Narcotic Free Cervical Endocrine Surgery

A Shift in Paradigm

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Background and Objective: The opioid epidemic has stimulated initiatives to reduce the number of unnecessary narcotic prescriptions. We adopted an opt-in prescription system for patients undergoing ambulatory cervical endocrine surgery (CES). We hypothesized that empowering patients to decide whether or not to receive narcotics for pain control would result in fewer unnecessary opioid prescriptions.

Methods: We enrolled all patients scheduled for outpatient CES between July 2017 and June 2018 in a narcotic opt-in program. Patient demographics, procedure characteristics, and postoperative pain scores were collected prospectively. Statistical analyses were performed to correlate clinical predictors with narcotic request. Results were compared against a historical control group. The study was approved by the University IRB.

Results: A total of 216 consecutive patients underwent outpatient CES following implementation of the program. Only nine (4%) requested prescription narcotic medication at discharge, and no patient called after discharge to request analgesic medications. Compared with our prior treatment paradigm, we achieved a 96.6% reduction in the number of narcotic tablets prescribed, and a 98% reduction in unconsumed tablets. Univariate analysis suggested history of substance abuse ($P < 0.001$), anxiety ($P = 0.01$), depression ($P < 0.001$), baseline narcotic use ($P = 0.004$), highest pain postoperatively ($P = 0.004$), and incision length ($P = 0.007$) as predictive for narcotic request. Multivariate analysis retained significance with incision length and history of substance abuse.

Conclusion: By empowering patients undergoing ambulatory CES to accept or decline a prescription, we reduced the number of prescribed narcotic tablets by 96.6%. Although longer incisions and prior substance abuse predict higher likelihood of requesting pain medication on discharge, 207 of 216 patients were treated with acetaminophen alone.

Keywords: addiction, discharge, endocrine surgery, narcotic, opiod, parathyroid, reduction, thyroid

The rising incidence of opioid addiction and overdose deaths in America was declared a public health emergency by the president in October 2017.[1] Per capita, more opiates are consumed in the United States than in any other country,[2] and it is estimated that 5 million are current opiate abusers.[5] Abuse of prescription opioids is known to lead to heroin abuse, as 86% of heroin addicts reported their first exposure to opioids was through prescription narcotic medications.[5,6] At 50,000 deaths annually, opiate abuse accounts for a death toll larger than motor vehicle crashes or gun violence.[3,4]

From 1999 to 2012 there was a 4-fold increase in narcotic prescriptions in the United States.[7] In 2011 alone, >219 million narcotic prescriptions were written, enough to provide every adult with 5 mg of hydrocodone every 6 hours for 45 days. That spike in opioid prescriptions was at least partly due to a report by the Joint Commission calling for the incorporation of pain scores into a patient's vital signs.[7] This was followed by state and subsequently federal legislation, establishing the "Decade of Pain Control and Research."[8] Coupled with aggressive marketing and lobbying by opioid manufacturers, specifically the newly FDA approved OxyContin,[9] those policy changes effectively took the brakes off of narcotic prescriptions. As more Americans became addicted to opioids, the epidemic was further fueled by a surge of highly potent illegal heroin and fentanyl analogs,[4] and by 2017 the country was gripped by the worst opioid addiction and overdose epidemic in history.[5,10]

Recognizing the detrimental effects of unfettered opioid prescriptions, physicians, communities, and federal and state governments began trying to stem the tide of narcotic prescriptions. As an example, in 2014 the Federal Drug Enforcement Agency (DEA) rescheduled hydrocodone containing formulations as a schedule II from a scheduled III controlled substance, eliminating the ability to authorize refill prescriptions.[11] Physicians and surgeons began to recognize the responsibility of the medical community to limit unnecessary prescriptions, and a burgeoning body of literature has been published detailing the current state of prescription practices across a number of specialties and procedures.[5,12–15]

Strikingly, research has shown that opioid dependence can occur even from *as-instructed* use of narcotic medications for acute pain. For example, Alam et al demonstrated that opioid-naive individuals who received a narcotic prescription after short stay surgery were significantly more likely to become long-term opioid users than those who received no narcotics.[16] Furthermore, a study of >1 million patients with acute pain revealed that 3% continued to use narcotic medications >3 years after the initial prescription was provided.[17] Relevant to our study population, a recent study reported that 16 of 58 patients (30%) who underwent thyroid or parathyroid surgery used narcotic pain medications for 3 or more days postoperatively. Three (6%) of those patients continued to consume pain medications even beyond the 10th postoperative day, well beyond the expected acute postoperative pain period.[18]

Besides the immediate harm to patients, unseen victims also suffer from narcotic overprescription. More than 70% of adults who abused prescription opioids reported acquiring the narcotics through diversion of prescriptions that were provided to others, and in more than half, the source was a friend or relative who had leftover narcotics.[19] Not surprisingly, reducing overprescribed opioids is a prominent focus in the federal government's Strategy to Combat Opioid Abuse, Misuse, and Overdose, the guiding document outlining the department of Health and Human Services' approach to curtailing "the worst public health crisis of our time."[20]

Thyroidectomy and parathyroidectomy are the two most common endocrine surgical procedures, and are frequently

performed on an outpatient basis. This short hospitalization increases the onus on outpatient pain control. It is estimated that >130,000 thyroidectomies are performed annually in the United States.[21] A previous multi-institutional study in which we participated revealed great variability in the quantity of narcotic medications prescribed at discharge following these operations.[22] That study also found that 32% of the patients required no narcotic pain medications at home, and that 70% consumed between 0 and 3 tablets.[22] Interestingly, nearly 40% of the patients who reported taking the prescribed opioids did so for reasons *other* than incisional pain.[22] A subsequent analysis of our program's data from that study revealed that although we had routinely prescribed 20 tablets of hydrocodone/acetaminophen, 41% of our patients took no narcotics following discharge. We therefore designed a prospective study where the default method of postoperative pain control was non-narcotic. We hypothesized that many patients, if given adequate education, non-narcotic analgesia, and the prerogative to choose would decline narcotic prescriptions for discharge, and that further reductions in narcotic prescriptions could be achieved.

METHODS

In July 2017, we began a narcotic opt-in program for all patients undergoing outpatient cervical endocrine surgery (CES). Implementation of this program involved only slight changes to the informed consent process in the office, the discharge process from the hospital, and a brief educational initiative for the recovery room and observation unit staff. No changes in intraoperative techniques or approaches were made.

During the office consultation, all patients who were scheduled for CES were informed of our prior research, showing that many patients who underwent similar operations did not require narcotic pain medication following discharge. Patients were counseled that at the time of their discharge from the hospital, they would be given a choice of whether or not to receive a prescription for narcotic pain medication. They were also reassured that if their discomfort was severe, a prescription would be provided over the phone if they requested it.

All patients received a preincision bilateral superficial cervical nerve block using a blend of 15 mL of 1% lidocaine and 15 mL of 0.25% bupivacaine. Intraoperative analgesia was left to the discretion of the anesthesia staff with no influence from the surgical team. Intraoperative ketorolac was not utilized. Postoperatively, ice packs and acetaminophen (1000 mg every 6 h as needed) were provided for all patients.

By protocol, all patients were observed for a minimum of 6 hours postoperatively. Before discharge, all patients were examined by a resident, physician assistant, or attending surgeon who assessed levels of discomfort. Patients who requested narcotic pain medications were prescribed hydrocodone–acetaminophen, 10 to 20 tablets, at the discretion of the covering physician or physician assistant. Patients were cautioned not to exceed the maximum daily dose of acetaminophen (4000 mg/d). All patients were instructed to take 1000 mg of acetaminophen every 6 h as needed for discomfort after discharge, and those with narcotic prescriptions were instructed to use them as breakthrough therapy. In preparation for implementation of the program, brief education sessions were held to apprise the recovery room and observation unit staff on the planned change in discharge process and to set the expectation that some patients might decline opioid medications upon discharge. In addition, we hoped to recruit their assistance in setting patients' expectation that some tolerable discomfort is to be expected after surgery and that acetaminophen, rather than narcotic medications, should be the first line treatment.

Following discharge, all phone calls were routed to the attending surgeon or a nurse practitioner. All pain-related phone calls were prospectively tracked. All patients who were prescribed narcotic pain medications were queried regarding their utilization of these medicines either at their postoperative visit or by phone call.

Demographic information, including risk factors for increased narcotic use (past or present use of narcotics, presence of chronic pain conditions, coexisting psychiatric diagnosis, or substance abuse), operative details (operation performed, incision length, indication, Thyroidectomy Difficulty Score,[23] operative times, and the surgeon's subjective assessment of thyroiditis severity), pathologic diagnoses, postoperative pain assessment scores, and discharge plan (request for narcotics) were all tracked prospectively using a password protected electronic data capture system (REDCap 8.10.1 - © 2019 Vanderbilt University).[24] Patients were excluded if they required admission as inpatients after surgery or had lengths of stay >23 hours.

We compared the results from the first year of this prospective opt-in period to a retrospective cohort of 103 consecutive patients who underwent outpatient CES at our institution over a 5-month period and were included in a previously reported study.[22] Other than education regarding the opt-in program, no changes in data collection, intraoperative management, or other interventions were implemented between the two study periods.

Continuous variables were tested for normality utilizing the Shapiro–Wilk test. Univariate analysis was conducted as follows: parametric continuous variables were compared with the independent sample t test, nonparametric continuous variables were compared with the Mann–Whitney U test, and categorical variables were compared with Pearson's χ^2 test. Multivariable nominal logistic regression was used to analyze factors found statistically significant ($P < 0.05$) during univariable analysis; the primary outcome analyzed was whether patients accepted narcotics at discharge or deferred them. The null hypothesis was rejected if $P < 0.05$. Statistical analysis was performed using JMP Pro 13 (© SAS Institute Inc). The study was approved by the University Institutional Review Board.

RESULTS

During the study period, 217 patients were scheduled for outpatient CES by a single surgeon. Of these, one was admitted and was therefore excluded from analysis. Of the remaining 216 patients, 109 underwent thyroid surgery (60 total thyroidectomies, 49 lobectomies) and 102 underwent parathyroid surgery (88 unilateral, 14 bilateral). The remainder of patients underwent a handful of other procedures, including lymph node biopsies (1), modified radical neck dissections (4), neck dissections (9), and combination thyroid and parathyroid procedures (8) (Table 1).

Comparing these results with our historical control group revealed that the two cohorts were similar from a demographic, pathologic, and clinical perspective. There were no differences in sex distribution (77% vs 76% female, $P = 0.77$), age (mean 55 vs 54, $P = 0.76$), or in the proportion of thyroid/parathyroid, or unilateral/bilateral procedures performed ($P = 0.23$). Notably, the postimplementation group had a significantly higher maximal postoperative pain score (mean VAS 4.04 vs 3.17, $P = 0.11$) and longer incisions ($P = 0.02$) (Table 1).

Over the course of the study period there was a profound decrease in both the proportion of patients who utilized narcotic medications following discharge and in the total quantity of pain medications that we prescribed. Following the implementation of the program, we found that 96% of our patients were discharged with no narcotic pain medications. Of the 216 consecutive patients who underwent outpatient CES during the study period, only 9 (4.2%) requested narcotic pain medications upon discharge. Furthermore, no patient called to request medications or to complain about pain

TABLE 1. Clinicopathologic and Demographic Characteristics of Pre- and Post-implementation Cohorts

Cohort Characteristics

	Postimplementation	Preimplementation	*P*
Number of patients	216	103	n/a
Female sex (n, %)	94 (77%)	78 (76%)	0.77
Age (mean, SD)	55 (15.9)	54 (15.9)	0.76
Highest pain in hospital (VAS) (mean, SD)	4.04 (2.94)	3.17 (2.33)	*P* = 0.011

Operative Characteristics

	Postimplementation	Preimplementation	*P*
Surgery type (n, %)			0.24
iUnilateral parathyroidectomy	88 (41%)	39 (38%)	
iBilateral parathyroidectomy	14 (6%)	4 (4%)	
iThyroid lobectomy	49 (23%)	21 (23%)	
iTotal thyroidectomy	60 (28%)	39 (38%)	
iLNB	1 (<1%)		
iMRLND	4 (2%)		
Neck Dissection (n, % thyroid)	9 (9%)	5 (8%)	0.57
Cancer Diagnosis (n, % thyroid)	27 (28%)	22 (37%)	0.11
Incision Length (n, %)			*P* = 0.016
i<4 cm	19 (9%)	8 (7%)	
i4-6 cm	167 (77%)	91 (88%)	
i6-8 cm	28 (13%)	2 (2%)	
i>8 cm	2 (<1%)	2 (2%)	

LNB indicates lymph node biopsy; MRLND, Modified Radical Lymph Node Dissection. Cancer and neck dissection percentage of thyroid procedures.

following discharge from the hospital during the study period. By comparison, all patients from the prior cohort received a prescription for 20 five milligram tablets of hydrocodone/acetaminophen on discharge, and 49% consumed $\geq$ 1 tablet at home.

Over the course of the prospective study period, a total of only 145 narcotic tablets were prescribed (average of 16 tablets per patient who requested medicines, or 0.7 tablets per patient overall). Compared with the previous practice, this represented a savings of 4175 pills, and a reduction of 96.6% in the total number of pills prescribed. The patients who opted to receive pain medications on discharge consumed an average of 8 tablets each. By comparison, the patients from the historical control group reported consuming an average of 2.5 tablets (median = 1 tablet, mode = 0 tablets). Taken in aggregate, the implementation of the opt-in program resulted in a reduction of unconsumed narcotic pain tablets from 17.5 to 0.3 per patient (*P* < 0.001) (Table 2) and a total of 3711 fewer unnecessary narcotic tablets remaining in patients' homes (Fig. 1).

Notably, eight (89%) of the nine patients who opted for narcotics upon discharge carried diagnoses of chronic pain (2), psychiatric illness (8), or baseline narcotic use (3) (Table 3). Seven of the patients who requested narcotic medications underwent thyroidectomy, and two had parathyroidectomy. Two underwent unilateral operations, and 7 had bilateral operations. None were for patients with incisions shorter than 4 cm, six were for patients with incisions 4 to 6 cm, and 3 were for incisions > 6 cm. No patient in this cohort required sternotomy.

To better understand the factors associated with patients opting to receive narcotics before discharge, we conducted a univariable analysis of the postimplementation cohort comparing the patients who accepted opioid prescriptions for discharge to those who declined. This demonstrated no significant differences in age (mean 55.3 vs 54, *P* = 0.78), race or ethnicity (*P* = 0.53), diagnosis (*P* = 0.23), or procedure performed (*P* = 0.28). There was a trend toward significance associating history of chronic pain and opting into the narcotic arm (*P* = 0.13). Patients who opted into the narcotic arm were significantly more likely to have a prior diagnosis of substance abuse (*P* < 0.001), baseline narcotic use (*P* = 0.02), depression (*P* = 0.005), and anxiety (*P* = 0.03). Furthermore, univariable analysis demonstrated a statistically significant association between longer incision length (*P* = 0.007) and a higher postoperative pain score (*P* = 0.004) with opting into the narcotic arm of therapy (Table 3).

We also conducted an analysis to determine whether the surgeon's perception of the difficulty of the operation could predict postoperative pain or narcotic request at discharge. However, we found that Thyroidectomy Difficulty Scores[23] and the surgeon's subjective rating of thyroiditis did not correlate with the highest pain scores postoperatively (*P* = 0.98 and *P* = 0.81, respectively), or

TABLE 2. Cohort Comparison Of Pain And Narcotic Utilization

Cohort Pain and Narcotic Utilization

	Post-implementation (N = 216)	Pre-implementation (N = 103)	*P*
Patients opting for narcotics (n, %)	9	n/a	n/a
Tablets prescribed (n)	145	2,060	n/a
Tablets prescribed per capita (n)	0.67	20	**<0.001**
Mean prescription volume (n, SD)	16.1 (4.2)	20 (0)	n/a
Tablets subsequently not consumed (n)	71	1,799	n/a
Unconsumed tablets per capita (n)	0.32	17.5	**<0.001**

Bold indicates the *P* value has reached statistical significance per the methods.
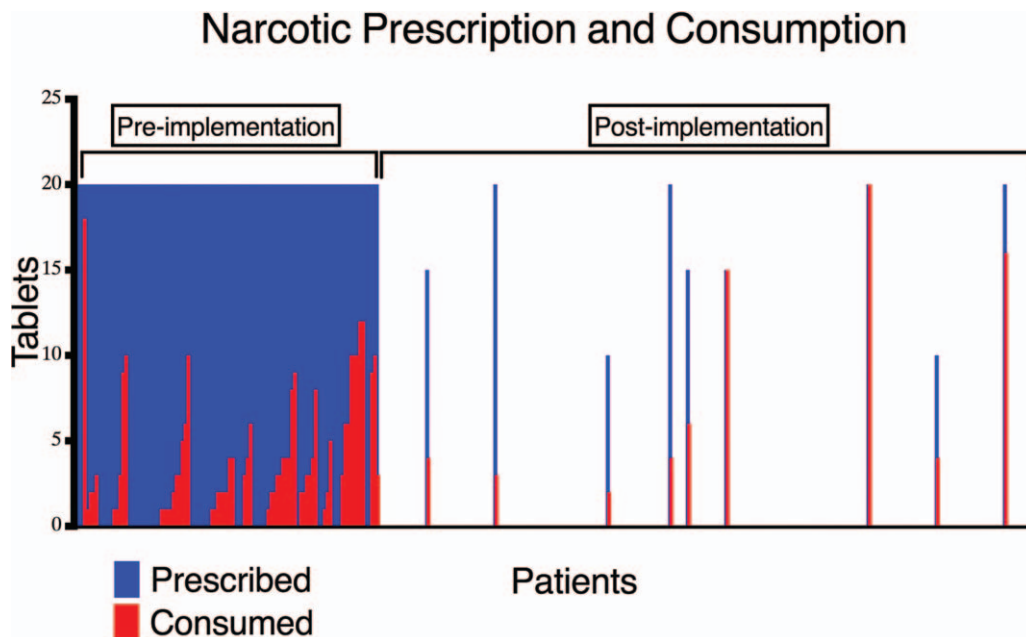
FIGURE 1. Run chart of prescribed and unconsumed narcotics of pre- and postimplementation cohorts. Patients are sequentially represented.

with patients' request for narcotic medications for discharge ($P = 0.84$ and $P = 0.36$, respectively). In addition, we found no association between operative times (stratified for unilateral and bilateral operations) and postoperative pain or requesting narcotics for discharge ($P = 0.77$ and $P = 0.34$ for bilateral procedures and $P = 0.80$ and $P = 0.60$ for unilateral procedures) (Table 3).

Clinicopathologic factors associated with opting into the narcotic arm were included in a multivariable nominal logistic regression, which demonstrated a continued association between a prior history of substance abuse and longer incision lengths with requesting narcotic medications upon discharge ($P = 0.01$ and $P = 0.02$ respectively).

DISCUSSION

The opioid crisis was declared a nationwide public health emergency in 2017.[1] Although this problem is multifactorial, physicians are taking a leadership role in reducing the number of available prescription narcotic medications. In the past 5 years, there has been a 20% decrease in the number of prescribed narcotic medications as the number of physicians who participate in prescription drug monitoring programs and continuing medical education activities continues to rise.[25] We believe that every physician has a responsibility to critically evaluate his or her narcotic prescription practice and to actively seek opportunities to limit the number of narcotic medications that they prescribe.

In this study, we present the most recent step in our efforts to reduce narcotic utilization in our endocrine surgery practice. The effort began in 2014, when we started collecting data on pain medication utilization by our patients as part of a multi-institutional study. At the time, we routinely discharged all of our patients following outpatient CES with 20 tablets of hydrocodone/acetaminophen, a practice which we had considered to be parsimonious. That work revealed that although we had been prescribing fewer narcotic tablets than reported by other colleagues at that time, the overwhelming majority of the pills that we did prescribe were not utilized or necessary. Our finding that 87% of the narcotic tablets that we had prescribed remained unused and were therefore unnecessary prompted this current initiative.[22]

In July, 2017 we changed our discharge protocol for patients undergoing outpatient CES to one where prescription pain medicines were only provided to those who requested them. All patients were informed of the findings from our previous study, and were also advised to expect a tolerable level of discomfort or soreness postoperatively. We also educated our perioperative nurses to anticipate discharging patients without prescriptions for pain medication, and to avoid encouraging them to treat all levels of discomfort with narcotic medicines.

The results from the first year of this program revealed that this paradigm has been enormously successful. We found that the overwhelming majority of patients, 207 out of 216 (96%), were discharged with zero narcotic prescriptions. None of those patients called after discharge due to uncontrolled pain, and none reported dissatisfaction with their pain management at their postoperative visit. Such findings align with previous work which found no correlation between HCAHP scores and opioid prescribing, which is a concern thought to contribute to overprescription in some disciplines.[26] Moreover, over the course of the year, we learned that this initiative resulted in 4175 (96.6%) fewer tablets being prescribed, and a 98% reduction in the number of narcotic tablets that were dispensed but remained unconsumed. Beyond the direct benefit to our patients, this effort resulted in 207 families that were spared from unnecessarily having access to narcotic medications in their homes—an average of 17 per home—which would be at risk for diversion, abuse, or accidental ingestion. This is particularly impactful, considering that when we queried the patients who received narcotic medications, none reported disposing of the unused portion of their prescription.

Our analysis revealed that some clinicopathologic factors were associated with a higher likelihood of requesting narcotic

TABLE 3. Univariable and Multivariable Sub-group Analysis of Post-implementation Cohort

Subgroup Univariable and Multivariable Analysis

	Opted for No Narcotics at Discharge (N = 207)	Opted for Narcotics at Discharge (N = 9)	Univariable *P*	Multivariable *P*
Age (mean, SD)	55.3 (16.1)	54 (11.7)	0.78	
Female sex (n, % total)	146 (76.5%)	8 (89%)	0.80	
Race and ethnicity (n, % total)			0.53	
ïAfrican American	18 (9%)	2 (22%)		
ïAsian	1 (<1%)	0 (0%)		
ïHispanic	8 (4%)	0 (0%)		
ïCaucasian	180 (88%)	7 (78%)		
Surgery type (n, % total)			0.28	
ïUnilateral Para.	87 (42%)	1 (11%)		
ïBilateral Para.	12 (6%)	1 (11%)		
ïThyroid Lobectomy	40 (19%)	1 (11%)		
ïTotal Thyroidectomy	57 (28%)	5 (56%)		
ïLNB	1 (<1%)	0 (0%)		
ïMRLND	2 (1%)	1 (0%)		
ïNeck Dissection	8 (4%)	1 (11%)		
Cancer diagnosis (n, % thyroid)	23 (24%)	4 (66%)	0.23	
OR time, hours (mean, SD)				
ïUnilateral	1.40 (0.4)	1.58 (0.0)	0.80	
ïBilateral	1.95 (0.5)	1.78 (0.4)	0.77	
ïThyroidectomy Difficulty Score (mean, SD)	10.0 (2.9)	10.5 (1.1)	0.98	
Thyroiditis Grade (n, % thyroid)			0.81	
ïNone	29 (34%)	3 (50%)		
ïMild	7 (8%)	2 (33%)		
ïModerate	40 (47%)	1 (17%)		
ïSevere	10 (12%)	0 (0%)		
PMH (n, % total)				
ïBaseline narcotic use	13 (6%)	3 (33%)	**0.02**	0.45
ïChronic pain diagnosis	14 (7%)	2 (22%)	**0.13**	
ïSubstance abuse	4 (2%)	4 (44%)	**<0.001**	**0.01**
ïDepression	28 (14%)	5 (55%)	**0.005**	0.13
ïAnxiety	42 (20%)	5 (55%)	**0.03**	0.87
Family history of substance abuse	3 (1%)	0 (0%)	1.00	
Incision length (n, % total)			**0.007**	0.02
ï<4 cm	18 (9%)	0 (0%)		
ï4-6 cm	160 (78%)	6 (67%)		
ï6-8 cm	26 (13%)	2 (22%)		
ï8-10 cm	1 (<1%)	1 (11%)		
Highest pain (VAS) (mean, SD)	3.9 (2.29)	6.8 (2.22)	**0.004**	0.18

    Multivariable nominal logistic regression incorporated variables found significantly associated with opting for narcotic at discharge (baseline narcotic use, aubstance abuse, depression, anxiety, incision length, highest pain. Whole model *P* < 0.001).
    Bold indicates the *P* value has reached statistical significance per the methods.

medications in our outpatient population. Univariable analysis suggested prior histories of substance abuse, baseline narcotic use, depression, anxiety, longer incision length, and higher pain scores in PACU as predictive. Psychiatric history, including depression, anxiety, prior substance abuse, and baseline narcotic have previously been shown to predict higher narcotic requirement after surgery.[27] Multivariable analysis retained only incision length and a prior history of substance abuse as significant predictors of requesting pain medications at discharge.

    It is notable that incision length was longer in the patients who participated in the opt-in cohort compared with their predecessors, and also reported higher maximal postoperative pain scores. In our practice, incision length represents a surrogate for goiter size or anticipated difficulty of a surgical case. We make every effort, including routine on-table ultrasound, to minimize incision length and to optimize incision placement. It stands to reason that with larger goiter size, more retraction and tissue disruption would be required, and that more pain would result. It is notable, however, that

although longer incision length was the most predictive operative factor for requesting pain medicines at discharge, 27 of 30 patients who had incisions >6ïcm did not request pain medicines on discharge. Other surrogates for case difficulty, including the Thyroidectomy Difficulty Score, operative times, and the surgeon's subjective assessment of thyroiditis severity, were not associated with increased postoperative pain or the patient requesting narcotics for discharge. Thus, no factor is sufficiently sensitive for predicting postoperative pain or narcotic requirement, and it is essential that patients are individually assessed before discharge.

    A search of the literature on postoperative pain medication requirement following CES revealed only a few relevant studies. A study by Al-Mujadi et al reported that preoperative gabapentin can reduce the postoperative morphine requirement, but their study focused only on inpatient pain medications.[28] Several other studies reported on the efficacy of superficial, or superficial and deep cervical nerve blocks, but none of those discussed outpatient pain medication requirements.[29–31] Besides our previous study, a

recently published study,[18] detailing a novel text message-based methodology for outpatient pain tracking following thyroid or parathyroid surgery, is the only other publication we could identify. In that experience, 34% of the patients did not use any pain medications after discharge, but nearly a third of the patients required pain medications beyond 3 days, and 6% continued to need narcotic pain medications for >10 days postoperatively. Unfortunately, no long-term follow-up was available for those patients, but that finding suggests that like all other postoperative patients, post-CES patients are at risk for long-term narcotic use, and that helping these patients avoid narcotic exposure altogether is of utmost importance.

Our approach is unique in that it used education and the empowerment of patients to achieve a substantial reduction, and in most cases, elimination of prescribed narcotics. Several earlier studies have shown reduced prescription volumes following other surgical interventions through the use of non-narcotic adjuncts such as standardized nonsteroidal anti-inflammatory medication use[32] or improved analgesia with regional blocks.[33] In addition, other studies have demonstrated the effectiveness of provider education in reducing narcotic overprescription.[34,35] To our knowledge, however, no other group has demonstrated that allowing patients to decide if they need narcotics for discharge can result in a substantial number of patients opting not to receive any of these medicines. This underscores the importance of building sufficient entrustment with patients, so they may take the leap of faith that they will not require the prescription, and that in the event of uncontrolled pain a prescription will be provided in a timely manner. It also highlights the benefit of allowing physicians to prescribe narcotic medications electronically because this allowed us to provide a safety net for breakthrough pain after discharge.

Our study has limitations which must be acknowledged. First, this is only a single center, single surgeon experience with a relatively limited number of patients who qualified for inclusion. There were few patients who actually requested narcotics, making concrete assertions on predictors for pain requirements difficult to make based upon this initial experience. In addition, although there were no differences in operative technique or in the data fields collected, we compared prospectively collected data to a retrospective group. Lastly, our study is vulnerable to all of the limitations of a longitudinal cohort study design. Nevertheless, we were able to definitively show that the overwhelming number of patients who undergo outpatient cervical endocrine surgery can be safely discharged with no narcotic analgesic medications. Furthermore, we showed that relatively simple interventions and empowerment of patients can amount to a substantial reduction or even elimination of narcotic prescription, and intend to apply these lessons to other outpatient procedures performed at our hospital. We believe that all surgeons should critically evaluate their own opioid prescribing patterns and strive to minimize overprescription.

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