Ureteral stent placement following ureteroscopy increases emergency department visits in a statewide quality improvement initiative

Spencer C Hiller*, Kavya Swarna, Jill Slayton, Ann Arbor, MI, Hector Pimentel, Grand Rapids, MI, John Ludlow, Holland, MI, Sapan Ambani, John Hollingsworth, Khurshid R Ghani, Casey Dauw, for the Michigan Urological Surgery Improvement Collaborative, Ann Arbor, MI

INTRODUCTION AND OBJECTIVE: Ureteral stents are commonly placed after ureteroscopy (URS). Though studies indicate that stent placement is associated with transient patient discomfort, their impact on downstream health services use is less clear. We examined ureteral stent utilization in the state of Michigan as well as their impact on unplanned healthcare encounters.

METHODS: We used data from the Michigan Urologic Surgery Improvement Collaborative Reducing Operative Complications from Kidney Stones (MUSIC ROCKS) clinical registry to identify all patients that underwent URS for urinary stone disease between June 2016 and May 2019. Demographic and clinical factors associated with ureteral stent placement were examined using bivariate and multivariate statistics. We assessed variation in stent utilization at a provider level. Using multivariable logistic regression, we evaluated whether ureteral stent placement was independently associated with emergency department (ED) visits and hospitalizations within 30 days of surgery relative to patients in whom a stent was not used.

RESULTS: We identified 9682 primary URS cases. A ureteral stent was placed in 73% (7025) of cases. On multivariate analysis controlling for provider variation, the factors associated with stent use included older age, greater comorbidity, larger stone size, hydronephrosis, and ureteral dilation or access sheath use at the time of surgery. Patients in whom a stent was placed preoperatively were less likely to have a stent placed postoperatively. Ureteral stent use across the 137 providers varied (range 11-100%; Figure). On multivariate analysis, controlling for clinical characteristics and provider variation, patients who had a ureteral stent placed at the time of URS had a 31% higher odds of ED visit (OR 1.31; 95% CI 1.03 – 1.66 p=0.03) but did not have a significantly increased odds of hospitalization (OR 1.27; 95% CI 0.9-1.8 p=0.18).

CONCLUSIONS: There is substantial variation in the use of ureteral stents after URS in Michigan. Patients in whom a ureteral stent is placed after surgery have a significantly greater odds of an ED visit. Efforts should be made to identify patients suitable for stent omission in order to decrease unplanned health encounters after URS.

Source of Funding: Blue Cross Blue Shield of Michigan