

Quality indicators for shockwave lithotripsy in the state of Michigan: are we following the guidelines?

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INTRODUCTION AND OBJECTIVES: Recent guidelines from the American Urological Association (AUA) provides a clinical framework for the surgical management of patients with kidney stones. The extent to which these guidelines are followed in clinical practice for patients undergoing shockwave lithotripsy (SWL) has not been studied. To better understand quality indicators for SWL, we assessed adherence to AUA recommendations for the treatment of renal stones using data from a statewide clinical registry.

METHODS: We used the Michigan Urologic Surgery Improvement Collaborative Reducing Operative Complications for Kidney Stones (MUSIC ROCKS) registry to understand SWL use in the state of Michigan. This prospectively maintained registry includes data from community and academic practices and contains detailed clinical and operative data for patients undergoing SWL and ureteroscopy. We identified all patients undergoing SWL from 2016 to 2018. In accordance with AUA guidelines, we evaluated practice patterns in relation to recommendations on (1) antibiotic administration at the time of SWL, (2) ureteral stent placement at the time of SWL, (3) SWL utilization for large renal stones (>2cm) and lower pole stones >1cm, and (4) post-procedural alpha-blocker use.

RESULTS: 3,545 SWL procedures performed across 34 practices were analyzed. Perioperative antibiotics were administered to 64.9% percent of patients undergoing SWL with substantial variation across practices (range 14.8% to 100%, p<0.01; Figure). A ureteral stent was placed at the time of SWL in 2.8% of patients. Of all large (>2cm) or lower pole renal stones >1cm in the registry, 36.7% and 58.6% of patients, respectively, underwent SWL, while the remainder were treated with ureteroscopy. Postoperatively, 41.9% of patients were prescribed an alpha-blocker with substantial variability seen amongst practices (range 0% to 98.75%, p<0.01).

CONCLUSIONS: Substantial variation exists amongst urology practices with regard to perioperative and postoperative optimization for SWL, with high rates of utilization for large and lower pole renal stones. These data serve to better inform future quality improvement efforts regarding appropriateness criteria for SWL in the state of Michigan.

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Figure. Variation in the use of perioperative antibiotics at the time of SWL

