Evaluation of Obstetrics and Gynecology Resident and Faculty Opioid Prescribing Patterns for Patients Undergoing Cesarean Section

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Introduction

The use and misuse of opioid pain medications are a major focus at the national, state and local level. CDC and Joint Commission guidelines focus on chronic pain management, however it is well documented that long-term opioid use often begins with treatment of acute pain. Several recent studies have evaluated opioid prescribing patterns and usage for patients undergoing cesarean section, with the majority of available evidence suggesting opioids are overprescribed for acute management of pain following cesarean section. Bateman et al. followed 720 women who underwent cesarean section, and found a median excess of 15 opioid tablets per patient. In a similar study Osmundson et al found that 75% of patients discharged following cesarean section had used opioids with a median excess of 75 morphine milli equivalents (MME).

Discussion

In the analysis of the post-intervention data we saw almost a 34% increase in patient specific prescribing, as documented by review of inpatient opioid use in combination with tailored prescribing of discharge meds. These findings were statistically significant and suggest that with minimal education, changes in prescribing patterns may be observed.

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Outcomes / Results

After IRB approval was obtained, study data was extracted from a convenience sample of 166 discrete patients undergoing cesarean section at our facility. This data was first entered into Microsoft Excel and later converted into numerical form for cleaning and analyses. Two sample subgroups of 60 (51.7%) pre-intervention patients and 56 (48.3%) post-intervention patients were created. A total of 59 (50.9%) of the patients underwent primary cesarean section. The majority of the sample received spinal anesthesia (n=96, 62.8%). A total of 103 (68.8%) received intra-thecal opioids for post-op pain control. The mean inpatient pain ratings for the sample averaged 3.87 (SD 1.060, range 1.5-6.5) on a “0 to 10” scale. The total average MME utilized during hospitalization was 28.5 MME (SD 16.24, range 0-60) and average prescribed discharge MME was 131.16 (SD 29.75, range 0-225).

Inferential tests of Continuous Measures

Using a series of independent sample two-tailed matched pair T-test comparison of mean hospital pain ratings, hospital MME and discharge MME, the following post-intervention changes were found:

1. Decrease in average discharge MME (from 137.58 MME to 124.29 MME, n = 116, p = 0.017).
2. Pre-to-Post changes in average hospital MME were not statistically significant (from 28.60 to 28.39, n = 116, p = 0.946).
3. Pre-to-Post changes in hospital pain scale ratings did not change significantly (i.e. from 3.83 to 3.91, n = 116, p = 0.069).

Inferential tests for Dichotomous Measures

The analyst could clearly determine that assumptions of a normal/Gaussian distribution of pre and post-intervention dichotomous data had not been met. Using non-parametric procedures, a statistically significant increase in those patients who had received a patient-tailored analgesia plan was noted (from 0.0% (n = 0) to 33.92% (n =19) (p = < 0.001). A statistically significant proportion DECREASE of those patients who had refilled a one-week opioid prescription was also noted (from 55.6% (n = 5) to 48.3% (n = 4) (p < 0.001).

Question / Significance

Currently there are no departmental or hospital guidelines regarding opioid prescribing following cesarean section. It has been our experience that physician prescribing these pain medications receive limited education on responsible prescribing, with much of their knowledge being passed down from senior residents and attending physicians. We noticed that prescribing patterns in our department have been largely standardized, with most patients receiving the same “set” of discharge medications. Our goal was to educate prescribers on the implications of prescribing opioids, and also encourage a patient specific approach to prescribing by monitoring inpatient usage of narcotic pain medications along with utilizing risk assessment tools for opioid abuse.

Educational Design/Methods

A 30-minute opioid prescribing education curriculum was designed. Prescribing patterns as they pertained to total quantities of narcotics as well as patient specific prescribing were monitored both before and after physician education. A total of 116 patient charts (60 pre- and 56 post-intervention) were reviewed over a period of 8 months from May 2017-Decemeber 2017. The data were analyzed to assess for changes in overall prescribing patterns.

Using retrospective electronic health record (EHR) data, the presenters examined the following pre- and post-educational intervention amounts and proportions for the following measures:

- A. Mean hospital patient pain scale ratings;
- B. Opioid morphine milliequivalents (MME) utilized during hospitalization;
- C. Opioid MME prescribed at the time of discharge;
- D. The usage of a patient tailored analgesia plan at time of discharge, as documented by review of MAPS, inpatient MAR, and inpatient pain scores
- E. Changes in proportion of patients requiring medication refills as outpatients

All descriptive and inferential study analysis procedures were completed by the Michigan State University Statewide Campus using SPSS version 24 analytic software. [IBM] The two-tailed significance of differences between these different continuous (e.g. mean pain scales, MME rates) and dichotomous (e.g. usage of patient-tailored analgesia plan was documented, one-week opioid refill) study measures were examined. A series of non-parametric (i.e., not based on any normal distributional assumptions) inferential statistical procedures including bivariate correlation, independent sample subgroup T Tests and McNemar Comparison of proportions were conducted. [Vittinghoff]. A coefficient Alpha p value of 0.05 was observed to indicate two-tailed level of statistical significance. The analyst was largely unable to control for other patient-specific characteristics due to the lack of diversity of this sample.

References