The Effect of Preoperative Opioid Education on Patient's Postoperative Opioid Usage Following Hip Arthroscopy: A Randomized, Prospective Trial

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INTRODUCTION

- Over the past twenty years, opioid usage has continued to rise significantly, resulting in what many have termed an "opioid epidemic".[1-5]
- Several studies have noted that patients are routinely over-prescribed opioids following common surgical procedures, resulting in a large number of unused and therefore readily-available opioid pills.[6-8]
- The highest reported age population for illicit drug usage is in individuals ages 20-39 years old, which is the same group that commonly undergoes hip arthroscopy.[9-10]
- A previous study in patients undergoing arthroscopic rotator cuff repair demonstrated that patients who received preoperative opioid education consumed significantly less opioids 3 months after surgery than those patients who did not receive the preoperative education.[11]
- The primary objective of this study was to investigate the effect that a pre-operative opioid educational video has on patient's opioid consumption following hip arthroscopy procedures.

MATERIALS & METHODS

- This is a prospective, randomized trial enrolling patients undergoing arthroscopic hip surgery for either isolated or concomitant labrum repair, acetabuloplasty, and/or femoral osteoplasty.
- Exclusion criteria included a history of drug use, workman's compensation, open surgery, patients <18 years of age, and non-English speaking patients.
- Patients were randomly assigned in a 1:1 ratio to either be shown an educational video detailing the risks of opioid utilization and dependence versus standard protocol. All patients received the current standard protocol for managing post-operative discomfort (local anesthetic injection at the time of surgery [20cc of ropivicaine peri-capsular], with 40 tablets of oxycodone 5mg/acetaminophen 325mg given for post-operative pain).
- All prescriptions were monitored through the state prescription monitoring database and correlated with patient reporting. Physicians who performed the surgical procedure were blinded to which patients received patient education.
- Patients recorded their pain levels and opioid usage levels pre-operatively and then 2 weeks, 6 weeks, and 3 months after surgery. Included in each survey was the custom narcotics use survey, along with the Modified Harris Hip Score (MHHS) and Single Assessment Numeric Evaluation (SANE) rating. Number of opioid pills consumed was converted to morphine milligram equivalents (MME) for statistical analysis.
- Parametric continuous data is presented as mean(SD) and p values were calculated by performing T tests. Nonparametric continuous data is presented as Median [1st quartile, 3rd quartile] and p values were calculated by performing Mann Whitney tests. Post hoc tests were calculated using the Mean (SD) for significant values. P values less than 0.05 were deemed significant. All statistical analyses were done using R Studio (Version 3.6.3, Vienna, Austria).

RESULTS

- Ninety-eight patients were included in the analysis (49 controls, 49 who received the opioid education).
- There were no significant differences between the two groups in mean age at surgery, BMI, or sex ratio. There were also no significant preoperative differences between the two groups in patient reported function, as measured by SANE, or patient reported pain and function as measured by MHHS (Table 1).
- Patients in the education group had a significantly higher median morphine milligram equivalents (MME) consumed at 2 weeks. However, there was no significant difference in the median MME consumed at 6 weeks or 12 weeks.
- When the two groups were compared, there were no significant differences in duration of opioid consumption, as measured by the question "are you still taking narcotic medication to control your hip pain", or patient reported pain and function as reported by the SANE scale and MHHS at 2 weeks, 6 weeks, and 12 weeks postoperatively.
- Power analysis revealed an effect size of 0.416 and power of 0.53 for mean MME consumed at 2 weeks.

Table 1: Demographics

	Education (n=49)	Control (n=49)	*P* value
Age at surgery	32.0 [22.9; 43.0]	31.5 [22.5; 39.0]	0.445
BMI	24.7 [21.8;26.9]	24.6 [22.0; 26.6]	0.790
Sex ratio, n (male/female)	22/27	26/23	0.544
Preoperative SANE, mean (SD)	47.9 (22.3)	48.0 (24.0)	0.976
Preoperative MHHS, mean (SD)	70.2 (14.7)	67.5 (17.6)	0.409

Data is represented as Median [1st quartile; 3rd quartile] unless otherwise noted. BMI: Body Mass Index; SANE: Single Assessment Numerical Evaluation; MHHS: Modified Harris Hip Score.

Table 2: Opioid Consumption

	Education (n=49)	Control (n=49)	*P* value
2 week MME	65.0 [30.0; 112.0]	30.0 [0.00; 63.8]	**0.013***
6 week MME	75.0 [45.0; 128.0]	35.0 [7.5; 135.0]	0.077
12 week MME	75.0 [52.5; 112.0]	41.2 [7.5; 148.0]	0.504

Data is represented as Median [1st quartile; 3rd quartile]. MME: Morphine milligram equivalents.
*Indicates statistically significant difference at $P<0.05$

DISCUSSION

While those who received the preoperative education module on opioid medications actually demonstrated a higher median morphine milligram equivalents consumed in the short term post-operative period at 2 weeks when compared to the control group, they did not significantly differ from the control group at 6 or 12 weeks. Overall, the preoperative education module had no apparent effect on patient-reported pain or function in the post-operative period following hip arthroscopy procedures.

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