Relation of postoperative pain medication to return for unplanned care after ureteroscopy

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ABSTRACT

To determine whether the US Drug Enforcement Agency (DEA) class of narcotics prescribed to patients after ureteroscopy impacts their rate of return for unplanned care, a retrospective analysis of patients from February 2014 through March 2016 was performed. Data were collected for the first 90 days after surgery. Patients were divided into groups based on the narcotics schedule prescribed after surgery. Results showed that there was no statistical difference in return for unplanned care when comparing the groups based on their prescribed pain medication. Among the 475 patients, 17% returned to the emergency department after ureteroscopy, 12% contacted the clinic due to discomfort/pain, and 8% were readmitted to the hospital within 90 days of surgery. The data indicated that patients who were not prescribed a narcotic after surgery sought unplanned care at a slightly higher rate than those who were. In conclusion, the US DEA class of narcotics prescribed after ureteroscopy did not have a statistically significant impact on the rate of return for unplanned care. These findings may improve opioid stewardship in patients undergoing outpatient ureteroscopy.

KEYWORDS Narcotics; nephrolithiasis; pain; readmission; ureteroscopy

Pain after ureteroscopy is very common and is often quite distressing for patients. The etiology of such pain is multifactorial and includes spasms of the ureter, stent discomfort, and bladder spasms. Most patients experience lower urinary tract symptoms, and this leads to a demonstrable decrease in quality of life.^{1,2} As a result, patients are prescribed multiple medications to diminish these symptoms. Many studies have sought to determine the ideal combination to reduce stent discomfort, but most regimens at the authors' institution include narcotic pain medication.^{1,3–11} The type of narcotic prescribed depends on surgeon preference; our goal was to determine whether the choice of pain control influenced patients' return rate for unplanned care.

METHODS

After institutional review board approval, a retrospective chart review for patients undergoing ureteroscopy between February 2014 and March 2016 was conducted. For the first 90 days following surgery, all encounters, including nursing phone calls, clinic, and emergency department (ED) visits and readmissions to the hospital, were evaluated. In the authors'

clinical practice, all patients were prescribed an alpha-blocker, an antispasmodic, nonsteroidal anti-inflammatory drug (if kidney function was sufficient), and usually a narcotic pain medication, depending on surgeon preference.

The pain medication prescribed to the patient after surgery was categorized into four separate classes as dictated by the US Drug Enforcement Agency (DEA) Schedule. Schedule II medications include hydrocodone and oxycodone; Schedule III medications include codeine/acetaminophen combinations; Schedule IV medications include tramadol; and over-the-counter medications include acetaminophen, ibuprofen, naproxen, and other nonsteroidal anti-inflammatory drugs.

A generalized estimating equation model was used to obtain bivariate associations between covariates and outcomes. Logistic regression analysis was used to account for repeated observations of the same subject who required more than one surgery in the same study period.

RESULTS

Four hundred seventy-five patients underwent ureteroscopy during the study period and had sufficient records for

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Table 1. Distribution of postoperative pain medication by the drug enforcement administration schedule

Schedule	Frequency	Percent
OTC	39	8%
II	199	42%
III	165	35%
IV	72	15%

OTC indicates over-the-counter.

Table 2. Rates of return for unplanned care by pain medication DEA schedule

Schedule	Return to ED	Contacted clinic	Readmission
OTC	10 (26%)	8 (21%)	6 (15%)
II	29 (15%)	22 (11%)	17 (9%)
III	25 (15%)	17 (10%)	12 (7%)
IV	15 (21%)	12 (17%)	4 (6%)

DEA indicates Drug Enforcement Agency; ED, emergency department; OTC, over-the-counter.

Table 3. Comparison between DEA schedules for rate of return to emergency department within 90 days

Comparison	OR	95% CI for OR	P value
Schedule II vs OTC	0.49	0.20 1.18	0.39
Schedule III vs OTC	0.55	0.22 1.36	
Schedule IV vs OTC	0.77	0.29 2.02	
Schedule II vs III	0.89	0.48 1.66	
Schedule II vs IV	0.64	0.32 1.27	
Schedule III vs IV	0.71	0.34 1.49	

CI indicates confidence interval; DEA, Drug Enforcement Agency; OR, odds ratio; OTC, over the counter.

analysis. The distribution of pain medication by schedule is presented in [Table 1](#). The largest group of patients included those prescribed Schedule II narcotics, followed by Schedule III, Schedule IV, and finally no narcotics at all. All of the patients in the narcotic cohort were instructed to alternate over-the-counter medications with narcotics every 4 to 6 hours as needed.

As shown in [Table 2](#), patients who were prescribed Schedule II and III narcotics returned to the ED at roughly the same rate, and these two groups of patients also returned to the ED about half as often as those who were prescribed no narcotics, but this was not statistically significant. Similarly, patients prescribed Schedule II and III narcotics

called the clinic for pain control at similar rates, followed by higher rates for the Schedule IV and no-narcotics groups, but again the difference was not statistically significant. No pattern was seen for the rates of readmission between groups. There was no statistically significant difference in the odds ratios for return to the ED between groups ([Table 3](#)).

DISCUSSION

Most urologists have a “cocktail” of medications they prescribe to patients after ureteroscopy, including antispasmodics, alpha-blockers, local urinary tract analgesics, and narcotics. There is controversy about the most effective regimen.^{4–6,10,12,13} Unplanned return visits after ureteroscopy frequently occur due to pain and discomfort. A large portion of symptoms are a result of irritation from an indwelling ureteral stent. Some surgeons have advocated the practice of stentless ureteroscopy, arguing that it reduces the discomfort in the postoperative period.^{14,15} However, newer data and meta-analyses have shown that omission of a ureteral stent after ureteroscopy increases the likelihood that the patient will seek unplanned care.^{16–18} Urologists have yet to optimize the medication regimen of outpatient ureteroscopy for the treatment of urolithiasis. Our data demonstrate that patients do not necessarily need potent narcotics after uncomplicated ureteroscopy to prevent their return for unplanned care.

Since 1999, the number of overdose deaths involving opioids has quadrupled.^{19,20} The Centers for Disease Control and Prevention published guidelines within the past 3 years to address the rise of opioid abuse and addiction.^{21,22} These data suggest the need to reduce the number of narcotics that are being prescribed to patients after ureteroscopy.

Some strengths of the study are a large number of patients and a comprehensive medical record that includes all patient encounters including phone calls, ED visits, and electronic messages. In addition, all patients were treated at a single institution with streamlined postoperative orders and management, which were almost identical for each patient. A weakness of the study is that, as with any retrospective data, the patients included in this study were heterogeneous concerning type of surgery, overall medical health, and previous narcotic exposure. An element of selection bias is possibly present given the reliance on surgeon preference for narcotic administration. Surgeons employing different surgical techniques can be considered a confounder despite the similar overall manner in which ureteroscopy is performed at the studied institution. In addition, this analysis does not address the timing in the postoperative period during which the patients return for unplanned care.

In conclusion, the US DEA schedule classification of pain medication prescribed after ureteroscopy did not have a statistically significant impact on whether patients returned for unplanned care. The data do show that over-the-counter medications alone are insufficient for pain control after

ureteroscopy. These findings may improve opioid stewardship in outpatient ureteroscopy patients.

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