

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 important 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

Hojoon You, MD¹; Sarah Perloff, DO¹ and Maria Bandres, MD²; ¹Infectious Disease, Albert Einstein Medical Center, Philadelphia, Pennsylvania, ²Internal Medicine, Albert Einstein Medical Center, Philadelphia, Pennsylvania

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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 therapy were obtained from the electronic 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. Positive culture: growth of >10⁵ cfu/mL. UTI-(fever, dysuria, +/-allograft or suprapubic pain) + positive culture. EAB-asymptomatic bacteriuria in the EPT period. rUTI: ≥ 3 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 completion of prior 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). rUTI occurred in 5.7% of patients (n = 21). In the rUTI group, 8 (38.1%) had EAB, 8 (38.1%) had eUTI, and 5 (23.8%) had neither (P = 0.067). rUTI developed in 5.3% (8/149) 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 eUTI than EAB (mean 2.09 vs. 0.28, 95% CI 2.2-1.4, P < 0.005).

Conclusion. Only eUTI 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 prolonged 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

Titilola M. Afolabi, PharmD, BCPS, BCPPS; Kellie J. Goodlet, PharmD, BCPS and Kathleen A. Fairman, MA; Midwestern University, Glendale, Arizona

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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 first cystitis or pyelonephritis and without renal/anatomic abnormality was performed using claims and eligibility data from Truven Health MarketScan Database for 2013-2015. Parenteral ABX use and treatment of cystitis diagnosis only were covariates. Relapse and reinfection were defined *a priori* as UTI diagnosed from, respectively, 0-14 days and 15-30 days following ABX depletion; recurrence was defined as either relapse or reinfection. Progressing infection was defined as recurrence diagnosis of pyelonephritis in a patient originally diagnosed with cystitis only.

Results. Of 7,698 pediatric patients (43.8% aged 2-10 years; 56.2% aged 11-17 years), 85.5% had cystitis and 14.3% pyelonephritis. Duration of ABX treatment included: 3-5 days for cystitis only (20.4%), or 7 (33.6%), 10 (44.2%), or 14 (1.8%) days for any UTI. Recurrence and progressing infection occurred in 5.5% and 0.2% of patients, respectively. Covariates associated with increased recurrence risk included pre-treatment ABX exposure (OR = 1.29; 95% CI = 1.06-1.57); pyelonephritis on diagnosis date (OR = 1.44; 95% CI = 1.03-2.00); follow-up visit during ABX treatment (OR = 3.21; 95% CI = 2.20-4.68); parenteral ABX (OR = 1.89, 95% CI = 1.33-2.69); use of nitrofurantoin (NFT) only (OR = 1.34, 95% CI = 1.00-1.92); and interaction of NFT with pyelonephritis diagnosis (OR = 3.68, 95% CI = 1.20-11.29). After adjustment for

measured confounders, the association between duration of ABX treatment and recurrence was not significant (compared with 7 days, 10 days: OR = 1.07, 95% CI = 0.85-1.33; compared with 7 days, 14 days: OR = 0.89, 95% CI 0.45-1.78).

Conclusion. In a national cohort of pediatric patients with uncomplicated UTI, rates of recurrence after ABX depletion did not significantly differ among treatment durations of 7, 10, and 14 days. Results provide support for, without definitively establishing efficacy of, shorter-course ABX treatment.

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1507. Evaluating the Effects of a "Urinalysis to Reflex Culture" Process Change in the Emergency Department (ED) at a Veterans Affairs (VA) Hospital

Georgiana Ismail, PharmD¹; Ursula C. Patel, PharmD, BCPS, AAHIVP² and Katie J. Suda, PharmD, MS²; ¹Pharmacy Service, Edward Hines, Jr. VA Hospital, Hines, Illinois, ²Edward Hines Jr. Veterans Affairs Hospital, Hines, Illinois

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Background. The ED environment makes proactive collection of urine cultures (UCs) favorable. However, unnecessary UCs can result in over-detection and over-treatment of asymptomatic bacteriuria (ASB). A previous analysis at the study facility found that UCs were collected frequently despite negative urinalyses (UA), which commonly resulted in unnecessary antibiotics. Our objective was to compare the frequency of inappropriate UC utilization and inappropriate antibiotic prescribing post implementation of a "Urinalysis to Reflex Culture" process change intervention. A secondary objective was to assess the frequency of health encounters for UTIs post implementation.

Methods. After education, an ED process change was implemented in October 2017. This included automatic UC cancellation if UAs had <5 WBC/HPF. An option for "do not cancel (DNC)" UC was available for specific conditions (eg. pregnancy) per guidelines. Data were prospectively collected for 3 months post-implementation and included UA/UC results, presence of UTI symptoms, antibiotics prescribed and healthcare utilization. Inappropriate UC was defined as a UC ordered despite negative UA in asymptomatic patients. Inappropriate antibiotic prescribing was defined as treatment in patients with ASB. A Student's *t*-test and contingency tables were applied in SAS; significance was set at P ≤ 0.05.

Results. There were 684 UAs (37.2% post-intervention) evaluated from ED visits. Post-intervention (n = 255 UAs), 37.3% of UAs were negative with UCs cancelled. Of the remaining UAs, 37.3% were positive with a processed UC, 16.9% were ordered as DNC and 8.6% were ordered without a UC. UC processing despite a negative UA significantly decreased from 100% pre-intervention to 38.6% post-intervention (P < 0.001). Inappropriate antibiotics for ASB also decreased from 10.2% pre-intervention to 1.9% post-intervention (OR = 0.17; P < 0.0110). In patients with negative UAs, antibiotic prescribing decreased by 25.3% post-intervention (P = NS). No reports of outpatient, ED, or hospital visits for UTI symptoms were found within 7 days of initial UA post-intervention.

Conclusion. A "UA to Reflex Culture" process change demonstrated a significant decrease in processing of inappropriate UCs and unnecessary antibiotics for ASB. There were no missed UTIs or other adverse patient outcomes.

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1508. Urinary Tract Infections (UTIs) in the First Year Post-Renal Transplant: Risks and Opportunities

Brian Bohn, PharmD¹; Vasilios Athans, PharmD, BCPS¹; Christopher Kovacs, MD²; Brian Stephany, MD³ and Michael Spinner, PharmD¹; ¹Department of Pharmacy, Cleveland Clinic, Cleveland, Ohio, ²Department of Infectious Diseases, Cleveland Clinic, Cleveland, Ohio, ³Department of Nephrology and Hypertension, Cleveland Clinic, Cleveland, Ohio

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Background. UTIs are the most common infection after renal transplant (RTx) with an incidence of 6-86%. Post-RTx UTI has been associated with risk for graft loss and mortality, and RTx recipients are at risk for multidrug-resistant (MDR) UTI given immunosuppression (IS) and instrumentation. We sought to evaluate the incidence, timing, microbiology, and MDR risk of post-RTx UTI, as well as to characterize asymptomatic bacteriuria (ASB) practices at our center.

Methods. This was a retrospective cohort of subjects with ≥1 positive culture (≥10⁷ CFU/mL) during the first year post-RTx that were transplanted from September 1, 2012 to October 1, 2016. Each bacteriuria episode was adjudicated as cystitis, pyelonephritis, or 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; time-to-first UTI; microbiologic trends; and presence of MDR risk factors.

Results. Baseline characteristics: 52% male, median age 57 years, 65% stented, 34% antithymocyte globulin induction, 94% standard IS regimen (tacrolimus/mycophenolate/prednisone), 93% trimethoprim/sulfamethoxazole prophylaxis, and 21% receipt of IV antibiotics for ≥48 hours within 90 days of first positive culture (IV Abx); Of 527 RTx subjects, 100 had ≥1 positive culture. The 100 subjects had 234 cultures representing 359 isolates. Primary outcome: 12.1% symptomatic UTI incidence. Secondary outcomes (1-year incidences): 18.6% positive culture, 4.3% cystitis, 8.6% pyelonephritis, 11.9% ASB. Time to the first symptomatic UTI was a median of 50 days. A summary of microbiologic results can be found in Figure 2. ASB occurred 130 times