administration of non-opioid analgesics
2. Intraoperative: euvolemia, minimal narcotic usage, antiemetics, regional anesthesia, normothermia, and VTE prophylaxis
3. Postoperative: early oral intake, early ambulation, an antiemetic regimen, non-narcotic analgesic regimen, judicious opioids[5]

Numerous publications demonstrated the utility of ERAS applications involving various types of breast surgery, including flap reconstruction, implant-based reconstruction, and lumpectomies [6,7,8,9,10,11].

Objectives

This study's primary goal is to evaluate post-operative pain control with the implementation of the BERAS protocol. We hypothesized that it would improve post-operative pain control.

Methods

Retrospective chart review of patients who underwent breast surgery from January 1, 2016 to June 30, 2019

- Implemented B-ERAS protocol in February 2017
- Excluded patients who underwent breast surgery during February 2017
- Compared between patients in the B-ERAS group and the pre-B-ERAS group
- Performed Mann Whitney U and Chi-squared tests

Results

- BERAS group had significantly lower self-reported PACU pain scale than Pre-BERAS group (p=0.0213, Figure 1)
- BERAS group had significantly lower opioid consumption in all settings, as measured in oral MMEs (p<0.0001, Figure 2)

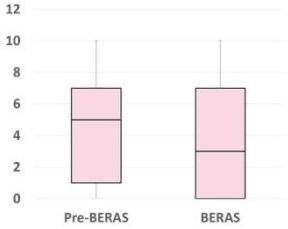

Figure 1: Reported PACU Pain Scale

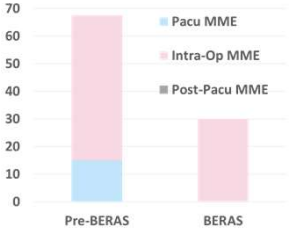

Figure 2: Oral MMEs per Hospital Setting

Certain group characteristics were noted to be statistically significant (Table 1) :

- More patients taking pre-op narcotics in the pre-BERAS group
- More chronic pain patients in the pre-BERAS group
- Fewer bilateral cases in BERAS

Variable	Pre-ERAS (n = 196)	ERAS (n = 418)	p-value
Age	62.0 (52.0-69.8)	62.0 (53.0-69.0)	0.9942
BMI	28.9 (23.9-33.6)	29.3 (25.0-34.1)	0.1746
Length of Stay (hrs)	3.5 (2.2-19.5)	3.0 (2.2-17.5)	0.1742
Caucasian	183 (93.4)	355 (84.9)	0.0097
Malignancy	180 (91.8)	396 (95.2)	0.0997
Unilateral	136 (69.4)	339 (82.5)	0.0003
Diabetes	25 (13.1)	74 (18.1)	0.124
Depression	52 (26.7)	102 (24.5)	0.5688
Anxiety	63 (32.1)	83 (20.0)	0.001
Taking Antidepressant	6 (4.2)	23 (6.3)	0.3661
Cardiovascular Disease	58 (29.7)	96 (23.1)	0.0796
Taking Narcotics Pre-Op	26 (13.3)	17 (4.1)	< 0.0001
Fibromyalgia	7 (3.6)	10 (2.4)	0.4147
Chronic Pain	64 (32.7)	56 (13.5)	< 0.0001
Tobacco Use	26 (13.3)	36 (8.6)	0.0761
Neo-Adjuvant Therapy	39 (20.4)	63 (15.3)	0.1182

Notes: Continuous Data presented as median (Q1-Q3); Categorical data presented as n (%); Missing data excluded from analyses on a test-by-test basis

Table 1: Pre-BERAS and BERAS Group Comparisons

Discussion

Our results demonstrate that implementation of a breast-specific enhanced recovery after surgery protocol can:

•Improve the patient's pain experience

•Decrease the patient's narcotic consumption

Notably, our findings still achieved significance with lower opioid consumption in the BERAS group after the exclusion of patients with chronic pain and pre-operative narcotic use.

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