

A Retrospective Analysis On the Effects of Preoperative Narcotic Education In Patients Undergoing Spine Surgery

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DISCLOSURES: Anas M. Abbas (N), Alex Ngan (N), Jian H. Li (N), Robert E. Carrier (N), Alexandra C. Echevarria (N), Prajwal Kumar (N), Araf M. Abbas (N), Shaya Shahsavarani (N), Sarah Trent (N), Austen Katz (N), Rohit B. Verma (N).

INTRODUCTION: In initial visits with complaints of low back pain, 21.6% of patients were prescribed opioids. This contributes to orthopedic surgeons being one of the leading prescribers of opioids. Furthermore, in patients who undergo spine surgery, narcotics are commonly prescribed for postoperative pain control. It has been found that >66% of patients developed opioid dependence (defined as >90 days), and 8.4% met the criteria of chronic opioid users within two years after undergoing spine surgery. To reduce spine surgeons' contributions to the opioid crisis in the United States, studies have shown that providing preoperative narcotic education on the risks and dependence associated with opioids may decrease opioid consumption following surgery. The role of preoperative narcotic education and its effects on tapering the dose of post-spine surgery narcotic pain management is yet to be studied. The purpose of this study was to determine if preoperative opioid education reduces opioid consumption after spine surgery.

METHODS: Data on patients who underwent ≤ 2 level fusion spine surgeries (decompressions, laminectomies, discectomies, and anterior cervical decompression and fusion) by orthopedic spine surgeons at North Shore University Hospital from 2021-2022 was collected. The data collected included preoperative demographics information such as age during surgery, sex, race, and body mass index. Patients were also asked about prior opioid use, alcohol use, lifetime smoking status, blood pressure status, and their history of anxiety and depression (Table 1). Patients with a history of GERD, allergies or sensitivity to prescription opioids were excluded as well as patients who did not have routine postoperative follow-ups. The study group received formal education describing the adverse use of opioids, side effects, tolerance, dependence, addiction, and alternatives to pain management via video, class, or one-on-one session. The video was a link of a voiceover powerpoint presentation that was sent to patients prior to their operations. By clicking the link, the orthopedic department received feedback verifying that the video was completed. The class was held twice a month by a physician assistant for all patients who were scheduled for surgery in that month. For patients who sought an alternative, a one-on-one session with a physician assistant was scheduled. The study group received standard preoperative education that also included opioid education and underwent surgery from January 1, 2022 to July 1, 2022. The control group received standard preoperative education that did not include opioid education and underwent surgery from January 1, 2021 to July 1, 2021. Refill prescriptions were collected from patients' electronic medical record charts and cross-checked from the New York State Prescription Monitoring Program at 2 weeks, 1-month, 3-month, and 6-month postoperative follow-ups. Morphine milligram equivalents (MME) scores were calculated based on refill prescriptions. The primary outcome measure was MME at each time point. Linear regression models were developed to estimate the effects of demographic factors, medical history and education received on MME. All statistical analyses were completed in R studio 4.1.2.

RESULTS: Of the 312 control group patients who underwent spine surgery between January 2021 and July 2021, 150 met the inclusion criteria. Of the 287 study group patients who had undergone spine surgery between January 2022 and July 2022, 137 met the inclusion criteria. Regression analysis demonstrated that the video-educated group had a significant reduction in MME usage at 1-month post-surgery compared to those that did not receive formal narcotics education ($p < 0.001$). Regression analysis also showed that those who received a class education had a significant reduction in MME usage after both 1- and 3-months post-surgery compared to those that did not receive a formal narcotics education ($p < 0.05$) (Table 2 and Figure 1).

DISCUSSION: At 6 months, post-spine surgery, the MME scores across the control was reduced, making it difficult to achieve a significant reduction in MME score. We found that offering patients a voice-recorded powerpoint presentation or offering a small-group class yielded significantly less opioid consumption following spine surgery at the 1-month and/or 3-month postoperative follow-ups.

SIGNIFICANCE/CLINICAL RELEVANCE: Opioid preoperative education may be an efficient, cost-effective way to reduce opioid usage up to 3 months post spine surgery.

IMAGES AND TABLES:

Table 1. Preoperative Demographics of all included subjects

Preoperative Demographics		N=287
Variable		
Age, yr		60.84 \pm 14.1
Male sex		165 (57.4%)
BMI, kg/m ²		29.1 \pm 6.3
Smoking		101 (35.1%)
Alcohol		116 (40.4%)
High Blood Pressure		130 (45.2%)
Diabetes		66 (22.9%)
Anxiety/Depression		23 (8.0%)
Prior MME Usage		120 (41.8%)
Race		
White		152 (52.9%)
Black		47 (16.3%)
Asian		25 (8.7%)
Latino		27 (9.4%)
Other		36 (12.5%)

Mean MME Score Across Time with SEM Error Bars

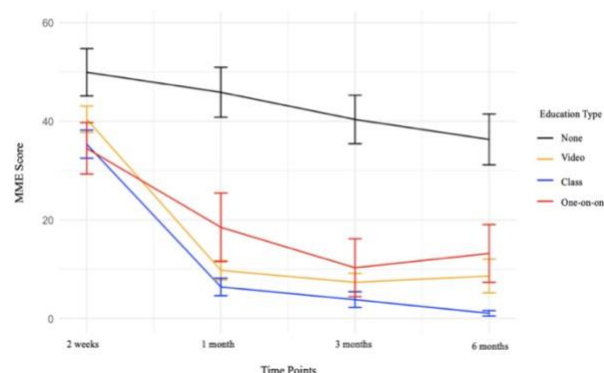


Figure 1. Line graph of MME scores for each type of education.

Table 2. Regression Results: Effects of Different Types of Education Relative to No Education on MME Score:

Postoperative Time	Video Education	p-value	Class Education	p-value	One-on-one education	p-value
2 Weeks	-3.94	0.635	-9.09	0.306	-6.48	0.571
1 Month	-31.11	<0.001	-28.79	0.012	-21.03	0.112
3 Months	-23.99	0.056	-36.14	0.027	-21.73	0.247
6 Months	-45.32	0.087	-40.59	0.301	-6.56	0.859