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Risk Factors Associated with Infection-Related Hospitalization Following Ureteroscopic Stone Treatment Across Diverse Urology Practices in Michigan
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INTRODUCTION AND OBJECTIVES: Unplanned hospitalization following ureteroscopy (URS) for upper urinary tract stones is associated with patient morbidity and increased healthcare costs. We examined risk factors for infection-related hospitalizations for stone treatment in a statewide quality improvement (QI) collaborative.

METHODS: Reducing Operative Complications from Kidney Stones (ROCKS) is a QI initiative from the Michigan Urological Surgery Improvement Collaborative (MUSIC). For patients with urinary stones undergoing URS, trained abstractors prospectively record standardized data elements in a web-based registry including patient and stone characteristics, surgical details and complications. We identified all patients undergoing primary URS between June 2016 and October 2017. We determined the proportion hospitalized with an infection-related complication. These patients underwent chart review to obtain clinical data related to the hospitalization. Multivariable (MV) logistic regression analysis was performed to determine risk factors for infection-related hospitalization.

RESULTS: 1817 URS procedures from 11 practices were analyzed. 43 (2.4%) patients were hospitalized with an infection-related complication associated with fever and/or bacteriuria (Figure 1). Median time to admission was 4 days, with median length of stay 3 days (range 1-33). Of these patients, 9 (20.9%) did not have a pre-procedure urinalysis or urine culture. Of patients with a positive urine culture during hospitalization (n=26), isolated pathogens included 16 (61.5%) gram-negative, 5 (19.2%) gram-positive, 4 (15.4%) yeast, and 1 (3.8%) with gram-positive and -negative cocci. On MV analysis, significant factors (p<0.02) associated with infection-related hospitalization included patient comorbidity, history of recurrent urinary tract infection, stone size, intra-operative complication, and fragmentation without complete fragment removal.

CONCLUSIONS: Nearly 1 in 40 patients are hospitalized with an infection-related complication following URS for urinary stones. One in five patients did not have a urinalysis or urine culture prior to URS, and our findings serve to inform the development of a QI protocol with the aim to reduce infection-related morbidity after URS.

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