

Moderated Poster Session 4: Female Urology, Pediatrics, Trauma, General Urology

MP4-10

Weight-Based Gentamicin May Be Associated with Increased Acute Kidney Injury in Urologic Prosthetic Surgery

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Introduction: Despite the known nephrotoxicity of gentamicin, many societies (including the American Urological Association in 2008) have published guidelines recommending a single perioperative gentamicin dose of 5 mg/kg for antimicrobial prophylaxis during urologic prosthetic surgery. This recommendation is based on the theoretical renal safety and increased antimicrobial activity of a single large dose. The goal of our investigation was to identify rates of acute kidney injury (AKI) in urologic prosthetic surgery both before and after adoption of weight-based gentamicin dosing.

Materials & Methods: We performed a single-institution retrospective study of all patients receiving perioperative gentamicin during implant, revision, or explant of penile prostheses or artificial urinary sphincters between 2000-2017. Patient characteristics and perioperative outcomes were identified. Patients with available pre- and postoperative (≤ 7 days) creatinine values were included. AKI was defined by Kidney Disease: Improving Global Outcomes (KDIGO) criteria. Comparative analyses were performed between patients receiving standard-dose gentamicin and weight-based gentamicin.

Results: Of 415 urologic prosthetic surgeries performed during the study period, 124 met inclusion criteria with paired pre- and postoperative creatinine values. Sixty-seven received standard-dose gentamicin and 57 received weight-based gentamicin (mean dose 1.0 ± 1.4 vs. 3.7 ± 1.4 mg/kg, $p < 0.05$). There were no significant differences in preoperative renal function or various comorbidities between groups; however, the standard-dose group was slightly younger (mean age 60.5 ± 8.5 vs. 64.0 ± 7.4 years, $p < 0.05$), and comprised more explant cases (13.4 vs. 1.8%, $p = 0.02$) than the weight-based group. Two of 67 (3.0%) in the standard-dose group vs. 9 of 57 (15.8%, $p = 0.02$) in the weight-based group developed AKI (figure 1). Device infection rate was similar between standard-dose and weight-based groups (5.2 vs. 5.3%, $p = 1.00$).

Conclusions: Our data suggest weight-based perioperative gentamicin dosing may be associated with an increased risk of AKI, without noticeably improving infection rates. Weight-based dosing may warrant closer perioperative monitoring of renal function, and merits larger investigations to determine risks and benefits.

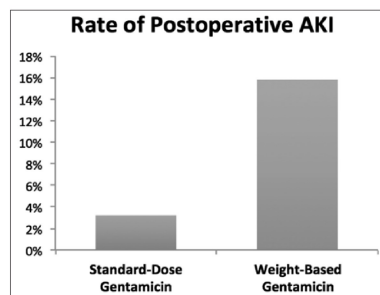


Figure 1. Comparison of rates of acute kidney injury (AKI) in standard and weight-based gentamicin groups. * $p = 0.023$

MP4-12

Discrete Event Simulation of a Dedicated Procedure Day in Urology Clinics

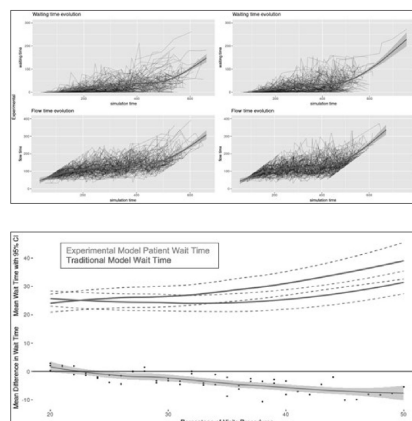
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Introduction: Urology clinics have a relatively high number of procedures performed relative to other outpatient clinics. Incorporating these procedure visits into a standard office visit workflow can present a challenge due to differing demands on support staff and room/equipment turnover times. Our objective was to model the impact of a procedure-only-day compared with the traditional clinic day that has procedure visits interspersed with evaluation and management (E&M) visits in terms of staff utilization and patient wait times.

Materials & Methods: We used discrete event simulation to compare an experimental model (procedure-only-day plus two E&M days) compared to traditional model (three mixed days) per week. Resources included front desk, nursing/medical staff, and urologists. Percent utilization of resources, patient wait times, and total time through the system were compared between the two models. Inputs included type and duration of procedure, type and duration of E&M, intake times based on visit type, and turnover times. The distribution of visits was based on one month of three urologist schedules while the other inputs were tracked for an eight month period.

Results: Over 1 month, 25% of visits were procedures with an even distribution of cystoscopy, cystoscopy with stent removal, and transrectal ultrasound-guided prostate biopsy. Mathematical distributions were fit to the inputs and used for modeling over a simulated 4-week period, with 10 repetitions. The mean wait time in the traditional model was 25.3 minutes (95% confidence interval (CI) 21.6, 28.9) compared to 22.9 (95% CI 19.6, 26.3) in the experimental model. The mean total time in the system was the same at 125 minutes. A sensitivity analysis varying the percent of procedure visits from 20-50% showed more favorable wait times in the experimental model with increasing percent procedures. There were no differences physician and nurse utilization between models.

Conclusions: Addition of a procedure-only clinic day does not appear to increase wait times, time through the system, or decrease physician or nursing utilization.



MP4-11

Medical Malpractice in Urology: Sources of Litigation, Risk Factors, and Outcomes

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Introduction: Litigation often causes changes in practice patterns. Urologists, like many other specialists, will refer difficult patients to other providers and limit the scope of their practice due to concerns of litigation. The aim of this study was to examine medical malpractice lawsuits involving urologists.

Materials & Methods: A retrospective analysis of Westlaw database was conducted to identify medical malpractice suits involving urologists between 2000-2015. General characteristics of cases were identified including geographic distribution, sex of plaintiff, and age range of patients. Cases were further divided into procedural and nonprocedural lawsuits. The primary outcomes of interest were the claims resulting in litigation and details of case outcomes. Case outcomes included whether a payout was made to a plaintiff, payout amount, and postoperative complications.

Results: 63 cases were included for analysis with a urologist as a defendant. 70% (n = 44) of cases were procedural cases, with 30% (n = 13) involving the prostate. The most common postoperative injuries included sexual dysfunction, chronic pain, and lower urinary tract symptoms. 30% (n = 19) of cases were identified as nonprocedural. The most common nonprocedural case claims included failure to diagnose 22.5% (n = 9) and treat in a timely manner 20% (n = 8). 17 cases provided indemnity payment data. 59% (n = 10) of cases resulted in a payout. The average payout was \$1,096,210 with a median payment of \$731,415.

Conclusions: Common causes of litigation among urologists were identified in this study. In most cases, urologists faced litigation for an error or complication occurring within a procedural case involving the prostate or urinary tract. Urologists faced highest payout for unnecessary radiation therapy and misdiagnosis of prostate cancer.