

# Narcotic Use and Postoperative Doctor Shopping by Patients with Nephrolithiasis Requiring Operative Intervention: Implications for Patient Safety



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**Purpose:** We sought to determine perioperative patterns of narcotic use and the prevalence of postoperative doctor shopping among patients with nephrolithiasis requiring operative management.

**Materials and Methods:** We retrospectively reviewed the records of consecutive patients residing in Tennessee who required ureteroscopy with laser lithotripsy for nephrolithiasis at a single institution from January to December 2013. Using the Tennessee CSMD (Controlled Substances Medication Database) patients were categorized by the number of postoperative narcotic providers. Doctor shopping behavior was identified as any patient seeking more than 1 narcotic provider within 3 months of surgery. Demographic and clinical characteristics associated with doctor shopping behavior were identified.

**Results:** During the study period 200 eligible patients underwent ureteroscopy with laser lithotripsy for nephrolithiasis, of whom 48 (24%) were prescribed narcotics by more than 1 provider after surgery. Compared to those receiving narcotics from a single provider, patients with multiple narcotic providers were younger (48.1 vs 54.2 years,  $p < 0.001$ ), less educated (high school education or less in 83.3% vs 58.7%,  $p = 0.014$ ), more likely to have a history of mental illness (37.5% vs 16%,  $p < 0.01$ ) and more likely to have undergone prior stone procedures (66% vs 42%,  $p < 0.01$ ). Additionally, these patients demonstrated more frequent preoperative narcotic use (87.5% vs 63.2%), longer postoperative narcotic use (39.1 vs 6.0 days) and a higher morphine equivalent dose per prescription (44.7 vs 35.2 dose per day, each  $p < 0.001$ ).

**Conclusions:** Postoperative doctor shopping is common among patients with nephrolithiasis who require operative management. Urologists should be aware of available registry data to decrease the likelihood of redundant narcotic prescribing.

## Abbreviations and Acronyms

HLL = holmium laser lithotripsy  
MED = morphine equivalent dose  
URS = ureteroscopy

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**Key Words:** kidney, nephrolithiasis, narcotics, patient safety, physicians

NONMEDICAL narcotic use and abuse poses a challenging public health problem for providers and policy makers alike. Since the early 2000s, there has been a steady increase in

the use of narcotics per capita with recent data showing that enough narcotics are prescribed annually to medicate each American adult around the clock for an entire month.<sup>1</sup> In the

setting of this proliferation of narcotic prescriptions a 2010 survey revealed that at least 5% of patients who were prescribed narcotics admitted to using them for nonmedical purposes.<sup>2</sup> Most alarmingly, more than 15,000 people die every year from prescription analgesic abuse.<sup>3-5</sup>

This increase in nonmedical use and deaths associated with narcotics has prompted investigation focused around the causes of and potential solutions to this substantial public health problem.<sup>6-9</sup> Additionally, most states have adopted central prescription monitoring programs.<sup>10</sup> The purpose of these programs is to better characterize narcotic prescription patterns and problems, identify patients at risk for narcotic abuse and overdose, and prevent redundant narcotic prescribing.

Doctor shopping, defined as obtaining controlled substances from multiple health care practitioners without prescriber knowledge of other prescriptions, has been examined in several populations, including patients with orthopedic trauma and chronic pain.<sup>11-14</sup> To our knowledge this phenomenon has not been studied among patients with nephrolithiasis, a population commonly prescribed narcotics. Specifically, to our knowledge the prevalence of narcotic use and abuse before and after definitive stone treatment (ie ureteroscopy, shock wave lithotripsy or percutaneous nephrolithotomy) has not been characterized and patterns of perioperative narcotic use remain unknown.

The purpose of this study was to determine perioperative patterns of narcotic use and the specific prevalence of postoperative doctor shopping by patients with nephrolithiasis requiring operative management. We hypothesized that preoperative narcotic use, educational status, psychiatric comorbidities and prior stone operations would be associated with postoperative doctor shopping. Ultimately, identifying patterns of perioperative narcotic use may inform pain management strategies and decrease redundant narcotic prescribing for patients with nephrolithiasis.

## MATERIALS AND METHODS

After obtaining institutional review board approval we retrospectively reviewed the records of consecutive adult patients requiring URS with HLL for nephrolithiasis from January 2013 to December 2013 at a single tertiary care institution. Patients were excluded from study if any of certain characteristics were true, including 1) primary residence in a state other than Tennessee for which narcotic registry data were unavailable, 2) percutaneous or multiple ureteroscopic procedures required for stone disease during the study period, 3) a concurrent indication for ureteroscopy other than stone disease (eg malignancy or ureteral stricture) or

4) other illnesses or operations during the study period for which narcotics would be commonly prescribed.

Demographic and clinical characteristics were abstracted from the medical record, including age, gender, level of education, insurance status, distance to hospital, body mass index, comorbidities including psychiatric history (defined broadly to include patients with attention deficit hyperactivity disorder, depression, anxiety, post-traumatic stress disorder, bipolar and/or schizophrenia) and prior stone history including preoperative evaluations in the emergency department for stone related complaints and prior stone operations. The individual narcotic prescription and information on other controlled substance use during the study period was obtained from the Tennessee CSMD and linked to clinical data abstracted from the medical record. All providers with a DEA (Drug Enforcement Agency) number who prescribe controlled substances require registration in this database and can request reports on patients for whom they are providing care. Regional demographic data were gathered from the United States Census Bureau using the 2008 through 2012 ACS (American Community Survey) 5-year estimates by ZIP Code™ of primary residence, including household income, percent below the federal poverty line, unemployment rate and educational attainment (high school graduate or higher).

We evaluated patient perioperative narcotic use 6 months before and 3 months after the URS/HLL procedure, and examined the number of narcotic providers, prescriptions and duration of narcotic use. The daily MED was calculated using standard conversion factors to facilitate comparison among various narcotic medications.<sup>15,16</sup> Patients were categorized by the number of postoperative narcotic providers with doctor shopping behavior defined as any patient seeking more than 1 narcotic provider within 3 months of surgery.

We then examined patient demographic and clinical characteristics for associations with doctor shopping behavior using appropriate bivariate parametric and nonparametric statistical testing. After reviewing the literature on other patient populations a multivariable logistic regression model was fit using variables identified a priori that may be associated with postoperative doctor shopping, including preoperative narcotic use, psychiatric history, educational status and prior stone operations. All tests of significance were 2-tailed with  $p < 0.05$  deemed significant. Stata®, version 11.0 was used for statistical analysis.

## RESULTS

A total of 297 patients underwent URS/HLL during the study period, including 48 from states other than Tennessee, 41 who underwent percutaneous or multiple ureteroscopic procedures and 8 treated with ureteroscopy for nonstone related indications, leaving 200 who met the criteria for study inclusion.

The patient population was middle-aged (mean  $\pm$  SD age  $52.7 \pm 15.4$  years), predominantly white (89.0%) and representative of both genders (50.5% male). About a third of the patients had

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