

Barriers to Healthcare: Non-English Speaking and Medicaid Patients More Likely to Have Retained Ureteral Stents

Abstract

Ureteral stents are largely a temporary measure because their retention may result in significant morbidities and the need for additional procedures. We queried for all ureteral stents placed at our institution between June 2019 and July 2020, and sought to identify risk factors for stent retention in patients receiving their first ureteral stent. Retained ureteral stents were defined as stents that remained indwelling for a period greater than 90 days. Patients with metallic stents, stents on strings, and planned therapy lasting greater than 90 days were excluded. Patient demographics including gender, race, age, insurance status, non-English speaking status and clinical data including location of presentation and indication were collected. Characteristics of patients that retained stents were compared to those who didn't. SPSS v27.0 was used for statistical analysis. Between June 2019 to July 2020, 299 de novo stent patients meeting study criteria were identified. 53 patients had ureteral retained stents with average time of retention being 153 days (SD 71 days). On univariate analysis, non-English speaking status (13% 7/53 vs 5% 11/246, p=0.02) and Medicaid insurance (21% 11/53 vs. 9% 23/246; p=0.01) were found to be associated with ureteral stent retention. A multivariate analysis also found non-English speaking status (p=0.04) and Medicaid insurance (p=0.03) were associated with stent retention. No other demographic or clinical variables demonstrated association with stent retention. At our institution, 18% of patients continue to have indwelling ureteral stents after 90 days. Stent retention was found to be associated with non-English speaking status and Medicaid insurance.

Background

Ureteral stents are a commonly performed procedure in the urology practice. Current literature shows that patients with stents indwelling for greater than 90 days are at increased risk for morbidities such as encrustation and complications such as stent fracture and migration. More importantly, during removal, these patients demonstrate increased need for invasive intervention beyond simple cystoscopy. Despite ample data on morbidities and mortalities associated with retained stents, there is limited data on identifiable factors that result in stent retention. which has thus served as the framework of our investigation.

Study Design

Inquired **ALL** ureteral stent placement between Jun 2019 – Jul 2020 CPT Code: 52332, 50693, 50694, 50695, 5043

- **Eligibility Criteria** •First-time stent placement **Exclusion Criteria** •Metallic stents •Stents with a string
- •Planned chronic stent >90 days
- Primary end point: Time to ureteral stent removal

• Gender Race Age Insurance status Estimated household income

Employment status

 Non-English speaking • Distance to clinic • BMI Smoking Status Clinical data: location of presentation & indication

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Results

Of the 299 de novo stent patients meeting study criteria, 53 patients were identified to have retained ureteral stents, and 246 with complete stent removal. SPSS was utilized for univariate and multivariate analysis of the demographic and clinical presentation characteristics. On univariate analysis, non-English speaking status was found to be 13% (7/53) in the retained vs 5% (11/246) in the removed, resulting in a p-value of 0.02. Medicaid insurance was calculated to be 21% (11/53) in the retained vs. 9% (23/246) in the removed, with a p-value of 0.01. A multivariate analysis again demonstrated significant p-values for non-English speaking status (p=0.04) and Medicaid insurance (p=0.03), supporting these two characteristics as strong contributors to ureteral stent retention. No other demographic or clinical variables were found to be associated with stent retention (Table 1).

Univariate Analysis

Table 1: Demographic and Clinical data for Patients with Indwelling Ureteral Stents				
	Retained Stent	Removed Stent	Univariate p	
Total (N)	53	246		
Sex			0.86	
Male	57% (30/53)	55% (136/246)		
Female	43% (23/53)	44% (109/246)		
Age Mean ±SD	57.6 ±18.0	59.3 ±18.2	0.54	
Caucasian Race	83% (44/53)	89% (220/246)	0.19	
Smoking			0.972	
Current	11% (6/53)	11% (27/246)		
Former	34% (18/53)	33% (80/246)		
Never	55% (28/53)	57% (139/246)		
Socioeconomic Status, Median ±IQR	95181 ±22412	98109 ±27434	0.2	
Employment Status	34% (18/53)	44% (108/246)	0.57	
Distance to Clinic (miles), Median ±IQR	12.6 ±15	12.6 ±5.7	0.33	
Non-English Speaking Status	13% (7/53)	5% (11/246)	0.02	
Any Insurance	100% (53/53)	93% (228/246)	0.05	
Medicaid	21% (11/53)	9% (23/246)	0.03	
BMI, Mean ±SD	30.0 ±9.1	29.4 ±7.6	0.75	
Presentation: Emergency Department	62% (33/53)	60% (148/246)	0.78	
Indication: Obstructing Calculus	68% (36/53)	71% (174/246)	0.69	

Multivariate Analysis

Table 1: Demographic and Clinical data for Patients with Indwelling Ureteral Stents				
	Retained Stent	Removed Stent	Multivariate p	
Total (N)	53	246		
Sex			0.83	
Male	57% (30/53)	55% (136/246)		
Female	43% (23/53)	44% (109/246)		
Age Mean ±SD	57.6 ±18.0	59.3 ±18.2	0.58	
Caucasian Race	83% (44/53)	89% (220/246)	0.19	
Smoking			0.99	
Current	11% (6/53)	11% (27/246)		
Former	34% (18/53)	33% (80/246)		
Never	55% (28/53)	57% (139/246)		
Socioeconomic Status, Median ±IQR	95181 ±22412	98109 ±27434	0.17	
Employment Status	34% (18/53)	44% (108/246)	0.58	
Distance to Clinic (miles), Median ±IQR	12.6 ±15	12.6 ±5.7	0.77	
Non-English Speaking Status	13% (7/53)	5% (11/246)	0.04	
Any Insurance	100% (53/53)	93% (228/246)	0.99	
Medicaid	21% (11/53)	9% (23/246)	0.03	
BMI, Mean ±SD	30.0 ±9.1	29.4 ±7.6	0.29	
Presentation: Emergency Department	62% (33/53)	60% (148/246)	0.96	
Indication: Obstructing Calculus	68% (36/53)	71% (174/246)	0.67	



Recommendations

For patients

- Increased counseling/patient education post-operatively
- Post-procedural XR imaging for patients to visualize and verify stent presence
- Scheduled follow up visit for stent assessment/removal at time of stent placement

For physicians

- Log of stent patients
- Electronic notification system

Discussion and Conclusions

There are few studies that examine the predictive factors of poor compliance following ureteral stent placement. Data regarding the classification of these factors (biological vs. social) are even more limited. However, our analysis suggests that healthcare barriers in language and insurance are associated with prolonged stent retention and, subsequently, increased morbidity with potential mortality. Awareness and recognition of these factors provide us with the opportunity to potentially minimize, or even control, future cases of stent retention by providing vulnerable patients with resources to navigate challenges in healthcare access and improve health literacy.

The study limitations identified were mainly rooted in the population sampled, which was primarily Caucasian, given the regional demographics. The population also exhibited a high baseline socioeconomic status, as reflected by close to 100% of participants having some form of insurance. This indicates poor generalizability when considering a larger, more diverse population scale. However, one similar study published in the Journal of Endourology in 2013 was comprised of 187 participants, 64% of which belonged to the minority group. This study demonstrated that men were 2.8 times more likely than women to have indwelling stents. Similarly, uninsured patients were 8x more likely to have stent retention. The trends of this data are consistent with our own, and these findings, collectively, strongly suggest that socioeconomic and demographic components have a serious impact on the long-term health outcomes of patients with ureteral stents. Therefore, an investigation in a larger, multi-institutional level is needed to delineate other identifiable components that predispose patients to have retained stents.

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