

Mayo Clinic in Arizona (AZ) Small Grants Protocol Submission Template

Title of the study: Patient-Directed Postoperative Opioid Prescribing for Gynecologic Surgery

Principal investigator: Johnny Yi, MD

Co-investigator(s): Ritchie Mae Delara, MD, Sadikah Behbehani, MD, Rachael Haverland, MD, Mohammad Islam, MD, Megan Wasson, DO

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FORMAT: Please limit the entire application to 2 single-spaced pages using one-inch (1") margins, Times New Roman, 12 pt. font size. Protocols not adhering to these guidelines are subject to being returned without review.

Abstract

Opioids are commonly prescribed after major gynecologic surgery, such as hysterectomy. While they may improve pain control for moderate to severe pain, this must be weighed against the existing and worsening opioid epidemic in the United States. Factors that affect a surgeon's prescribing patterns may include experience, patient's pre-existing pain, and mode of surgery. Furthermore, protocols may exist for the number of narcotics prescribed for the type of surgery performed. Missing from the decision tree of prescribing narcotics is patient input. The current study is a prospective randomized, clinical trial evaluating the impact of patient input on opioid prescribing and overall opioid use following gynecologic surgery.

Research Plan

I. Specific Aims

Hypothesis: In women who undergo minimally invasive hysterectomy, those who provide input into the number of opioids prescribed are statistically significantly more likely to have high utilization of the narcotics prescribed.

- Primary Outcome: Patients randomized to patient directed arm will have a lower percentage of unused opioids as compared to those prescribed standard therapy.
- Secondary Outcomes:
 - Patients randomized to patient directed arm will use less narcotics overall as compared to those prescribed standard therapy.
 - Patients randomized to patient-directed arm will be more likely to be satisfied with their post-operative pain management as compared to those prescribed standard therapy.

II. Background and Significance

Opioids are commonly prescribed after major gynecologic surgery, such as a hysterectomy. While they may improve pain control for moderate to severe pain, this must be weighed against the existing and worsening opioid epidemic in the United States. There is a strong movement to minimize narcotics, by reviewing and optimizing the prescriptions prescribed, especially after surgery. As-Sanie et al evaluated common narcotic prescribing patterns following benign hysterectomy in Michigan and the authors found

that typically 200 oral morphine equivalents are prescribed, while only about half of the medications were actually used.[1] A recent survey study performed at a tertiary care center in Massachusetts evaluated opioids prescribing patterns and patient opioid consumption after gynecologic surgery found that patients used less than half of prescribed opioids, and a fraction did not use opioids at all.[2]

Factors that affect a surgeon's prescribing patterns may include physician experience, patient's pre-existing pain, and mode of surgery. Furthermore, protocols may exist for the number of narcotics prescribed for the type of surgery performed. Missing from the decision tree of prescribing narcotics is patient input. Shared-decision making has been shown to improve patient outcomes and patient satisfaction in several clinical settings.[3-5] A Cochrane review of 105 randomized control trials documented that the use of patient decision aids for preference-sensitive decisions led to patients feeling more clear about what matters to them and having more accurate expectations of benefits and harms of options.[6]

A prospective cohort study evaluating shared decision-making intervention on acute pain management after cesarean delivery showed a reduction in opioid utilization in 50% of their patient cohort and significant patient satisfaction in regards to their outpatient pain management.[7] Currently no studies have evaluated patient-directed input to narcotic prescriptions following surgery. Including the patient into this decision tree may help optimize the narcotics prescribed and provides some accountability to the patient since they helped make the decision.

A national survey showed that most adolescents and adults reported recent non-medical use of opioid medications being obtained through family or friends.[8] By decreasing the number of opioids prescribed to patients, we could decrease the number of opioid medication sharing and potentially prevent unsafe opioid disposal practices.

III. Research Design and Methods

Study Design

We propose a prospective randomized, clinical trial evaluating the impact on opioid prescribing and overall opioid use following gynecologic surgery. Patients will be recruited if they are undergoing minimally invasive hysterectomy with the Department of Gynecology. If they meet the inclusion criteria, patients will be randomized to standard treatment or patient-directed treatment. They will be followed per standard postoperative care of the surgeon, and at the last postoperative visit, the remaining opioids will be collected and counted.

Currently, the Department of Gynecology's standard approach to hysterectomy is in a minimally invasive modality - vaginal, laparoscopic, or robotic. These surgeries are typically performed as an outpatient surgery with same day discharge, unless other medical co-morbidities exist or clinical status necessitates postoperative inpatient admission. Patients undergoing minimally invasive hysterectomy, with or without other gynecologic procedures, are discharged home with 150 oral morphine equivalents, or 30 tablets of oxycodone. Patients also receive 40 tablets of ibuprofen 600 mg and 40 tablets of 500 mg acetaminophen. Patients are informed that they can take ibuprofen 600 mg up to four times daily, acetaminophen 1000 mg up to four times daily (or up to 4000 mg/day), and oxycodone 5-10 mg every 4 hours as needed for severe pain.

Patient-directed opioid prescribing will take place after randomization for this arm of patients. They will continue to receive prescriptions for ibuprofen and acetaminophen as standard therapy. There will be a discussion with the patient during the preoperative appointment as to the number of tablets (oxycodone 5 mg) they would like prescribed, from 0 to 30 tablets. A standard verbal script discussing the pros and cons

of opioid use will be utilized for this informed decision. This will be documented in the preoperative clinic note and appropriate prescription will be provided to the patient on the day of surgery.

Study Subjects

Patients will be recruited from the Department of Gynecology. They will be screened if they are undergoing minimally invasive hysterectomy. Those who meet inclusion and exclusion criteria will be approached for enrollment. Once enrolled, the patient will undergo randomization to standard therapy or patient-directed therapy. Prescription of opioids in the patient-directed therapy arm will have an upper limit of 150 oral morphine equivalents, which is the standard therapy dose. However, they will be free to choose a lower number of pills.

Inclusion criteria

- Female patients >18 years old
- Ability to provide informed consent
- Planned minimally invasive hysterectomy with the Department of Surgery
 - Concomitant minimally invasive surgeries performed by Gynecology will be allowed

Exclusion criteria

- Non-English speaking
- Combined surgical cases with other surgical departments
- Planned laparotomy
- Surgery planned to last >4 hours
- Postoperative hospitalization planned for >7 days
- Planned use of oral opioids other than oxycodone postoperatively
- Pre-existing chronic pain conditions including: chronic pelvic pain, migraines, temporomandibular joint dysfunction syndrome, fibromyalgia, and interstitial cystitis
- Preoperative diagnosis of pelvic pain
- Chronic preoperative opioid use
- History of or current diagnosis of narcotic or alcohol dependence
 - Screening question asked at preoperative appointment: Have you or are you currently dependent on narcotic medications or alcohol?
- Desire for more opioids than standard therapy
- Postoperative decision of surgeon to prescribe more than standard therapy
- Allergy or contraindication to taking opioids, ibuprofen, or acetaminophen

Sample Size

We will enroll patients until 216, assuming 20% patients either have missing data or dropout the study for any reason, which are 172 subjects. A sample size of 86 in each group will achieve 90% power to detect the medium effect size of 0.5 by using two-sided two-sample t-test with 0.05 significance level.

Subject Randomization

The patients will be randomized into two groups, standard therapy arm and patient-directed arm. The block randomization method will be used to ensure balance in sample size between groups.

Data Collection

Demographic information will be collected, which will include age, race, BMI. The surgical procedure performed will also be collected, along with the length of hospitalization. Type, strength and quantity of opioids prescribed for all patients will be documented. Refills on opioids that are required or other medications that are prescribed for pain will also be documented through chart review.

On the day of discharge from the hospital, patient will be provided with a pill diary by the study team. The patient will be instructed to document the date and time any pain medication was taken; the number of oxycodone, ibuprofen, and/or acetaminophen pills consumed during that time; and their pain level prior to taking the oxycodone. Pain will be measured using an 11-point numeric scale ranging from 0 to 10. Zero will represent one pain extreme (i.e., “no pain”) and 10 will represent the other pain extreme (i.e., “pain as bad as you can imagine” or “worst pain imaginable”). Patient will be asked to complete the pill diary as long as they are taking pain medication post-operatively.

At their 6-week postoperative visit, patients will be asked to bring in their pill diary and remaining pain medications so that any excess pills can be counted and documented. If the patient has more than one postoperative visit, they will be encouraged to bring their pill bottle at the 6-week postoperative visit. At their 6-week post-operative visit, patients will be asked how satisfied they are with the number of narcotic pills they were initially prescribed, and they will rate their satisfaction using a 5-point numeric scale ranging from 1 to 5. One will represent one satisfaction extreme (i.e. “not at all satisfied”), 3 will be neutral (i.e., “neither dissatisfied nor satisfied), and 5 will represent the other satisfaction extreme (“i.e., extremely satisfied”). Those patients who forget or are unable to bring their medication with them to the 6-week postoperative visit will be asked to count their own remaining medication and report this on a follow up phone call with the study team. The patient satisfaction questionnaire may also be administered during this follow up phone call if the patient was not able to complete this at the postoperative visit.

Statistical Analysis

Descriptive analysis will be performed to summarize demographic and clinical characteristics of the patients. We will compare the percentage of utilization of opioid between the two groups by two-sample t-test. We will do further analysis using Analysis of Variance and Covariance (ANCOVA) to compare the utilization between the two groups after adjusting patient characteristics if needed.

IV. Human Subjects

Human subjects will be utilized for this protocol. As with all research, there is a chance that confidentiality could be compromised; however, precautions will be taken to minimize this risk. Patient identification codes will be used. A number will be assigned to all subjects and any report published will not identify the subjects by name. Data will be stored on password-protected computers.

VII. References:

1. As-Sanie, S., et al., *Opioid Prescribing Patterns, Patient Use, and Postoperative Pain After Hysterectomy for Benign Indications*. Obstet Gynecol, 2017. **130**(6): p. 1261-1268.
2. Griffith, K., et al., *Opioid Prescription and Patient use After Gynecologic Procedures: A Survey of Patients and Providers*. J Minim Invasive Gynecol, 2018. 25(4):684-688.
3. Clever, S., et al., *Primary Care Patients' Involvement in Decision-Making Is Associated With Improvement in Depression*. Med Care, 2006. 44:398-405.
4. Loh, A., et al., *The Impact of Patient Participation on Adherence and Clinical Outcome in Primary Care of Depression*. Patient Educ Couns. 2007;65:69-78.
5. Loh, A., et al., *The Effects of a Shared Decision-Making Intervention in Primary Care of Depression: A Cluster Randomized Controlled Trial*. Patient Educ Couns. 2007;67:324-332.
6. Stacey, D., et al., *Decision Aids for People Facing Health Treatment or Screening Decisions*. Cochrane Database of Systemic Reviews, 2017.

7. Prabhu, M., et al, *A Shared Decision-Making Intervention to Guide Opioid Prescribing After Cesarean Delivery*. Obstet Gynecol, 2017. 130(1): 42-46.
8. Kennedy-Hendricks, A., et al., *Medication Sharing, Storage, and Disposal Practices for Opioid Medications Among US Adults*. JAMA Internal Medicine, 2016. 176(7): 1027-1029..

VIII. Other:

Budget: A specific budget will be prepared by a Sponsored Project Specialist in the Office of Sponsored Projects Administration (OSPA), if this project is chosen for funding. Small Grant awards provide up to \$15,000 in direct costs for one year. This mechanism does not support Category 1 time or costs for editing/publishing or travel. Typical examples of funding include time for research coordinator oversight, supplies, or costs associated with the Survey Center.

For this program, possible uses of funds may be the following (please indicate what might be relevant to this project):

- ☐ Design/printing surveys or other forms. Specify quantity_____
- ☐ Data collection and data entry. Specify the person(s) you intend to have responsible for these activities. _____
- ☐ Statistical analysis. _____
- ☐ Other. Please describe _____

Progress Report: At the conclusion of the year, a progress report should be prepared that clearly and unambiguously addresses the following issues:

- Describe the progress that has been made toward achieving the stated aims of the proposal, including all publications and presentations resulting from this work.
- Describe the preliminary data and its significance.
- Provide a clear timeline for the completion of each major task necessary to complete the study.
- Describe plans for obtaining support for future research projects.