Original Article

Access to an Educational Video Preoperatively Has No Effect on Postoperative Opioid Use After Arthroscopic Partial Meniscectomy of the Knee: A Prospective Cohort Study

Marc G. Lubitz, M.D., Luke Latario, M.D., Oghomwen Ogbeide-Latario, B.Sc., Kevin Hughes, M.D., Stephanie Clegg, M.D., Vadim Molla, M.D., Michael Brown, M.D., Brian Busconi, M.D., and Nicola DeAngelis, M.D.

Purpose: To determine whether access to a website with an educational video would decrease postoperative opioid use in patients undergoing arthroscopic partial meniscectomy. **Methods:** Enrolled patients who underwent arthroscopic partial meniscectomy at a single center were randomized to either the intervention or control group prior to surgery. The intervention group received a card with access to an online educational video regarding opioids with their postoperative instructions; the control group did not. The online video was just over 5 minutes long and contained general information about the dangers of opioid use, how to safely dispose of unused opioids, and local support contact information. Data were collected by telephone 10 to 14 days postoperatively and analyzed with GraphPad Prism version 9.5.0. Patient characteristics including age, sex, body mass index, allergies, smoking, depression, alcohol abuse, American Society of Anesthesiologists level, diagnosis of chronic obstructive pulmonary disease, hypertension, diabetes, substance abuse, employment status, workers' compensation, and sports participation were analyzed and correlated with postoperative opioid use. **Results:** A total of 166 patients were included in this study, with 78 in the control group and 88 in the intervention group. Mean number of pills consumed was 3 in the control group and 2.2 in the intervention group. This difference did not reach statistical significance. Patients who were obese, smokers, or diagnosed with depression both consumed more opioids and were less likely to take no narcotics postoperatively. Patients who participated in sports consumed fewer total opioids on average than those who did not. Subgroup analysis of patients with higher risk factors did not show a difference between the control and intervention groups in the average amount of opioid used or the likelihood of using no narcotics. Among all patients, 82 (49%) used no narcotics postoperatively and 90% used 8 or fewer tablets. **Conclusions:** Directing patients to an educational website and video is not an effective tool in decreasing opioid consumption. Patients undergoing arthroscopic meniscectomy who are obese, active smokers, and clinically depressed or do not participate in sports are likely to use more postoperative narcotics. Regardless of access to the online educational video, half of patients used no narcotics. **Level of Evidence:** Level II, prospective cohort.

From the Department of Orthopedics and Physical Rehabilitation, University of Massachusetts Chan, School of Medicine, Worcester, Massachusetts, U.S.A. (M.G.L., L.L., K.H., S.C., V.M., M.B., B.B., N.D.), and University of Massachusetts Chan Medical Science Training Program, Worcester, Massachusetts, U.S.A. (O.O.-L.).

Received October 19, 2023; accepted December 30, 2023.

Address correspondence to Marc G. Lubitz, M.D., 55 N Lake Avenue, Worcester, MA 01655, U.S.A. E-mail: Marclubitz@gmail.com

2666-061X/231492

https://doi.org/10.1016/j.asmr.2024.100885

Since 1999, over 840,000 Americans have died from opioid overdoses.[1] Over 100,000 Americans died from just April 2020 through April 2021, a problem likely exacerbated by the COVID-19 pandemic.[2] While opioid overdose is a worldwide problem, opioid use in the United States is much higher when compared to Europe and Asia.[3] After discharge for treatment of ankle fractures, 82% of Americans were given a prescription for an opioid compared to only 6% of Dutch patients.[3] American patients receive an average of 7 times more opioids postoperatively than patients undergoing the same

procedures in Sweden.[4] In 2009, orthopaedic surgeons prescribed close to 8% of all total prescriptions for opioids in America,[5] and they should be aware of how opioid prescribing practices affect this threat to community health. Patient education is a potentially useful tool to decrease opioid use, but its efficacy is unclear.

Efforts to decrease opioid prescribing have been instituted by medical professionals and government entities.[6-9] Many studies have focused on decreasing opioid use postoperatively by various methods, including by using multimodal pain control.[4,9-11] In Rhode Island, the Uniform Controlled Substances Act passed in 2016. This legislation almost halved the number of opioid pills distributed 30 days postoperatively after knee and shoulder arthroscopy.[12]

There is evidence that preoperative patient education may decrease postoperative opioid use after orthopaedic surgery.[13,14] Two studies, one looking at arthroscopic partial meniscectomy[13] and the other rotator cuff repair,[14] showed that formal education decreased opioid use postoperatively. Other studies note that a lack of education often leads to issues with safe disposal of unused opioid pills.[15] Unfortunately, online patient educational materials meant to decrease opioid use are above the recommended reading level, and many patients are unable to navigate the materials.[16]

The appropriate amount of opioids to prescribe after arthroscopic knee surgery is unknown. There is large variability in postoperative prescribing on a practice-to-practice basis but with some larger regional trends.[17] Many patients are receiving far more opioids than are needed to manage their pain and end up with an excess of pills in their homes and thus in the community.[18,19] When patients are prescribed fewer opioids, there is no change in patient satisfaction regarding pain control.[20] A multidisciplinary expert panel published recommendations for 20 common procedures after using a 3-step modified Delphi technique. For arthroscopic partial meniscectomy, they recommended zero to ten 5-mg oxycodone tablets as a reasonable range for postoperative pain control.[21]

There are known risk factors to help identify patients who are at greater risk for increased opioid use after orthopaedic surgery. Multiple studies have evaluated risk factors for increased opioid use postoperatively: American Society of Anesthesiologists class $\geq$3, chondroplasty, smoking, arthritic changes, congestive heart failure, fibromyalgia, history of psychiatric disease, obstructive pulmonary disease, history of substance abuse, race, dementia, diabetes, sex, body mass index great than 25, hypertension, education level, workers' compensation, and motor vehicle accident were all related to increased postoperative opioid use.[9,15,16,22-24]

The purpose of this study was to determine whether access to a website with an educational video would decrease postoperative opioid use in patients undergoing arthroscopic partial meniscectomy. Our hypothesis was that access to our educational video and website would decrease postoperative opioid use after arthroscopic partial meniscectomy compared to the control group, which was not directed to the website.

Methods

This study was a prospective, randomized cohort trial. All enrolled patients were 18 years or older. All patients underwent arthroscopic knee surgery with partial meniscectomy by 1 of 3 sports medicine fellowship—trained surgeons (N.D., B.B., M.B.) at a single academic institution. Exclusion criteria included current incarceration, contraindication to opioid therapy (allergy, renal disease), significant cognitive impairment, non-English speakers, use of opioids for >2 months preoperatively, and history of opioid abuse. Enrollment of patients occurred between September 2020 and September 2021. Written consent was obtained from each patient prior to surgery for participation in the study. This study was approved by the institutional review board.

Prior to surgery, patients were randomized into the intervention or control group using virtual coin-flip software. The intervention group was given a "Pain Log," which was a paper with a chart on it to allow the patient to keep track of when their oxycodone pills were consumed postoperatively. They were given instructions to fill this out to keep track of how many pills they consumed. They also received a business card with a link to our website. The website featured a landing page with a 5-minute video we produced detailing the risks associated with opioid use and the current opioid abuse epidemic in the United States. The site featured links to the Massachusetts substance abuse hotline, pill disposal locations, and videos from popular news media outlets about the opioid epidemic. We administered the cards to patients with their discharge documents and instructed them to visit the site at home. The control group received the pain log with instructions to keep track of their postoperative opioid use but did not receive the link to the website.

Similar surgical techniques were used by all 3 attending surgeons on all patients in the study. Patients underwent general anesthesia with a laryngeal mask airway. Each attending used a slightly different mixture of local anesthetic injection. Attending 1, who did 22% of the surgeries in the study, used 30 mL of 0.25% Marcaine intra-articularly before the surgery, then 1% lidocaine with epinephrine subcutaneously for the portal sites. After the procedure was complete, another 30 mL of 0.25% Marcaine was injected. Attending 2, who did 45% of the surgeries in the study, used an injection of 30 mL of 0.25% Marcaine and 4 mL of morphine preoperatively, then another 30 mL of 0.25% Marcaine postoperatively. Attending 3, who did 34% of the surgeries, in the study used 4 mL of 0.25% Marcaine preoperatively.

The arthroscopic procedures were performed without a tourniquet using the 2-portal technique with an anterolateral viewing portal and an anteromedial working portal. Diagnostic arthroscopy was performed, followed by partial meniscectomy of the medial and/or lateral menisci as indicated. No patients in the study underwent meniscal repair, complete meniscectomy, or any other major procedure such as an anterior cruciate ligament reconstruction.

Postoperatively, all patients were prescribed 20 tablets of 5 mg oxycodone pills with instructions to take every 4 hours as needed for uncontrolled pain. They were instructed to use acetaminophen and ibuprofen over the counter as first-line treatments for pain. They were also prescribed 81-mg tablets of aspirin to take daily for 2 weeks for venous thromboembolism prophylaxis. Prescription for physical therapy focusing on knee range of motion and leg strengthening was given on that first postoperative visit to begin at the 2-week mark after surgery. This formal physical therapy began after the time course of our study. Chart review was conducted for demographic and health history.

Between 10 and 14 days postoperatively, patients were contacted via phone and asked to reference their pain log to see how many oxycodone pills they had consumed. They were instructed to bring their remaining oxycodone pills into the clinic or their pharmacy or to search the Internet for another safe pill disposal site. The primary outcome of this study was the number of oxycodone pills consumed after surgery.

Statistical analysis was performed using GraphPad Prism version 9.5.0 (GraphPad Software). Categorical variables were compared using the Fisher exact or χ^2 tests. Continuous variables were compared using an unpaired Student *t* test. Analysis of variance was performed in multivariate analysis comparing American Society of Anesthesiologists (ASA) patient classes. Variables analyzed included, age, sex, body mass index, allergies, smoking, depression, alcohol abuse, ASA level, diagnosis of chronic obstructive pulmonary disease, hypertension, diabetes, substance abuse, employment status, workers' compensation, and sports participation. Patients were sent home in a compressive ACE wrap dressing, which stayed in place until their first postoperative appointment. They initially ambulated with crutches.

Results

Of 190 patients who were enrolled in the study, 101 were randomized into the intervention group (direction to our educational website) and 89 were in the control group. Twenty-four did not respond to attempted enquiries regarding their pain log or were lost to follow-up, leaving 78 in the control group and 88 in the intervention group (Fig 1). Overall response rate was 87%. During the time course of our study, our website was visited by 27 unique visitors, corresponding to only 31% of patients directed there. The 5-minute educational video on the site that patients were directed to watch received only 5 views of the 101 directed to it.

The mean age for the control group was 55 years compared to 51 years in the intervention group. The control group was 51% male compared to 52% male for the intervention group. Baseline characteristics of the groups are shown in Table 1.

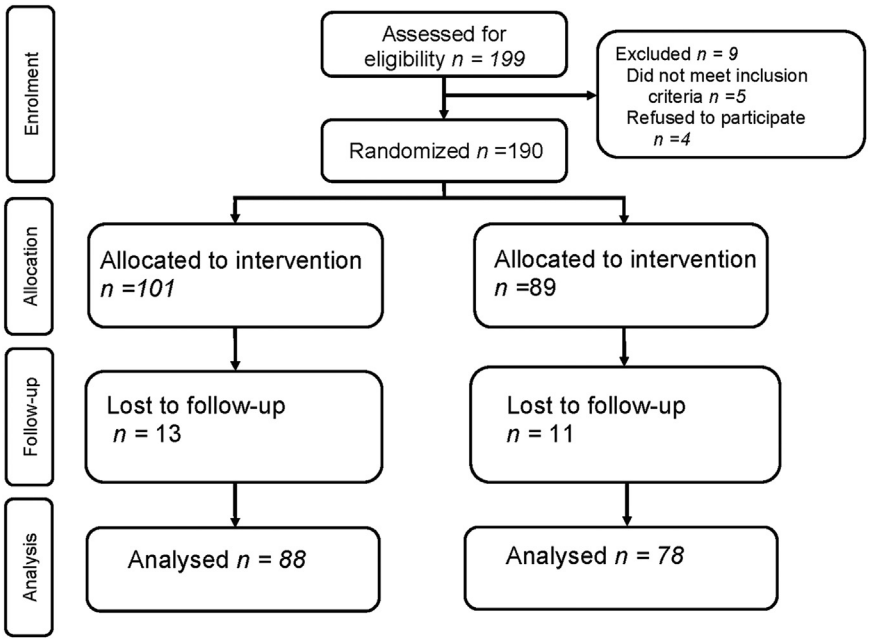

Figure 1. CONSORT flow diagram.

Table 1. Demographics of Patients Within the Study Randomized to the Control and Intervention Groups

Characteristic	Control (n = 78)	Intervention (n = 88)	All Patients (N = 166)
Sex			
Male	40	46	86
Female	38	42	80
Age (mean), y	55	51	53
Weight (mean BMI)	31	31	31
Smoker			
No	67	82	149
Yes	11	6	17
Depression			
No	63	76	139
Yes	15	12	27
Alcohol use			
No	25	30	55
Yes	53	58	111
Sports participation			
No	61	57	118
Yes	17	31	48
Workers' compensation			
No	76	84	160
Yes	4	4	8
ASA			
ASA 1	7	21	28
ASA 2	62	60	122
ASA 3	8	7	15

NOTE. The overall column represents the mean or total of all patients enrolled in the study. Values are presented as numbers unless otherwise indicated.

ASA, American Society of Anesthesiologists.

Among both cohorts, the mean number of tablets consumed postoperatively was 2.6. Overall, 49% of patients took no narcotics after surgery. Ninety percent of all patients took 8 or fewer tablets.

For the intervention group, the mean number of oxycodone tablets consumed was 2.2, compared to 3 tablets in the control group, which did not reach statistical significance (Table 2). In the intervention group, 53% of the patients took no narcotics postoperatively compared to 45% in the control group (Table 2). This was not a statistically significant difference.

Demographic analysis identified that obesity, smoking, diagnosis of depression, and lack of active participation in sports activity were all associated with a higher mean number of opioid tablet consumption (Table 3). Similarly, patients who were obese, smoked, or carried a diagnosis of depression were less likely to take no narcotics. Active smoking was associated with the highest mean number of tablets consumed (6.5), as well as the greatest relative risk (2.372) for consuming any narcotics (Table 3).

Subgroup analysis of these high-risk groups (smokers, obesity, depression, and lack of sports participation) showed that the mean narcotic use decrease in the intervention group compared to the control group did not reach statistical significance for any of the groups (Table 4). Additionally, comparing the number of patients who took no narcotics in the intervention and control groups for patients with these same risk factors did not show a statistically significant change (Table 5).

Discussion

Our study suggests directing patients to an educational website using a printed card is not effective in reducing postoperative narcotic use. Due to the poor compliance in visiting the website and viewing the education materials, we are unable to determine the effect that educational material itself may have on opioid use for patients undergoing arthroscopic partial meniscectomy. Our study did find that 49% of patients did not take opioids, and 90% of all patients consumed fewer than 8 pills after arthroscopic partial meniscectomy. The study also indicates that patients who are obese, smoke, or have a diagnosis of depression are more likely to consume more opioids.

This study did not demonstrate a statistically significant change in the amount of narcotic use postoperatively in either the mean number of tablets consumed or the likelihood of avoiding opioid use in our intervention group. However, this study does have several important findings, identifying patients at risk for higher opioid consumption, demonstrating at least half of patients undergoing arthroscopic meniscectomy require no opioids despite receiving a prescription for narcotics, and showing that 90% will require fewer than 8 tablets to manage their pain. It also demonstrates that directing patients to online educational intervention resources alone is not an effective tool in altering opioid use.

In this study, patients with obesity, smoking, depression, and lack of sports participation were all associated with increased narcotic use, consistent with previously

Table 2. Comparison of Control and Intervention Groups by Mean Number of Oxycodone Tablets Taken and the Percentage of Patients Who Took No Opioids Postoperatively

Characteristic	Control	Intervention	Relative Risk	95% CI	*P* Value
N	78	88			
Mean number of tablets taken	3	2.2		−2.110 to 0.5363	.242*
Percent opioid free postoperatively	45	53	0.8402	0.6091 to 1.145	.281†

*Calculated using unpaired Student *t* test.

†Calculated using Fisher exact test.

Table 3. Demographic Factors and Their Association With Postoperative Narcotic Use[25,26]

Characteristic	N	Mean Number of Tablets Taken	*P* Value	Percent Opioid Free Postoperatively	Relative Risk (95% CI)	*P* Value
Sex						
Male	86	2.7	.811*	52	1.131 (0.8311- 1.553)	.443†
Female	80	2.5		46		
Age						
<55	84	3	.478*	42	0.8653	.435†
≥55	73	2.5		48	(0.6175-1.219)	
Weight						
BMI <30	83	1.9	**.032***	58	**1.412 (1.034-1.954)**	**.043†**
BMI ≥30	83	3.3		41		
Smoker						
No	148	2.1	**<.001***	53	**2.372 (1.140- 5.919)**	**.023†**
Yes	18	6.5		22		
Depression						
No	139	2.3	**.025***	54	**2.081 (1.175-4.159)**	**.011†**
Yes	27	4.3		26		
Alcohol use						
No	54	3.1	.336*	50	1.018 (0.7211-1.390)	>.999†
Yes	112	2.4		49		
Sports participation						
No	118	3.1	**.001***	48	0.8761 (0.6456-1.235)	.495†
Yes	98	1.4		54		
Workers' compensation						
No	158	2.6	.496*	51	2.025 (0.8377-7.135)	.277†
Yes	8	3.6		25		
ASA			.542‡			.187§
ASA 1	28	1.9		64		
ASA 2	122	2.8		47		
ASA 3	15	2.1		40		

NOTE. Bold signifies statistically significant findings.
ASA, American Society of Anesthesiologists; BMI, body mass index.
*Calculated using unpaired Student *t* test.
†Calculated using Fisher exact test.
‡Calculated using χ^2 test.
§Calculated using analysis of variance.

published work following other surgical procedures.[9,15,16,22-24] The greatest risk factor was smoking, with smokers on average taking 6.5 tablets postoperatively, more than 3 times the average across all patients. Nonsmokers were more than twice as likely to take no narcotics when compared to smokers. Surgeons should be aware when indicating and discussing postoperative pain management of these higher-risk patients, and these patients may benefit from special considerations, monitoring, and follow-up in the perioperative period.

Our intervention consisting of directing patients to an educational website and video via a brief discussion preoperatively and a business card with the link was not effective in altering opioid use. At most, only 31% of people in the intervention group visited the site. The real number is likely lower considering repeat visitors and visits by people not in the group. Even fewer patients actually viewed the video, which received only 5 total views. While disappointing, this finding shows that any attempt at patient education should be directed in-person or require minimal additional patient effort.

Table 4. Subgroup Analysis of Mean Number of Oxycodone Tablets Used Compared Between Control and Intervention Groups Among the Higher Utilization Demographics

	Control		Intervention			
Characteristic	N	Mean Number of Tablets	N	Mean Number of Tablets	p value	95% CI
BMI ≥30	42	3.43	41	3.33	.842	−2.287 to 1.869
Smokers	11	5.09	7	8.71	.249	−2.800 to 10.05
Depression	15	4.07	12	4.5	.821	−3.461 to 4.328
No sports participation	61	3.09	57	2.6	.514	−1.995 to 1.002

NOTE. *P* values calculated using Student *t* test.

Table 5. Subgroup Analysis of Higher Narcotic Utilization Demographic Groups Comparing Control and Intervention Groups and Percentage of Zero Narcotic Use After Surgery

	% Opioid Free Postoperatively			
Characteristic	Control	Intervention	Relative Risk (95% CI)	*P* Value
BMI ≥30	36	46	1.298 (0.7746-2.205)	.376
Smokers	9.1	43	4.714 (0.8120-29.57)	.254
Depression	27	25	0.9375 (0.2685-3.132)	>.999
No sports participation	41	54	1.327 (0.9071-1.963)	.754

NOTE. *P* values calculated using Fisher exact test.

Our findings suggest that opioids may not be routinely prescribed after arthroscopic partial meniscectomy. In this study, patients on average took only 2.6 pills despite having a prescription for 20 tablets. Additionally, 49% took no oxycodone postoperatively. Reducing the number of prescriptions for narcotics of any amount is important in the midst of the current opioid crisis. Follow-up from a study on opioid-naive patients prescribed narcotics in the emergency department showed 12% went on to recurrent narcotic use,[27] making avoidance of any opioid use preferable in managing acute pain when possible.

This study identifies smoking, depression, obesity, and activity level as being associated with postoperative narcotic use following arthroscopic meniscectomy. Half of all patients (49%) did not require any narcotic medication after arthroscopic simple meniscectomy, and only 10% used more than 8 tablets. This suggests routine prescriptions for narcotics postoperatively may be avoided, and postoperative prescriptions should not exceed 8 tablets of oxycodone. While education has previously been shown to improve narcotic requirements,[13,28,29] in this study, directing patients to an educational website and video was not sufficient to significantly reduce narcotic utilization, likely due to patients underusing the educational resources made available. Future studies should explore other possibly more effective preoperative teaching interventions featuring more interactive, interdisciplinary, or personalized teaching regarding opioid medication and the potential for addiction. This is an especially critical step for patients with higher preoperative risk factors for increased postoperative narcotic utilization.

Limitations

The major limitation of our study is the low compliance with our studied intervention. Given that only around 30% of patients actually visited the site, and the educational video was only viewed 5 times, we can conclude that our intervention was not useful for decreasing opioid use, but we cannot infer the effect of patient education in general. Determining patient opioid use by phone interview and not a more direct measurement is also a limitation. Further, we did not analyze other potentially relevant variables, including length of surgery, intraoperative opioid consumption, and pain scores.

An inherent limitation associated with this prospective study is a Hawthorne effect on the utilization of narcotics. Patients may have used less pills or taken none knowing they were being observed in a study. It is possible that simply discussing opioid use at all with patients before and after surgery is sufficient to decrease use compared to no discussion. Lastly, we excluded patients who did not speak English as our educational materials were only available in English. This is a potentially vulnerable population who may be more likely to misunderstand prescriptions postoperatively and ideally would be included in studies to reduce opioid use.

Conclusions

Directing patients to an educational website and video is not an effective tool in decreasing opioid consumption. Patients undergoing arthroscopic meniscectomy who are obese, active smokers, or clinically depressed or do not participate in sports are likely to use more postoperative narcotics. Regardless of access to the online educational video, half of patients used no narcotics.

Disclosure

The authors report no conflicts of interest in the authorship and publication of this article. Full ICMJE author disclosure forms are available for this article online, as supplementary material.

References

1. Centers for Disease Control and Prevention. *Death Rate Maps & Graphs*. Atlanta, GA: CDC, 2023.
2. Rabin RC. Overdose Deaths Reached Record High as Pandemic Spread. *New York Times*. 2021. https://www.nytimes.com/2021/11/17/health/drug-overdoses-fentanyl-deaths.html. Accessed March 8, 2022.
3. Lindenhovius AL, Helmerhorst GT, Schnellen AC, Vrahas M, Ring D, Kloen P. Differences in prescription of narcotic pain medication after operative treatment of hip and ankle fractures in the United States and The Netherlands. *J Trauma* 2009;67:160-164.

4. Ladha KS, Neuman MD, Broms G, et al. Opioid prescribing after surgery in the United States, Canada, and Sweden. *JAMA Netw Open* 2019;2:e1910734.
5. Volkow ND, McLellan TA, Cotto JH, Karithanom M, Weiss SR. Characteristics of opioid prescriptions in 2009. *JAMA* 2011;305:1299-1301.
6. Bates C, Laciak R, Southwick A, Bishoff J. Overprescription of postoperative narcotics: A look at postoperative pain medication delivery, consumption and disposal in urological practice. *J Urol* 2011;185:551-555.
7. Garcia GP, Stringfellow EJ, DiGennaro C, et al. Opioid overdose decedent characteristics during COVID-19. *Ann Med* 2022;54:1081-1088.
8. Hajewski CJ, Westermann RW, Holte A, Shamrock A, Bollier M, Wolf BR. Impact of a standardized multimodal analgesia protocol on opioid prescriptions after common arthroscopic procedures. *Orthop J Sports Med* 2019;7:2325967119870753.
9. Hartwell MJ, Selley RS, Terry MA, Tjong VK. Can we eliminate opioid medications for postoperative pain control? A prospective, surgeon-blinded, randomized controlled trial in knee arthroscopic surgery. *Am J Sports Med* 2020;48:2711-2717.
10. Moutzouros V, Jildeh TR, Tramer JS, et al. Can we eliminate opioids after anterior cruciate ligament reconstruction? A prospective, randomized controlled trial. *Am J Sports Med* 2021;49:3794-3801.
11. Pham H, Pickell M, Yagnatovsky M, et al. The utility of oral nonsteroidal anti-inflammatory drugs compared with standard opioids following arthroscopic meniscectomy: A prospective observational study. *Arthroscopy* 2019;35:864-870.e861.
12. Shah KN, Ruddell JH, Reid DBC, et al. Opioid-limiting regulation: Effect on patients undergoing knee and shoulder arthroscopy. *Arthroscopy* 2020;36:824-831.
13. Andelman SM, Bu D, Debellis N, et al. Preoperative patient education may decrease postoperative opioid use after meniscectomy. *Arthrosc Sports Med Rehabil* 2020;2:e33-e38.
14. Syed UAM, Aleem AW, Wowkanech C, et al. Neer Award 2018: The effect of preoperative education on opioid consumption in patients undergoing arthroscopic rotator cuff repair: A prospective, randomized clinical trial. *J Shoulder Elbow Surg* 2018;27:962-967.
15. Kumar K, Gulotta LV, Dines JS, et al. Unused opioid pills after outpatient shoulder surgeries given current perioperative prescribing habits. *Am J Sports Med* 2017;45:636-641.
16. Kumar G, Howard SK, Kou A, Kim TE, Butwick AJ, Mariano ER. Availability and readability of online patient education materials regarding regional anesthesia techniques for perioperative pain management. *Pain Med* 2017;18:2027-2032.
17. Traven SA, Brinton DL, Woolf SK, Leddy LR, Gottschalk MB, Slone HS. Notable variability in opioid-prescribing practices after common orthopaedic procedures. *J Am Acad Orthop Surg* 2021;29:219-226.
18. Gardner V, Gazzaniga D, Shepard M, et al. Monitoring postoperative opioid use following simple arthroscopic meniscectomy: A performance-improvement strategy for prescribing recommendations and community safety. *JB JS Open Access* 2018;3:e0033.
19. Wyles CC, Thiels CA, Hevesi M, et al. Patient opioid requirements are often far less than their discharge prescription after orthopaedic surgery: The results of a prospective multicenter survey. *J Am Acad Orthop Surg* 2021;29:e345-e353.
20. Bloom DA, Manjunath AK, Kaplan DJ, et al. Reduced opioid prescribing following arthroscopic meniscectomy does not negatively impact patient satisfaction. *Knee* 2021;29:216-221.
21. Overton HN, Hanna MN, Bruhn WE, et al. Opioid-prescribing guidelines for common surgical procedures: An expert panel consensus. *J Am Coll Surg* 2018;227:411-418.
22. Khazi ZM, Baron J, Shamrock A, et al. Preoperative opioid usage, male sex, and preexisting knee osteoarthritis impacts opioid refills after isolated arthroscopic meniscectomy: A population-based study. *Arthroscopy* 2020;36:2478-2485.
23. Rao AG, Chan PH, Prentice HA, Paxton EW, Funahashi TT, Maletis GB. Risk factors for opioid use after anterior cruciate ligament reconstruction. *Am J Sports Med* 2019;47:2130-2137.
24. Wojahn RD, Bogunovic L, Brophy RH, et al. Opioid consumption after knee arthroscopy. *J Bone Joint Surg Am* 2018;100:1629-1636.
25. Liepert AA, Leystra T. 2016 state legislative year in review and a look ahead. *Bull Am Coll Surg* 2016;101:35-39.
26. Mir HR, Miller AN, Obremskey WT, Jahangir AA, Hsu JR. Confronting the opioid crisis: Practical pain management and strategies: AOA 2018 Critical Issues Symposium. *J Bone Joint Surg Am* 2019;101:e126.
27. Hoppe JA, Kim H, Heard K. Association of emergency department opioid initiation with recurrent opioid use. *Ann Emerg Med* 2015;65:493-499.e494.
28. Parsa FD, Pavlosky KK, Harbison G, et al. Effect of preoperative patient education on opioid consumption and well-being in breast augmentation. *Plast Reconstr Surg* 2020;145:316e-323e.
29. Elhage SA, Thielen ON, Huber AT, et al. Preoperative patient opioid education, standardization of prescriptions, and their impact on overall patient satisfaction. *Surgery* 2021;169:655-659.