1505. Predictive Value of Early Post-Transplant Bacteriuria on Rates of Recurrence
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 hypothesized 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: uUTI prior to transplant or anatomical abnormality of native kidney(s). Definitions: Early post-transplant (EPT): >28 days after transplant. Post-transplant: growth of >10^2 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 cessation 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 (22%). UTI occurred in 5.7% of patients (n = 21). In the rUTI group, 8% had EAB, 8 (18.16%) had rUTI, and 5 (23.8%) had neither (P = 0.067). rUTI developed in 5.6% (8/149) of the EAB group vs. 36.4% (8/22) of the rUTI group (P < 0.005). No other variables were associated with rUTI. Total UTI episodes were greater with rUTI than EAB (mean 2.09 vs. 2.89, 95% CI 2.2-1.4, P < 0.005).

Conclusion. Only rUTI increased the risk for rUTI. Although screening for bacteriuria is a common practice post-transplant, our data indicates that aggressive symptombased 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
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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 diagnosis of UTI or pyelonephritis and without renal/anatomical 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 diagnosis, respectively, 0–14 days and 15–30 days following ABX treatment. 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 5.3% 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 = 1.00–1.82); 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 treatment 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 “Uralysis to Reflex Culture” Process Change in the Emergency Department (ED) at a Veterans Affairs (VA) Hospital
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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 site (n = 255 UCs) 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 “Uralysis 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 UA had <5 WBC/HPF. An option for “do not cancel (DNC)” UC was available for special circumstances (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 urinalysis and inappropriate antibiotic prescribing as defined in patients treated 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 UCs (37.2% post-intervention) evaluated from ED visits. Post-intervention, 517 (75.4%) UCs were negative with UCs cancelled. Of the remaining UCs, 37.3% were positive with a processed UC, 16.9% were ordered as DNC and 8.6% were ordered without a UC. UC process reporting despite a negative UA significantly decreased from 100% pre-intervention to 38.6% post-intervention (P < 0.001). Inappropriate antibiotic therapy for ASB also decreased from 10.2% pre-intervention to 1.9% post-intervention (OR = 0.17; P < 0.0110). In patients with negative UA, 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 post-intervention.

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

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and was treated 74.6% of the time (Figure 3). Significant risk factors for MDR UTI included female gender (P = 0.005), IV abx (P = 0.001), and recurrent UTI (P = 0.017).

Conclusion. Incidence of symptomatic UTI at our center was lower than previous reports. E. coli and E. faecalis were the most common urinary pathogens identified. MDR risk factors identified were biologically plausible and consistent with prior literature. ASB treatment occurred frequently and is an area to target stewardship interventions.

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1510. Treatment of Asymptomatic Bacteriuria prior to Transcatheter Aortic Valve Replacement
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Background. Based on large population-based studies, the risk of prosthetic valve endocarditis (PVE) after surgical aortic valve replacement is 0.57% per person year. There is no causal link from asymptomatic bacteriuria (ASB) to PVE; however, antibiotics are often prescribed in an abundance of caution given the catastrophic downside. The risk of PVE is yet to be determined in patients who receive a transcatheter aortic valve replacement (TAVR), but likely lower due to the minimally invasive approach. At our institution, ASB is heterogeneously treated with antibiotics prior to TAVR. Herein we quantify some untoward outcomes of treatment of ASB pre-TAVR.

Methods. A single-center retrospective study was conducted for patients who underwent TAVR between October 2012 and June 2017. Pre- and post-procedural urinalyses (UA), culture results, antibiotic regimens, development of resistance, symptoms of UTI, 30-day readmission rates, and 30- and 90-day mortality rates were collected.

Results. A total of 296 patients with median age of 83 (range 49–97) underwent TAVR. Two hundred and sixty UAs with reflex to culture (137 of which reflexed) and eight additional urinary cultures (UC) were sent. One hundred and thirty-three of 145 patients cultured had no documented symptoms. There were 44 patients with positive UC, of which nine (20%) had symptoms. Of the 35 with ASB, 27 received antibiotics prior to TAVR (77%). Among those who were treated, there was one case of C. diff, three cases of development of resistance in an organism previously isolated and three cases of newly acquired MDR. This amounts to a number needed to harm of 3.86. There were no cases of any of these outcomes, 30-day readmission or death within 90 days for the ASB patients who did not receive treatment. In the treatment group, there was one case of bacteremia for which the causative organism was different from the organism isolated in UC.

Conclusion. In this small cohort of mostly elderly TAVR patients, the rate of ASB was high as expected and most were treated. We documented cases of potential harm associated with antibiotic treatment, and found no such harm episodes in the untreated group. Given the high number needed to harm and the historically low risk of PVE, antimicrobial stewardship experts should continue to encourage avoidance of antibiotics for ASB, including for patients undergoing invasive and minimally invasive cardiac procedures.

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1509. Clinical Significance of Staphylococcus aureus Bacteriuria
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Background. The clinical significance of Staphylococcus aureus bacteriuria (SAB) is unclear and often presumed to represent hematogenous spread of occult S. aureus bacteremia (SAB). The aim of this study was to evaluate the clinical significance of SABU by assessing factors associated with the development of invasive SABU. Clinicians may consider isolated UTI, contamination, and colonization before embarking on extensive searches for occult staphylococcal infection in patients who present without obvious invasive infection, particularly in those without comorbid disease.

Methods. This is a retrospective cohort study of all urine cultures with screening specimens processed in the microbiology laboratory with records in the Phoenix/BG data system. Demographic data, Charlson comorbidity score, antimicrobials, MDR risk factors identified were biologically plausible and consistent with prior reports. MDR risk factors identified were biologically plausible and consistent with prior reports.

Results. A total of 356 patients with SABU were identified and 237 met inclusion criteria. Seventeen patients had concurrent invasive S. aureus infection and was treated 74.6% of the time (Figure 3). Significant risk factors for MDR UTI included female gender (P = 0.005), IV abx (P = 0.001), and recurrent UTI (P = 0.017).

Conclusion. Incidence of symptomatic UTI at our center was lower than previous reports. E. coli and E. faecalis were the most common urinary pathogens identified. MDR risk factors identified were biologically plausible and consistent with prior literature. ASB treatment occurred frequently and is an area to target stewardship interventions.

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1511. Utility of Clinical Scoring Models in Predicting Community Acquired Urinary Tract Infections with Extended-Spectrum β-Lactamase-Producing Escherichia coli in a General Hospital in Mexico City
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Background. Urinary tract infections (UTIs) are among the most common causes for antibiotic prescription. The use of clinical scoring models in predicting infection with extended-spectrum β-lactamase (ESBL)-producing Escherichia coli (E. coli) may help select an adequate empiric treatment.

Methods. This retrospective case–control study included all urine cultures with E. coli from symptomatic patients 18 years of age or more admitted to Medica Sur Hospital from December 2014 to 2016. Cases were ESBL producing cultures and controls non-ESBL. Demographic and clinical information was drawn from electronic file. Sensitivities and specificities were performed at various cutoffs and area under the receiver curve (ROC AUC) was determined for each of the two models studied.

Results. A total of 171 cases and 294 controls were included. Table 1 displays the statistically significant variables associated with ESBL in a multivariate regression