1503. No Benefit to Treating Male UTI for Longer Than 7 Days: An Outpatient Database Study

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Background. Up to 44% of women who experience a urinary tract infection (UTI) develop a recurrent infection (rUTI) within one year. Insufficient evidence about risk factors for recurrent limits clinicians’ ability to identify women at risk for rUTI who may benefit from further interventions.

Methods. We conducted a retrospective cohort study of women age ≥18 years who presented for treatment of a UTI at Oregon Health & Science University ambulatory care clinics between 2011 and 2016. Pregnant women as well as those with a recent urinary catheter, genitourinary (GU) procedure, or hospitalization were excluded. The outcome was defined as the first episode of rUTI within one year of an index UTI. Demographics, biologically relevant comorbidities, and the antibiotic prescribed to treat the index UTI were evaluated as potential risk factors for first rUTI using multivariable logistic regression. A best subsets approach was used to determine the most parsimonious model.

Results. A total of 3,632 patients met inclusion criteria. The mean age of the cohort was 50 ± 20 years and 12% had a diabetes diagnosis. To treat their index UTI, 36% of women were prescribed fluoroquinolones, 33% sulfamethoxazole and/or trimethoprim, and 25% nitrofurantoin. Over the study period, the cumulative incidence of first rUTI was 16% (95% confidence interval: CI): 15.3%, 17.7%); 35% (95% CI: 31%, 39%) of these patients had >1 rUTI. Our model identified age (Odds ratio (OR): 1.02; 95% CI: 1.01, 1.02), urban residence (OR: 1.78; 95% CI: 1.28, 2.57), and neurologic disease diagnosis (OR: 1.46; 95% CI: 1.13, 1.89) affecting GU function (e.g., multiple sclerosis or spinal cord injury) as significant, independent risk factors of first rUTI after adjusting for the confounding effects of diabetes, obesity, and history of stroke or other cerebrovascular disease.

Conclusion. Diagnosis of neurologic disease that impacts GU function, age, and urban residence were identified as significant risk factors for first rUTI. The antibiotic selected to treat patients’ index UTI was not a significant risk factor for first rUTI.

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1504. Patient Demographics and Comorbidity Profiles Associated with Hospitalized Patients Admitted with Resistant vs. Susceptible Urinary Tract Infections (UTIs): A Multicenter Analysis

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Background. A significant percentage of patients admitted to the hospital with UTI associated with ESBL positive and quinolone-resistant (FQ) NS enterobacteriaceae (ENT) that can complicate patient outcomes due to potentially inadequate antibiotic therapy. We used a large national multicenter database to ascertain the demography associated with susceptible and resistant UTI and the underlying comorbidities.

Methods. We analyzed the first positive ENT urine culture ≤3 days from admission in those with a discharge primary or secondary UTI ICD10 code from 68 US hospitals from October 1, 2015–2017 (BD Insights, Franklin Lakes, NJ). Patient demographics were identified using AHRQ classifications to assess for specific risk factors and categorized by ESBL and FQ resistance status. Healthcare-associated (HCA) episodes were defined as admissions from another care facility, admission in the prior 30 days, and presence of dialysis or cancer comorbidity. The Fisher’s exact test was used to test for significance.

Results. Of 16,022 adults (mean age 69.5 years; 77.7% female) with culture positive ENT UTI were identified, 11.0% (n = 1,763) were ESBL +, 31.3% (n = 5,017) were FQ NS and 8.9% (n = 1,433) being both ESBL + and FQ NS. Admissions with ESBL + FQ NS were significantly more likely to be admitted, had higher FQ resistance factors and with higher important comorbidities.

| Demographic | ESBL + FQ NS | FQ NS | ESBL + FQ NS |
|-------------|--------------|------|--------------|
| N(%)        | 10,784 (67.3%) | 5,017 (31.3%) | 1,433 (8.9%)  |
| Male        | 2,952 (20.9%) | 1,284 (25.6%) | 401 (28.0%)   |
| %HCA        | 2,716 (25.2%) | 1,505 (30.3%) | 489 (34.1%)   |
| Deficiency anemia | 2,840 (26.3%) | 1,563 (31.2%) | 508 (35.5%)   |
| Chronic pulmonary disease | 2,009 (18.6%) | 1,191 (23.7%) | 345 (24.1%)   |
| Diabetes    | 1,947 (18.1%) | 1,096 (21.8%) | 318 (22.2%)   |
| Diabetes w/ chronic conditions | 1,872 (17.4%) | 979 (19.5%) | 313 (21.8%)   |

| Congestive heart failure | 1,648 (15.3%) | 1,011 (20.2%) | 292 (20.4%) |

* P < 0.0002 vs. ESBL/FQ NS, ^*P < 0.0032 FQ NS vs. ESBL + FQ NS, & P < 0.0012 FQ NS vs. ESBL/FQ NS.

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Conclusion. About one in 11 admissions with UTI are ESBL + (FQ) NS and are more likely to be male, with HCA risk factors and other current comorbidities. Current oral antibiotic therapy is limited in such episodes and oral treatment alternatives are needed.

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1505. Predictive Value of Early Post-Transplant Bacteriuria on Rates of Recurrent Urinary Tract Infections in the First Year After Renal Transplantation

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Background. Urinary tract infection (UTI) is a common post-kidney transplant complication that has been associated with risk for allograft dysfunction. However, prior studies assessing risk factors for recurrent post-transplant UTI (rUTI) did not distinguish between asymptomatic bacteriuria and UTI. We hypothesize that early asymptomatic bacteriuria (EAB) and UTI after renal transplant are risk factors for rUTI.

Methods. A single-center retrospective cohort study of renal transplant recipients at a tertiary care, academic medical center from May 1, 2010 to January 31, 2015. Data on epidemiology, comorbidities, donor cultures, number of UTIs, days of Foley catheter use, and antibiotic use were obtained from medical record and transplant patient database. Inclusion criteria: ≥18 years old post kidney transplant during the study period. Exclusion criteria: rUTI prior to transplant or anatomical abnormality of native kidney(s). Definitions: Early post-transplant (EPT): ≥28 days after transplant. Post-transplant: growth of ≥10^5 cfu/mL. UTI (fever, dysuria, >100,000 WBC/HPF + positive culture). EAB: asymptomatic bacteriuria in the EPT period. rUTI: ≥2 UTIs in 1 year or 2 UTIs in 6 consecutive months within the year post-transplant. UTI episodes were considered separate if occurred ≥3 weeks after previous diagnosis of antibiotics. Data were analyzed by Fischer’s exact test and chi-square test.

Results. A total of 369 patients were included; 40.4% had EAB and 6% had a UTI in the EPT (eUTI). eUTI occurred in 5.7% of patients (n = 21). In the rUTI group, 8 (18.8%) had EAB, 8 (18.8%) had eUTI, and 5 (23.8%) had neither (P = 0.067). rUTI occurred in 5.8% (18/319) of the EAB group vs. 36.4% (8/22) of the eUTI group (P < 0.005). No other variables were associated with rUTI. Total UTI episodes was greater with rUTI than EAB (mean 2.09 vs. 0.28, 95% CI 2.2–1.4, P < 0.002).

Conclusion. Only rUTI increased the risk for rUTI. Although screening for bacteriuria is a common practice post-transplant, our data indicates that aggressive symptom screening would better predict likelihood of rUTI and in turn graft dysfunction. Future studies should address the potential benefit of prolonging prophylactic trimethoprim/sulfamethoxazole in preventing rUTI.

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1506. Association of Antibiotic Treatment Duration with First Recurrence of Uncomplicated Urinary Tract Infection in Pediatric Patients

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Background. The optimal antibiotic (ABX) treatment duration for uncomplicated urinary tract infection (UTI) in pediatric patients is unknown. The objective of this study was to investigate the association of pediatric UTI treatment duration (7, 10, or 14 days) with infection recurrence or progression.

Methods. A retrospective cohort analysis of pediatric patients aged 2–17 years with a first UTI diagnosis from July 1, 2012 to October 1, 2016. Each bacteriuria episode was adjudicated as cystitis, pyelonephritis, or asymptomatic bacteriuria (ASB) (Figure 1). Subjects without bacteriuria were excluded from primary analysis but used to calculate UTI incidence. The primary outcome was 1-year symptomatic UTI incidence. Secondary outcomes: incidence of cystitis, pyelonephritis, and ASB.

Results. A single-center retrospective study of renal transplant recipients from a tertiary care, academic medical center from May 1, 2010 to January 31, 2015. Data on epidemiology, comorbidities, donor cultures, number of UTIs, days of Foley catheter use, and antibiotic use were obtained from medical record and transplant patient database. Inclusion criteria: ≥18 years old post kidney transplant during the study period. Exclusion criteria: rUTI prior to transplant or anatomical abnormality of native kidney(s). Definitions: Early post-transplant (EPT): ≥28 days after transplant. Post-transplant: growth of ≥10^5 cfu/mL. UTI (fever, dysuria, >100,000 WBC/HPF + positive culture). EAB: asymptomatic bacteriuria in the EPT period.

Results. A total of 369 patients were included; 40.4% had EAB and 6% had a UTI in the EPT (eUTI). eUTI occurred in 5.7% of patients (n = 21). In the rUTI group, 8 (18.8%) had EAB, 8 (18.8%) had eUTI, and 5 (23.8%) had neither (P = 0.067). rUTI occurred in 5.8% (18/319) of the EAB group vs. 36.4% (8/22) of the eUTI group (P < 0.005). No other variables were associated with rUTI. Total UTI episodes was greater with rUTI than EAB (mean 2.09 vs. 0.28, 95% CI 2.2–1.4, P < 0.002).

Conclusion. Only rUTI increased the risk for rUTI. Although screening for bacteriuria is a common practice post-transplant, our data indicates that aggressive symptom screening would better predict likelihood of rUTI and in turn graft dysfunction. Future studies should address the potential benefit of prolonging prophylactic trimethoprim/sulfamethoxazole in preventing rUTI.

Disclosures. All authors: No reported disclosures.