

Opiate Prescribing Practices in the Postpartum Unit

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Background: Louisiana is significantly impacted by the opioid epidemic. In preparation for a quality improvement project aimed at decreasing postpartum narcotics prescriptions, we evaluated routine prescribing practices on a postpartum unit and the number of patient-initiated encounters for postpartum pain.

Methods: We conducted a retrospective medical record review of all vaginal deliveries occurring at Ochsner Baptist Medical Center in New Orleans, LA in December 2016 and January 2017. We collected patient demographics, inpatient and outpatient pain medications, and the number of postpartum pain-related encounters prior to the scheduled postpartum visit. We evaluated the cohort for inpatient medication usage and for postpartum encounters for pain.

Results: After exclusions, 187 of 369 patients were included in the analysis: 78 patients had no perineal laceration, 40 had a first-degree laceration, and 69 had a second-degree laceration. The no-laceration ($P=0.007$) and second-degree laceration ($P=0.011$) groups had a significantly higher mean morphine milligram equivalent (MME) per patient during hospitalization than the first-degree group. Sixty-four patients were primiparous, and 123 were multiparous. Parity decreased as the severity of the laceration increased. Multiparous patients had a higher mean MME than primiparous patients (34.5 vs 30.0, respectively) during hospitalization, but the difference was not significant. In the no-laceration group, multiparous patients used significantly more narcotics during hospitalization (mean 41.4 MME) than primiparous patients (mean 22.5 MME) ($P=0.029$). A total of 3,635 narcotic pills were prescribed for our cohort at discharge, an average of 19.4 pills per patient. Overall, the mean number of postpartum encounters for pain was 0.19 per patient, with no difference between groups.

Conclusion: Despite a high number of outpatient narcotics prescriptions, approximately 1 in 5 patients initiated an encounter to address pain after vaginal delivery. Parity may play a role in postpartum inpatient narcotic usage, possibly because multiparous patients have had prior exposure to narcotics use in postpartum care.

Keywords: Delivery—obstetric, opiate alkaloids, pain, postpartum period

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INTRODUCTION

Despite recent downward trends, the rate of narcotics prescriptions is still alarmingly high in many areas of the United States.¹ Overdose deaths in American women increased more than 5-fold from 1999-2010.² Louisiana is particularly vulnerable as opioid prescribing rates in the state have historically been among the highest in the country (average 98.1 prescriptions per 100 persons).¹ Although the Centers for Disease Control reported that the number of narcotics prescriptions written by providers decreased by 13.1% from 2012 to 2015,^{1,3} others have reported that the sale of prescription opioids increased by 4 times between 1999-2014 with no change in the overall pain reported by Americans.⁴⁻⁶ And while some progress may have been made in the United States, the prescription rate is still triple the level recorded in 1999 and 4 times greater than the rate in some European countries.⁷ These concerning

reports warrant further investigation to understand which patient groups are experiencing this crisis and whether, as several reports suggest, this epidemic is partly driven by provider prescribing practices, as prescribing practices may be an area in which directed culture change could affect outcomes.^{3,8,9}

To our knowledge, as of this publication, no current nationwide opioid prescribing recommendations from the American Pain Society (APS) or the American College of Obstetrics and Gynecology are specific to common obstetric procedures such as vaginal and cesarean deliveries, and existing recommendations comment only on the necessary review of risk vs benefit in patients with an existing opioid use disorder.^{10,11} Some studies conducted to better understand the role of narcotic medication in effective pain control for obstetric patients suggest that an

excess number of opioid prescriptions are written and filled for vaginal deliveries and cesarean sections.¹²⁻¹⁵

Further investigation is necessary to elucidate to what extent narcotics are necessary for pain control following obstetric procedures and what impact the opiate prescribing culture has on the amount of narcotics introduced into the community. Our study aimed to determine the routine prescribing practices of providers at our institution for patients after vaginal deliveries and the number of encounters for pain these patients initiated during the postpartum period.

METHODS

We conducted a retrospective analysis to determine the prescribing practices for our postpartum patients at the Ochsner Baptist Medical Center labor and delivery location in New Orleans, LA. This study was undertaken in preparation for a quality improvement project aimed at decreasing the amount of outpatient narcotic prescriptions written at the time of discharge for patients who had had vaginal deliveries. We chose the Ochsner Baptist location to implement our quality improvement project because of the academic nature of the facility; it is the primary site for the obstetrics practice for the obstetrics/gynecology residents. Our plan, if our quality improvement project is successful, is to evaluate all Ochsner Health System labor and delivery sites for possible practice changes.

For the initial review, we included all vaginal deliveries occurring at Ochsner Baptist during the months of December 2016 and January 2017 in the dataset. Any patient who was not managed by residents and their associated faculty in the postpartum period was excluded. Patients with third- or fourth-degree lacerations, episiotomy, operative delivery, chronic pain syndromes, history of opiate abuse, or intrauterine infection that developed at any point during hospitalization were excluded. Patients delivering preterm (prior to 37 weeks) and those experiencing intrauterine fetal demise or lethal fetal anomaly were excluded as the goal was to evaluate uncomplicated vaginal deliveries, and these situations are likely to increase stress levels and potentially affect the experience of pain during the postpartum period.

Patient information including patient age, parity, gestational age, medication use while hospitalized, discharge prescriptions, and postpartum encounters for pain were collected by medical record review. Postpartum encounters for pain included patient-initiated phone calls, messaging through our electronic medical record, and visits (both in the office and the obstetric emergency department) occurring during the 6-week postpartum period, prior to the regularly scheduled postpartum visit. Postpartum encounters for pain were totaled and averaged to generate an encounter per patient number for analysis. Medication usage during hospitalization was evaluated, but we only included medications taken by mouth during hospitalization. Narcotics use was quantified as the morphine milligram equivalent (MME) per patient during the postpartum period. We also collected information on whether or not a scheduled nonsteroidal antiinflammatory drug (NSAID) order was written for the patient during her hospitalization.

We evaluated the cohort based on the degree of perineal laceration at the time of delivery, resulting in 3 groups: patients with no gradable laceration, with a first-degree

laceration, and with a second-degree laceration. The postpartum encounters for pain and the medication usage of the 3 groups were evaluated with 1-way analysis of variance and paired *t* test. Statistical significance was defined as $P \leq 0.05$.

We also divided the cohort by parity to yield 2 groups: primiparous and multiparous patients. Primiparous patients are those who delivered their first viable infant during this hospitalization. Multiparous patients are defined as those who had previously delivered a pregnancy at >20 weeks. These groups were evaluated with paired *t* test. Statistical significance was defined as $P \leq 0.05$.

RESULTS

On initial review, we identified 369 vaginal deliveries during the 2-month period. After exclusions, 187 patients were included in the analysis. Of these patients, 78 had no perineal laceration at the time of delivery, 40 had a first-degree laceration, and 69 had a second-degree laceration. Demographic information is listed in Table 1. Significant differences in age and parity among the 3 groups were found, with age increasing and parity decreasing as the severity of the tear increased. The average gestational age at delivery was 274.3 days. A total of 3,635 narcotic pills (5/325-mg oxycodone/acetaminophen) were prescribed for our cohort at discharge, an average of 19.4 pills per patient.

No significant difference ($P=0.587$) was found when the 3 groups were evaluated for postpartum encounters for pain: the no-laceration group had a mean of 0.15 encounters per patient, the first-degree laceration group had a mean of 0.18 encounters per patient, and the second-degree laceration group had a mean of 0.25 encounters per patient (Table 2). The average for all patients was 0.19 encounters per patient, or approximately 1 postpartum encounter per 5 patients.

Table 2 presents the mean MME per patient during postpartum hospitalization for each group. The overall comparison among the 3 groups was significant ($P=0.042$), with the first-degree laceration group having the lowest mean MME. In the individual group comparisons, the no-laceration and second-degree laceration groups had higher mean MMEs per patient compared to the first-degree laceration group ($P=0.007$ and $P=0.011$, respectively) (Figure). We found no difference in mean MME per patient between the no-laceration and second-degree laceration groups.

In terms of parity, the cohort included 64 primiparous patients and 123 multiparous patients. The primiparous patients composed almost half (47.8%) of the second-degree laceration group but only 21.8% of the no-laceration group (Table 1). When the entire cohort was evaluated, the multiparous patients used slightly higher amounts of narcotics (mean MME 34.5) compared to the primiparous group (mean MME 30.0), but the difference was not significant ($P=0.392$) (Table 3). However, because of the large difference in narcotics usage between the no-laceration and the first-degree laceration groups as well as the large difference in parity between these groups, we further evaluated this relationship (Figure). We found a significant difference in narcotics usage between the primiparous and multiparous patients ($P=0.029$) in the no-laceration group, with a primiparous group mean of 22.5 MME per hospitalization vs a multiparous group mean of

Table 1. Demographic Information by Perineal Laceration Group and Overall

Variable	No-Laceration Group (n=78)	First-Degree Laceration Group (n=40)	Second-Degree Laceration Group (n=69)	Overall (n=187)	P Value
Mean age, years	28.3	29.1	31.2	29.5	0.002
Mean gestational age at delivery, days	273.7	274.5	274.8	274.3	0.705
Mean parity	1.50	1.03	0.62	1.1	<0.0001
Primiparous, n	17	14	33	64	–
Multiparous, n	61	26	36	123	–

41.4 MME per hospitalization. No significant differences were seen between primiparous and multiparous patients in the other laceration groups. The analysis was not adjusted for length of hospitalization or epidural rate. The average parity of the multiparous patients in each laceration group (1.50 in the no-laceration group, 1.03 in the first-degree laceration group, and 0.62 in the second-degree laceration group) was significantly different ($P<0.0001$).

DISCUSSION

We found that our patients are calling, emailing, and coming in for emergency visits during the postpartum period after vaginal delivery at a rate of approximately 1 encounter per 5 patients, but we found no difference in the rate of these encounters by degree of laceration or parity. The mean MME per patient during the postpartum period differed by laceration group, with the no-laceration and second-degree laceration groups having significantly higher mean MMEs than the first-degree laceration group. One possible reason for this difference is that our group of first-degree laceration patients was much smaller than the other 2 groups; therefore, we may not be capturing a true representation of opioid use in this group. In addition, our study only encompassed a short time period, and as a result, our sample size is small. We selected a short time period for our review to provide a snapshot of our current practices prior to the design and initiation of a quality improvement project that will focus on decreasing the amount of opiates prescribed on discharge from the mother baby unit.

This investigation highlighted areas that may be amenable to culture change in the future. For example, only 60.4% of patients had an order for scheduled NSAIDs, but in following a multimodal, nonnarcotics-centered approach for pain control in the postpartum period, ideally all patients without a contraindication should receive scheduled

NSAIDs after delivery. In addition, oxycodone has a higher MME than hydrocodone. Guidelines for management of non-cancer-related pain suggest calculating and monitoring daily MME dosing to ensure administration of the lowest amount possible.⁸ However, the majority of patients received oxycodone for pain control while hospitalized during the postpartum period. This preferential use of oxycodone is likely because it was the only narcotic included in our routine postpartum order sets at the time of this study.

Interestingly, within the no-laceration group, patients who had previously had children used much higher amounts of narcotics compared to the patients who had just delivered their first child. In addition, the average number of children these patients had previously delivered was highest in the no-laceration group. Increased parity means that these patients likely had multiple prior exposures to labor and delivery and postpartum care for the births of their other children and were possibly cared for in a culture that was not actively trying to decrease narcotics usage. They may have come to expect narcotics as the primary form of pain control during the postpartum period. This possibility suggests that patient education about alternative forms of pain control will need to be a component of our quality improvement project. While other factors such as breastfeeding prior to discharge and epidural placement during labor could have affected postpartum pain levels, these factors were not considered in this study and are important topics to consider in future investigations. Postpartum pain control is obviously a multifaceted issue with many areas in which we believe we can significantly decrease our narcotics footprint without affecting patient satisfaction or effective pain control.

Current recommendations from the APS, with input from the American Society of Anesthesiologists, advocate multimodal postoperative pain control strategies for patients who

Table 2. Drug Use During Hospitalization and Postpartum Encounters for Pain by Perineal Laceration Group and Overall

Variable	No-Laceration Group (n=78)	First-Degree Laceration Group (n=40)	Second-Degree Laceration Group (n=69)	Overall (n=187)	P Value
Mean morphine milligram equivalent per patient	37.3	20.4	35.4	40.0	0.042
Percentage of patients with an order for NSAIDs	60.3	62.5	59.4	60.4	0.951
Mean postpartum encounters for pain per patient	0.15	0.18	0.25	0.19	0.587

NSAIDs, nonsteroidal antiinflammatory drugs.

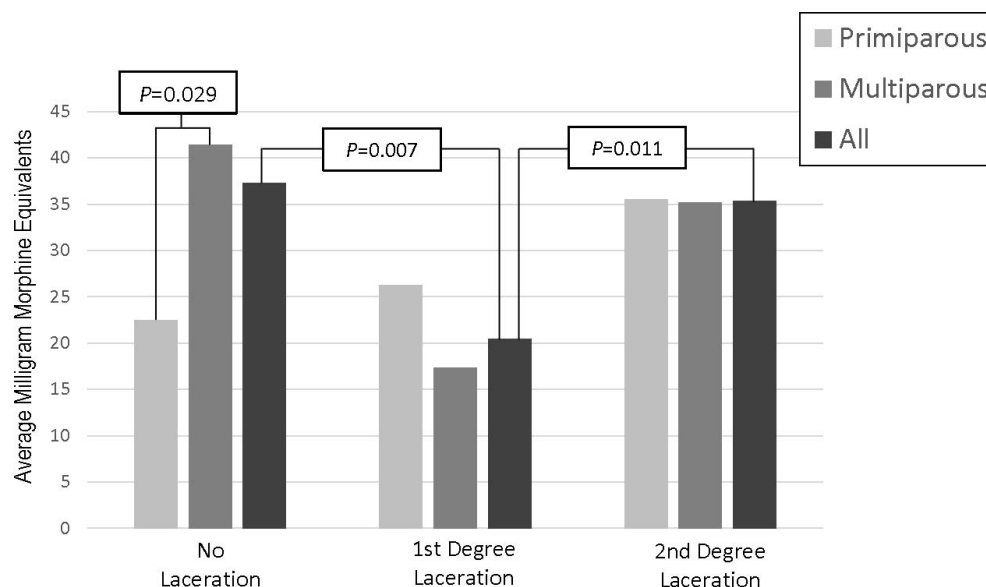


Figure. Mean morphine milligram equivalents used per patient during the postpartum period by parity and laceration type.

undergo surgical procedures.¹⁰ According to the systematic review completed by the APS, along with other studies, strong recommendation and high-quality evidence support the use of acetaminophen and/or NSAIDs as part of the multimodal regimen for effective pain control postoperatively.^{10,16} The benefits of this approach are 2-fold: first, to reduce the amount of opioid consumption and second, to avoid opioid-related adverse side effects. Specific protocols to implement multimodal analgesia regimens such as the enhanced recovery after surgery (ERAS) protocol used in colorectal surgery have shown success in implementing a multimodal approach clinically. One study using the ERAS protocol found that 30-day all-cause readmission rates decreased from 21% to 9.4%, opioid use decreased, and pain scores were improved on postoperative days 0 and 1.¹⁷ Because of the relative paucity of obstetrics-specific research, we often look to findings from other surgical fields to help guide our practice. However, when others have tried to apply these results to different subspecialties, the positive outcomes related to ERAS were not as pronounced in other subspecialties.¹⁸ This finding highlights the need to further investigate specialty-specific protocols, including obstetrics, for which no recommendations or guidelines are currently in place.

The few recent studies evaluating pain control methods in obstetrics have looked at the postpartum period for both vaginal and cesarean delivery. A 2017 retrospective cohort study reported that more than 1 in 10 Medicaid patients filled an opioid prescription as an outpatient after a vaginal

delivery.¹⁴ In a study of 720 women who underwent cesarean section, 85.4% of patients filled an opioid prescription.¹⁵ These patients were each prescribed approximately 40 tablets of either 5-mg oxycodone or 5-mg hydrocodone on discharge and were contacted at 2 weeks postdischarge to evaluate narcotics usage. The patients reported, on average, 16 unused tablets, and 95.3% of women with leftovers had not disposed of the excess tablets.¹⁵ While a very small portion of opioid-naïve women actually become persistent prescription opioid users after cesarean delivery,^{12,13} the amount of opioids introduced into the community through the substantial number of leftover tablets is worrisome.¹⁵ In the most recent national survey regarding opioid misuse, 59.9% of responders reported using opioids without a prescription, and 40.8% reported most recently obtaining prescription opioids for free from friends or relatives.¹⁹ Thus, by limiting the number of prescriptions written, even through avenues such as obstetric care, we can limit the number of opioid analgesics diverted into the community.

Efforts have been made at both at a national and local level to intervene in the opioid epidemic with optimistic outcomes. In 2012, New York and Tennessee adopted practices that require physicians to check state prescription drug monitoring programs before writing narcotic prescriptions, resulting in a 75% (NY) and 36% (TN) decrease in the number of patients seeing multiple doctors for prescriptions.²⁰ At the national level, in December 2016, Congress passed the 21st Century Cures Act that allotted approximately \$1 billion over 2 years to fund states' efforts to fight

Table 3. Opioid Use During Hospitalization and Postpartum Encounters for Pain by Parity Group

Variable	Primiparous Group (n=64)	Multiparous Group (n=123)	P Value
Mean morphine milligram equivalent per patient	30.0	34.5	0.392
Mean postpartum encounters for pain per patient	0.23	0.17	0.457

the opioid epidemic.³ Louisiana, as the sixth leading prescriber of opiates in the United States, has stepped up to the challenge of combating the opioid endemic. In June 2017, Governor John Bel Edwards signed 3 bills into law, one of which (House Bill 192) imposes a 7-day limit on first-time opioid prescriptions written for acute pain.²¹ In October 2017, our current presidential administration declared the opioid epidemic a national health emergency, although at the time this article was written no funding had been allocated to support the declaration.²²

The complexity and scale of the opioid crisis require a multidisciplinary approach to work toward a resolution. National and state governments have made attempts to combat the problem through multiple avenues, including limitations on access and distribution as well as harm reduction. As physicians, we must work clinically and determine how we can collaborate with lawmakers, first responders, and the community at large to fight this epidemic.

CONCLUSION

Our data suggest that despite the likely excessive amount of narcotics given on discharge after uncomplicated vaginal deliveries, approximately 1 in 5 patients initiates an encounter to address postpartum pain prior to her regularly scheduled postpartum visit. In addition, parity appears to play a role in postpartum narcotic usage in the hospital, possibly because of patients' prior experiences with the use of narcotics for pain control in postpartum care. We plan to use the information reported in this study to create a quality improvement project designed to decrease the amount of narcotics given on discharge and demonstrate that this practice change does not affect patient satisfaction or pain control during the postpartum period. We hope that by limiting the amount of opioids prescribed after vaginal deliveries, we can play a small part in a nationwide effort to decrease the number of narcotics introduced into our communities.

ACKNOWLEDGMENTS

These findings were previously presented at the 35th Annual John C. Weed Conference in New Orleans, LA on May 19, 2017.

The authors have no financial or proprietary interest in the subject matter of this article.

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This article meets the Accreditation Council for Graduate Medical Education and the American Board of Medical Specialties Maintenance of Certification competencies for Patient Care, Medical Knowledge, and Practice-Based Learning and Improvement.