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ORIGINAL ARTICLE – BREAST ONCOLOGY

The Standardization of Outpatient Procedure (STOP) Narcotics: A Prospective Health Systems Intervention to Reduce Opioid Use in Ambulatory Breast Surgery

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ABSTRACT

Background. During the past 15 years, opioid-related overdose death rates for women have increased 471%. Many surgeons provide opioid prescriptions well in excess of what patients actually use. This study assessed a health systems intervention to control pain adequately while reducing opioid prescriptions in ambulatory breast surgery.

Methods. This prospective non-inferiority study included women 18–75 years of age undergoing elective ambulatory general surgical breast procedures. Pre- and postintervention groups were compared, separated by implementation of a multi-pronged, opioid-sparing strategy consisting of patient education, health care provider education and perioperative multimodal analgesic strategies. The primary outcome was average pain during the first 7 postoperative days on a numeric rating scale of 0–10. The secondary outcomes included medication use and prescription renewals.

Results. The average pain during the first 7 postoperative days was non-inferior in the postintervention group despite a significant decrease in median oral morphine equivalents (OMEs) prescribed (2.0/10 [100 OMEs] pre-intervention vs 2.1/10 [50 OMEs] post-intervention; $p = 0.40$ [$p < 0.001$]). Only 39 (44%) of the 88 patients in the post-intervention group filled their rescue opioid prescription, and 8 (9%) of the 88 patients reported needing an opioid for additional pain not controlled with acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs) postoperatively. Prescription renewals did not change.

Conclusion. A standardized pain care bundle was effective in minimizing and even eliminating opioid use after elective ambulatory breast surgery while adequately controlling postoperative pain. The Standardization of Outpatient Procedure Narcotics (STOP Narcotics) initiative decreases unnecessary and unused opioid medication and may decrease risk of persistent opioid use. This initiative provides a framework for future analgesia guidelines in ambulatory breast surgery.

North America has been faced with increasing dependence on prescription opioid medications and their misuse.[1,2] Women may become dependent on prescription opioid medication more quickly and are more at risk for overdose than men.[3] Furthermore, between 1999 and 2015, the rate of death from prescription opioid overdoses increased 471% among women compared with a 218% increase among men.[3]

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Surgeons may contribute to excessive opioid prescriptions. In breast surgery alone, 75–85% of opioid prescriptions remain unconsumed.[4] Recent evidence also suggests that approximately 5–15% of opioid-naïve patients continue to use opioids whether or not they have undergone major or minor procedures.[5–9] Certainly, this is relevant to breast cancer patients given the recent trend toward favorable prognosis and long-term survivorship and considering that cancer patients are particularly susceptible to opioid dependence.[5–9]

In breast surgery, there has been a shift from opioids as a primary analgesic to multimodal strategies.[10–14] Opioid-sparing preemptive and postoperative pain management may include oral and intravenous non-opioids (e.g., acetaminophen, nonsteroidal anti-inflammatory drugs [NSAIDs], dexamethasone, gabapentin, and ketamine) and local and regional nerve blocks (e.g., paravertebral and pectoral).[10–13,15–19] There is limited guidance in the context of breast surgery on the appropriate quantity of opioid medication to prescribe, the duration of its use, and tapering strategies.[4,20,21]

We identified opioid-prescribing for acute pain as a priority area for improvement in our hospitals.[22,23] Subsequently, the Standardization of Outpatient Procedure Narcotics (STOP Narcotics) was initiated as a health systems intervention.[20] This tailored, opioid-sparing, multi-pronged strategy was developed with the objective of adequately controlling pain after outpatient surgery while standardizing pain management and reducing opioid prescriptions.

This study examined the effectiveness of the STOP Narcotics initiative in ambulatory breast surgery procedures. We hypothesized that compared with conventional practice, this opioid-sparing strategy would provide similar pain control while reducing excess prescriptions and opioid use.

METHODS

Study Design and Setting

This prospective, non-inferiority pre- and post-intervention study investigated a single-center regional breast cancer care program at St. Joseph's Health Care in London, Ontario, Canada.[24] The multidisciplinary surgical team was composed of five general surgeons who regularly perform breast surgery complemented by reconstructive plastic surgeons, breast-imaging radiologists, nurse navigators, advanced practice nurses, spiritual care providers, and social workers.[24]

All breast surgery performed at St. Joseph's Health Care is ambulatory surgery, with the exception of breast reconstruction. The Strengthening the Reporting of Observation Studies in Epidemiology (STROBE) guidelines were followed.[25] Ethics approval was obtained through the Health Sciences Research Ethics Board at Western University (HSREB #109651).

Pre- and Post-Intervention Groups

The inclusion criteria specified patients 18–75 years of age undergoing ambulatory breast surgery with general anesthesia involving partial mastectomy (PM), simple mastectomy (SM), sentinel lymph node (SLN) biopsy, modified radical mastectomy (MRM), and axillary lymph node dissection (ALND). Reconstructive procedures were excluded because these patients were admitted postoperatively. Patients with concurrent regular opioid use, coexisting chronic pain conditions (not including osteoarthritis or back pain), chronic kidney disease, or active peptic ulcer disease were excluded.

The pre-intervention group (17 July 2017–18 October 2017) were compared with the post-intervention group (23 October 2017–30 April 2018). These two groups differed by exposure to the STOP Narcotics protocol.

Intervention

The intervention consisted of a tailored, multi-pronged approach focused on four strategies: patient education, health care provider education, and opioid-sparing preemptive and postoperative analgesia strategies. This multidisciplinary plan, created with input from surgeons, anesthetists, nurses, and patients, was a division-wide general surgery initiative. This opioid-sparing strategy has been previously described for outpatient laparoscopic cholecystectomy and hernia procedures, and specific details for this protocol in breast surgery may be found in Appendices 1 and 2.[26]

Outcomes

The primary study outcome was average pain on an 11-point (0–10) numeric rating scale (NRS) during the first 7 postoperative days.[27–29] This was captured at the first postoperative appointment (typically after 4 weeks at our institution) in a modified brief pain inventory survey.[30,31] The secondary patient-related outcomes included overall quality of pain control (rated on a 5-point scale from "very poor" to "very good") and functional outcomes (11-point NRS, from 0 to 10).[31] The medication-related outcomes were oral morphine equivalents (OMEs) prescribed and used, filling of opioid prescription (yes/no), NSAID use, acetaminophen use, prescription refills, and excess

medication disposal. Disposal was considered appropriate if the patient returned the medication to a pharmacy.

Statistical Analysis

The sample size was calculated by hypothesizing that our primary outcome would be non-inferior (post-intervention) to that of our control group (pre-intervention). Using an α of 0.025, a β of 0.1, and a non-inferiority margin of meaningful clinical difference (MCD) of 2 on a numeric rating scale, 44 patients per group were required in both the pre- and post-intervention groups.[32]

Statistical analysis was completed using SPSS version 24 (SAS Institute, Cary NC, USA).[33] The Mann–Whitney U test and Student's t test were used to assess for a difference between medians and means, respectively. Non-normally distributed variables were expressed as medians with 25th and 75th quartiles, and normally distributed variables were assessed using means ± standard deviations. Chi square was used to assess differences in categorical variables. Non-inferiority was tested using the two-sample, equal variance, t test for mean difference. Only our primary outcome was tested for non-inferiority using a one-sided test, with a p value lower than 0.025 considered significant. All other secondary variables were analysed using two-sided tests, with a p value lower than 0.05 considered significant.

RESULTS

Study Population

After the exclusions, the study population consisted of 173 patients (85 pre-intervention, 88 post-intervention patients), with a lower age in the post-intervention group (59 vs 53 years; $p = 0.004$), Table 1. Seven patients were excluded for additional reasons not specified in the exclusion criteria, as outlined in Fig. 1.

Primary Analgesia Outcome and Quality of Pain Control

After implementation of the STOP Narcotics initiative, the primary outcome of average pain during the first 7 post-operative days was non-inferior to that of the control group (2.0/10 pre-intervention vs 2.1/10 post-intervention; $p = 0.40$). This was comparable in the subgroup populations of PM/SM, SLN, and ALND patients when analyzed separately (Table 2). Similarly, quality of pain control did not differ significantly for any of the breast procedures (good/very good quality: 85% for the pre-intervention group vs 88% for the post-intervention group; $p = 0.60$) or for the subgroup populations. Other functional self-reported outcomes did not significantly change (Table 2).

Opioid Prescriptions and Utilization

The median OMEs and pills prescribed decreased from 100 OMEs (25 pills) for the pre-intervention group to 50 OMEs (10 pills) for the post-intervention group ($p < 0.001$). The patients consumed a median of 33.8 OMEs (7.5 pills) for the pre-intervention group ($p = 0.002$) compared with 12.5 (2.5 pills) for the post-intervention group ($p = 0.007$). In the post-intervention group, only 39 (44%) of the 88 patients filled their opioid prescription compared to 64 (85%) of the 75 patients in the pre-intervention group ($p < 0.001$).

Eight (9%) of the patients who filled their opioid prescription in the post-intervention group reported filling it for pain not satisfactorily controlled with the initial non-opioid alternative measures. The most common reason for filling the rescue opioid prescription was "just in case" (21 patients), followed by "being instructed to fill it" (10 patients), Table 3.

Analgesic Non-opioid Adjuncts and Medication Disposal

The use of NSAIDs increased in the post-intervention group from 35% to 60% ($p = 0.001$), whereas the increase in acetaminophen use (64–75%) was not statistically significant ($p = 0.10$). Appropriate medication disposal increased from 12 to 21% ($p = 0.04$) (Table 3).

Subgroup Population Analysis

In the subgroup populations of SM/PM, SLN, and ALND, OMEs/pills prescribed decreased significantly in all the groups, with the exception of ALND (135 OMEs [36 pills] in the pre-intervention group vs 50 OMEs [10 pills] in the post-intervention group; $p = 0.08$). For some procedures, including axillary surgery, these patients did not fill their opioid prescription more frequently than for breast surgery alone (SM/PM, 9/34 [26%] vs SLN, 23/43 [53%] and ALND, 6/11 [55%]; $p = 0.07$) or consume significantly more opioid pills (SM/PM, 1.3 pills vs SLN and ALND, 2.5 pills; $p = 0.63$) (Table 4).

Patient and Surgeon Compliance

The patients reported receiving the education sheet 92% of the time, with 88% confirming it to be helpful. Surgeons prescribing more than 50 OMEs for breast procedures decreased from four in five (80%) to one in five (20%).

TABLE 1 Patient characteristics

Patients and procedures	Pre-intervention (n = 85) n (%)	Post-intervention (n = 88) n (%)	p value
Partial mastectomy	28 (33)	29 (33)	–
Simple mastectomy	8 (9)	5 (6)	–
PM and SM	36 (42)	34 (39)	–
PM + SLN biopsy	33 (39)	33 (38)	–
SM + SLN biopsy	12 (14)	8 (9)	–
PM and SM + SLN biopsy	45 (53)	43 (49)	–
MRM	1 (1)	6 (7)	–
PM + ALND	1 (1)	2 (2)	–
ALND	2 (2)	3 (3)	–
MRM and ALND	4 (5)	11 (13)	–
Mean age (years)	59 ± 14	53 ± 14	0.004
Female sex	85 (100)	88 (100)	0.33

PM partial mastectomy, *SM* simple mastectomy, *SLN* sentinel lymph node biopsy, *MRM* modified radical mastectomy, *ALND* axillary lymph node dissection

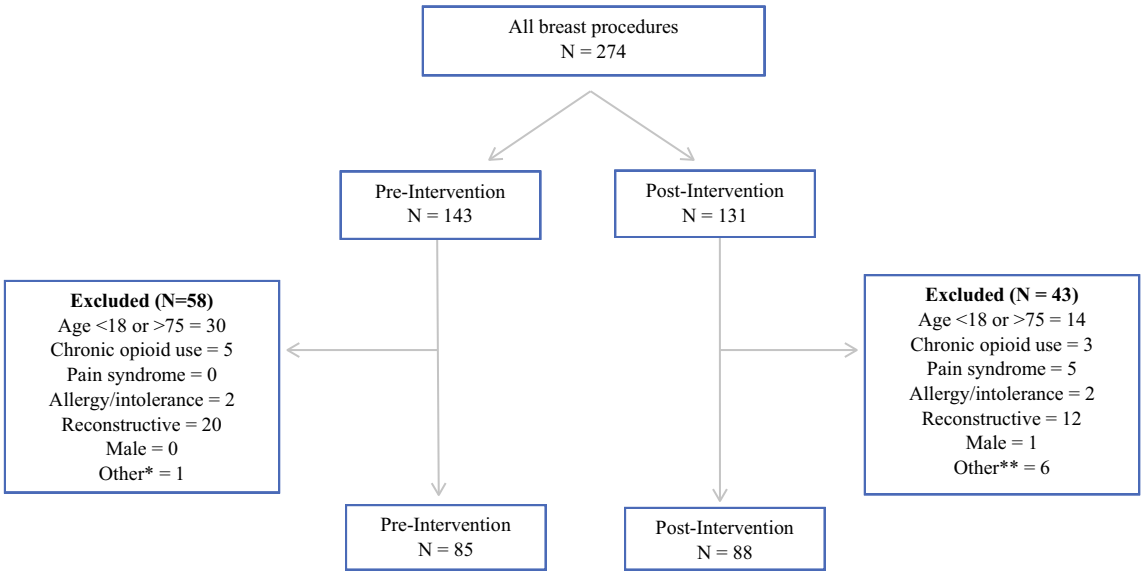

FIG. 1 Flow chart of the patients included in the study. *n = 1 (did not complete the brief pain inventory); **n = 6 (3 did not complete the brief pain inventory and 3 had an inpatient procedure)

Complications

No documented incidents of upper gastrointestinal bleeding or renal failure occurred in either cohort. No skin flap necrosis or other known complications from topical ice therapy were reported.

DISCUSSION

The major findings from this study were threefold. First, after implementation of a multi-pronged, opioid-sparing initiative (STOP Narcotics), control of acute postoperative pain during the first 7 postoperative days was not inferior to pain control in pre-implementation practice. Second, patient education, health care provider education, opioid-reduced prescriptions, and multimodal non-opioid analgesic strategies were reaffirmed to be effective in significantly reducing both prescribed and consumed opioids.[11,13,17,34–38] Finally, these strategies may be integrated effectively into a perioperative pain control bundle and implemented as a health systems intervention for outpatient breast procedures.[36,37,39–41]

TABLE 2 Pre- and post-intervention comparison of pain, quality, and function

Primary and secondary outcomes	Pre-intervention (n = 85)	Post-intervention (n = 88)	p value
Mean average pain during the first 7 postoperative days			
All groups (0–10)	2.0 ± 1.8	2.1 ± 1.6	0.40
PM and SM (0–10)	1.9 ± 1.8	1.6 ± 1.3	0.26
PM and SM + SLN (0–10)	2.1 ± 1.8	2.4 ± 1.7	0.20
MRM and ALND (0–10)	2 ± 2.2	2 ± 1.9	0.50
Quality of pain control (good/very good)	*N* (%)	*n* (%)	
All groups	72 (85)	77 (88)	0.60
PM and SM	29 (81)	32 (94)	0.09
PM and SM + SLN	39 (87)	36 (84)	0.70
MRM and ALND	4 (100)	9 (82)	0.36
Mean patient function interference (all groups)			
General activity (0–10)	3.3 ± 3.0	3.9 ± 2.7	0.17
Walking ability (0–10)	1.5 ± 2.6	1.2 ± 2.1	0.28
Work (0–10)	3.2 ± 3.2	3.7 ± 3.3	0.32
Sleep (0–10)	3.4 ± 2.9	2.7 ± 2.5	0.07
Enjoyment (0–10)	2.9 ± 3.0	2.6 ± 2.6	0.47

All outcomes are in means. (0–10): 11-point numeric rating scale from the Modified Brief Pain Inventory: 0 = no pain, 1–3 = mild pain, 4–6 = moderate pain, 7–10 = severe pain; quality of pain control, rated from very poor to very good (5-point scale): 0 = no interference with function, 10 = complete interference with function[27–29]

PM partial mastectomy, *SM* simple mastectomy, *SLN* sentinel lymph node biopsy, *MRM* modified radical mastectomy, *ALND* axillary lymph node dissection

TABLE 3 Pre- and post-intervention comparison of medication

Medication comparison	Pre-intervention (n = 85) *n* (%)	Post-intervention (n = 88) *n* (%)	p value
Narcotic prescription given			
OME, median (25th–75th percentile)	100 (68–135)	50 (50–106)	< 0.001
Median no. of pills (25th–75th percentile)	25 (15–30)	10 (10–20)	< 0.001
Narcotic prescription used			
Median OME (25th–75th percentile)	33.8 (14–75)	12.5 (0–50)	0.002
Median no. of pills (25th–75th percentile)	7.5 (3.2–15)	2.5 (0–9.4)	0.007
Surgeons prescribing > median 50 OMEs	4/5 (80)	1/5 (20%)	1.0
Narcotic prescription filled[a]	64/75 (85)	39/88 (44)	< 0.001
NSAID use	30 (35)	53 (60)	0.001
Acetaminophen use	54 (64)	66 (75)	0.10
Simultaneous NSAID + acetaminophen use	19 (22)	50 (57)	< 0.001
Prescription renewal[a]	3/75 (4)	2/88 (2)	1.0
Appropriate medication disposal[b]	6/50 (12)	6/29 (21)	0.04

OME oral morphine equivalent, *NSAID* nonsteroidal anti-inflammatory drug

[a]Different denominator because not all patients received an opioid prescription

[b]Different denominator because only patients who did not use 100% of their opioid prescription were included

Our findings have important implications. The common reasons given by providers for large opioid prescriptions are to minimize refill requests and to ensure adequate analgesia. Although our inclusion criteria included elective low-risk patients, the refill requests did not correlate with prescription strength or amount, similar to the findings of other studies.[26,38,42]

TABLE 4 Medication comparison in PM/SM, PM/SM + SLN, and ALND/MRM

Medication comparison	Pre-intervention (n = 85)	Post-intervention (n = 88)	p value
PM and SM	n = 36	n = 34	
Narcotic prescription given			
Median OME (25th–75th)	75 (56–135)	50 (50–98)	0.016
Median no. of pills (25th–75th)	19 (15–30)	10 (10–16)	0.008
Narcotic prescription used			
Median OME (25th–75th)	30 (14–75)	6 (0–50)	0.091
Median no. of pills (25th–75th)	7.5 (3.8–15)	1.3 (0–8.1)	0.062
Narcotic prescription filled: n (%)	27 (84)	9 (28)	< 0.001
PM and SM + SLN	n = 45	n = 43	
Narcotic prescription given			
Median OME (25th–75th)	100 (75–135)	50 (50–113)	0.033
Median no. of pills (25th–75th)	25 (20–30)	10 (10–30)	0.011
Narcotic prescription used			
Median OME (25th–75th)	38 (14–75)	13 (0–50)	0.066
Median no. of pills (25th–75th)	7.5 (3.4–15)	2.5 (0–10)	0.030
Narcotic prescription filled: n (%)	33 (85)	23 (54)	0.002
ALND and MRM	n = 4	n = 11	
Narcotic prescription given			
Median OME (25th–75th)	135 (113–208)	50 (50–50)	0.08
Median no. of pills (25th–75)	36 (30–55.5)	10 (10–10)	0.03
Narcotic prescription used			
Median OME (25th–75th)	20 (0–94)	13 (0–38)	0.79
Median no. of pills (25th–75th)	5.25 (0–25)	2.5 (0–7.5)	0.65
Narcotic prescription filled: n (%)	4 (100)	6 (55)	0.10

PM partial mastectomy, *SM* simple mastectomy, *OME* oral morphine equivalent, *SLN* sentinel lymph node biopsy, *ALND* axillary lymph node dissection, *MRM* modified radical mastectomy

Our study also affirmed that the actual amount of opioid consumed often is a fraction of the opioid prescribed.[43] Indeed, only 44% of the patients filled their rescue opioid prescription, consuming a median of 7.5 opioid pills in our pre-intervention group and 2.5 opioid pills in our post-intervention group. This is similar to the findings of Hill et al.,[4] who reported that patients used only 14.7% of their opioid prescription after partial mastectomy and 25.7% of their prescription after SLN biopsy.[44–46] Considering that the average pain score was 2.0 in our pre-intervention group and 2.1 in our post-intervention group (threshold for moderate pain, $\geq$ 4/10 on the 11-point NRS), the minimal amount of opioid consumed was providing adequate analgesia.[32,47,48]

Surgeons may not be providing realistic expectations of postoperative discomfort, underestimating the effectiveness of opioid-sparing, multimodal analgesic medications, often reported to be equally effective in the literature.[49,50] In fact, rescue opioid therapy was needed by only 8 (9%) of our 88 patients, for discomfort not adequately controlled with acetaminophen, NSAIDs, and conservative measures.

A rescue opioid prescription with an expiration date of 7 days was a novel component of the STOP Narcotics initiative, preventing availability of excess and unused medication for unintended purposes in the future.[26] This is in keeping with recent breast surgery guidelines supporting non-opioid multimodal analgesia with rescue opioids if needed.[10,51] With only 9% of patients filling the rescue prescription for "additional pain control," the most common reasons why patients filled the prescription were "just in case" (24%) or "being instructed to fill it" (11%). This may be associated with inadequate access to a 24-h pharmacy or advice of pharmacists. Despite specific written instructions, appropriate medication disposal increased only to 21%, consistent with that of other published interventions.[26,52,53] Future studies to assess methods that will improve rates of appropriate narcotic disposal are indicated.[26,52,53]

Procedures involving the axilla, particularly ALND, are associated with greater discomfort and higher rates of chronic pain.[54] The average patient-reported pain did not differ significantly after SLN biopsy or ALND in our post-intervention group during the first 7 postoperative days. Although more patients filled their prescriptions in the SLN and ALND subgroups, the amount of reported opioid consumed still was very low (12.5 OMEs). With more extensive dissection in a highly-innervated area and a higher risk of chronic pain syndromes and mobility complications, future studies with larger populations and longer follow-up periods may be indicated for further definition of additional analgesic adjuncts for these procedures.

In accordance with previous studies, patient and provider education is a key opioid-reducing method.[34,35] Complete elimination of pain is not a reasonable expectation, and a mild amount of discomfort is normal and should be expected by patients.[20] Katz et al. demonstrated how preoperative anxiety was an important variable contributing to the prediction of acute pain after surgery.[55] We believe a short conversation between the patient and health care provider about expectations, the recovery process, and optimal use of non-opioid medication, reinforced with a standardized education sheet, was key in this initiative.[56] Providers need to be educated on the actual amount of opioid that patients consume after breast surgery, non-opioid analgesic options, and how to well-inform their patients of analgesia options.[35]

This study had many strengths. It was one of the first published reports of multi-pronged, opioid-sparing pain care bundles to be introduced in breast surgery, which is replicable in other health systems.[26,40] However, the study was not without limitations. The patient ages differed between the pre- and post-implementation periods. The patients in the latter group were younger. We believe this was due to chance, and the age difference likely did not have an impact on our outcome, postoperative pain.

In addition, this study had an observational pre/post design. This study design has an inherent bias, with possible changes in practice before the official implementation of the intervention. This would underestimate the change in prescribing, with surgeons retrospectively prescribing even higher quantities of opioids.

Another limitation was the use of single-center data, with sequential enrollment of patients and potentially limited external validity for other centers and patients not meeting the inclusion criteria. However, with lower rates of resident turnover and variability in non-academic centers, we believe the intervention may be equally effective in those settings. We have implemented STOP Narcotics in additional community hospitals and continue to collect data from these centers. In addition, local anesthetic field blocks were not part of the official STOP Narcotics protocol, but are used regularly by all five surgeons on this study's surgical team. Extended-release local anesthesia and additional non-opioid co-analgesics may be added to future studies and could be incorporated into a similar protocol.

In the province of Ontario, more than 20,000 outpatient breast surgeries are performed annually. Institution of the STOP Narcotics initiative could potentially decrease opioid availability to the population from 500,000 to 88,000 pills.

CONCLUSION

Adequate analgesia may be obtained for outpatient breast surgery using a multi-pronged pain care pathway targeting patient and provider education, as well as multimodal, opioid-sparing intra- and postoperative analgesia strategies (STOP Narcotics initiative). Opioid use can be significantly reduced and often eliminated when used as rescue therapy. A culture shift is needed to implement non-opioid alternatives as the foundation of pain management for outpatient surgical breast procedures. This initiative may be replicable at a health systems level and could provide a framework for future analgesia guidelines in ambulatory breast surgery.

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DISCLOSURE There are no conflicts of interest.

APPENDIX 1: MULTI-PRONGED OPIOID-SPARING INTERVENTION

Patient Education

Patients were educated by staff, residents, and nurses through written instructions (standardized education sheets) and verbal reinforcement on two occasions: the initial surgical consultation and the day of surgery. Patients' expectations surrounding the surgery, discomfort, and the recovery process were clarified. Instructions focused on optimal use of non-opioid analgesic medications (acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs) and conservative measures such as ice therapy. Patients were instructed only to fill a separate rescue 10-tablet opioid prescription if their discomfort was not satisfactorily controlled by other measures. Finally, patients were educated on appropriate medication disposal.

Provider Education

Surgeons, anesthetists, residents, post-anesthesia care unit (PACU) nurses and pre-admission clinic (PAC) staff were educated through divisional rounds, meetings, and emails. This education focused on current evidence surrounding opioid use and prescribing after surgery, as well as the development and commencement of the Standardization of Outpatient Procedure Narcotics (STOP Narcotics) initiative.

Intraoperative Protocol

Concerning the surgical safety checklist, it was reinforced with the anesthetist that patients were to receive ketorolac (15–30 mg IV), ondansetron (4–8 mg IV), and dexamethasone (4–8 mg IV) during the surgery. All surgeons were encouraged to use local anesthetic field blocks (lidocaine or bupivacaine).

Postoperative Protocol

Patients received a prescription for an NSAID (meloxicam 7.5 mg or naproxen 400 mg) to be taken twice daily for 72 h. Acetaminophen 500 mg also was to be taken every 6 h for 72 h. After 72 h, patients were instructed to take ibuprofen 400 mg and acetaminophen 500 mg as needed. A separate rescue prescription of 10 tablets of an opioid prescription was provided (tramadol 50 mg or codeine 30 mg). This prescription expired in 7 days, with instructions to fill it only if discomfort was not sufficiently achieved through other analgesic and conservative measures. Ice therapy also was used at the discretion of the surgeon and patient.

APPENDIX 2: POSTOPERATIVE PAIN MANAGEMENT INSTRUCTIONS

Patients were asked to notify their surgeon if they had a history of stomach ulcers, liver disease, kidney disease, or allergies to any of these medications.

Ice therapy was suggested to help reduce swelling and discomfort at the surgical site during the acute postoperative period. Patients were instructed that an ice pack wrapped in a cloth may be applied to the breast and/or axilla for the first couple of days after surgery. This was recommended for 15 min/15 min off at a time.

First 3 days (72 h) After Surgery

1. Meloxicam 7.5 mg: 1 tablet PO, q12 h, for 3 days (prescription)
2. Acetaminophen 500 mg; 1–2 tablets PO q6 h, for 3 days.

If the patient does not have coverage for meloxicam, the following may be prescribed:

1. Naproxen 200 mg (Aleve): take 2 tablets orally every 12 h for 3 days.

To maximize pain relief, it was strongly recommended to take both of these medications.

After 3 days (72 h) After Surgery

1. Continue acetaminophen 500 mg: 1–2 tablets PO q6 h as needed
2. Ibuprofen 400 mg; 1 tablet PO q6 h as needed.

Patients are given separate prescriptions with the following instructions:

Tramadol 50 mg: 1 tablet PO q6 h PRN (10 tabs) (expiration date 7 days)

If the patient does not have coverage for tramadol, the following may be prescribed:

Codeine 30 mg: 1 tab PO q6 h PRN (10 tablets) (expiration date 7 days)

Patients were given instructions to fill this prescription only if the aforementioned measures do not adequately control their pain.

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