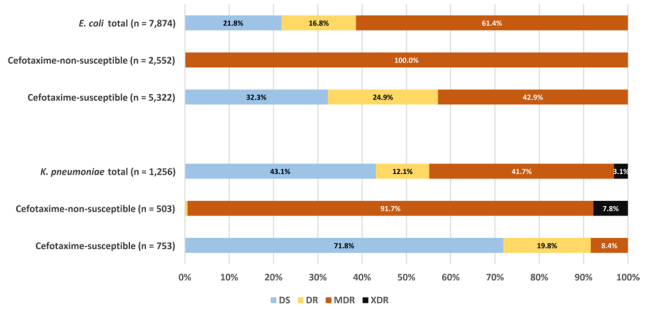

Disclosures. **All authors:** No reported disclosures.

1458. Burden of Illness in Patients with Urinary Tract Infections With or Without Bacteremia Caused by Carbapenem-Resistant Gram-Negative Pathogens in US Hospitals (2014 to 2018)

Ryan K. Shields, PharmD, MS[1]; Hemanth Kanakamedala, BS[2]; Yun Zhou, MS[2]; Bin Cai, MD, PhD[3]; [1]University of Pittsburgh, Pittsburgh, Pennsylvania; [2]Genesis Research Inc., Hoboken, New Jersey; [3]Shionogi Inc., Florham Park, New Jersey

Session: 157. Urinary Tract Infections
Friday, October 4, 2019: 12:15 PM

Background. Urinary tract infections (UTIs) are the most frequent infections caused by Gram-negative (GNB) bacteria in the USA. We aimed to characterize the burden of UTIs caused by carbapenem-resistant (CR) or -susceptible (CS) GNB in hospitalized patients with or without bacteremia.

Methods. Data from the Premier Healthcare Database of adult patients hospitalized between January 1, 2014 and June 30, 2018 with UTIs (defined as positive urine culture and receipt of GN antibiotics within −2 to 3 days of the index urine culture) with bacteremia (defined as positive blood culture with the same pathogen from the urine) or without bacteremia caused by CR or CS GNB were analyzed retrospectively. *Stenotrophomonas maltophilia* were presumed to be CR but rarely tested. Patient characteristics and outcomes (mortality, different types of length of hospital stay [LOS], ICU admission, discharge status and hospitalization charges) were compared.

Results. A total of 46,076 UTI patients were included. 11,212 patients with bacteremia were significantly more likely to have UTI index culture on the day of the admission vs. 34,864 patients without bacteremia (82.0% vs. 65.9%, $P < 0.001$, respectively). The same results were seen when stratified by CR status (CR: 68.59% vs. 61.23%, $P < 0.047$; CS: 82.29% vs. 66.19%, $P < 0.001$, respectively). UTI patients with bacteremia were also more likely to have a positive blood culture for the same pathogen on the same day of index urine culture (CR: 85.86%; CS: 95.45%). *Pseudomonas aeruginosa* was the most frequent CR pathogen (50.03%), followed by *K. pneumoniae* (14.28%) and *Stenotrophomonas maltophilia* (10.76%), and CR patients with bacteremia were more likely to die in the hospital and less likely to be discharged home than other groups. They also had longer median overall and infection-associated LOS, were more likely to be admitted to the ICU and had higher hospitalization charges (table).

Conclusion. UTIs complicated by bacteremia exacerbates the burden of illness in patients hospitalized with UTIs, increasing mortality, LOS, and hospitalization charges. The presence of CR pathogens further exacerbates this burden.

Table.

	With bacteremia N=11,212			Without bacteremia N=34,864		
	CR N=191	CS N=11,021	P value	CR N=1,798	CS N=33,066	P value
Discharge status, N (%)						
Death	20 (10.5)	679 (6.2)	0.015	71 (4.0)	1,371 (4.2)	0.682
Home	59 (30.9)	6,088 (55.2)	<0.001	706 (39.3)	16,401 (49.6)	<0.001
Overall LOS,						
median days	9	7	<0.001	8	6	<0.001
IQR	7 – 17	5 – 10		5 – 12	4 – 10	
Infection-associated LOS (from index culture to discharge)						
median days	9	7	<0.001	7	6	<0.001
IQR	7 – 14	5 – 10		5 – 10	4 – 9	
Total LOS charges $,						
median	76,000	38,502	<0.001	42,648	36,118	<0.001
IQR	36,492 – 138,077	23,295 – 68,845		24,601 – 78,085	20,790 – 69,435	
ICU admission, N (%)	110 (57.6)	4,978 (45.2)	0.001	542 (30.1)	10,301 (31.2)	0.368
Total ICU LOS charges $,						
median	11,904	9,284	0.007	9,410	8,600	0.639
IQR	4,447 – 36,297	4,089 – 19,720		1,877 – 23,814	2,125 – 23,500	

Disclosures. **All authors:** No reported disclosures.

1459. Oral Cephalosporins vs. Fluoroquinolones for the Empiric Treatment of Acute Uncomplicated Pyelonephritis

Kevin Lin, PharmD[1]; Jessica Ortwine, PharmD, BCPS-AQID[2]; Norman Mang, PharmD, BCIDP[2]; Wenjing Wei, PharmD, BCPS-AQID[2]; Bonnie C. Prokesch, MD[3]; [1]Parkland Hospital, Dallas, Texas; [2]Parkland Health and Hospital System, Dallas, Texas; [3]Assistant Professor of Internal Medicine, Dallas, Texas

Session: 157. Urinary Tract Infections
Friday, October 4, 2019: 12:15 PM

Background. The Infectious Diseases Society of America guidelines for the treatment of acute uncomplicated pyelonephritis (AUP) recommend oral fluoroquinolones (FQs) as a first-line agent in patients not requiring hospitalization. However, with increasing rates of FQ and trimethoprim/sulfamethoxazole resistance, oral β-lactams are attractive agents due to improved empiric susceptibility patterns at our institution. The current guideline advises caution when using oral β-lactams due to concern for inferior efficacy, but studies specifically evaluating the efficacy of oral cephalosporins (CPHs) in AUP are limited. The purpose of this study was to provide additional evidence for the safe and effective use of oral CPHs for empiric treatment of AUP.

Methods. Retrospective chart review was performed on all patients prescribed oral CPHs or FQs for AUP from the Emergency Department (ED) at Parkland Memorial Hospital between September 2017 and July 2018. The primary endpoint was treatment failure within 30 days, defined as ED return due to any cause or modification to an alternative antibiotic. Secondary endpoints included ED return within 30 days due to continued symptoms of AUP, documented adverse drug reactions (ADRs), and *C. difficile* infection (CDI) within 30 days.

Results. Of the 333 patients included in the study, treatment failure occurred in 72 (21.6%) patients and was similar between oral FQs and CPHs (21.4% vs. 21.7%). A higher rate of treatment failure was observed for first-generation (1GC) CPHs compared with second-generation (2GC) or third-generation (3GC) CPHs (19/51 [43.1%] vs. 18/107 [16.8%] vs. 9/68 [13.2%]). The primary reason for treatment failure was modification to an alternative antibiotic, and was highest for oral 1GC, followed by FQs, then 2GC and 3GC (19/51 [37.3%] vs. 14/107 [13.1%] vs. 11/107 [10.3%] vs. 4/68 [5.9%]). Rates of return to the ED for continued symptoms of AUP were found to be lower for oral CPHs (8/226 [3.5%]) vs. FQs (9/107 [8.4%]). Documented ADRs were low (5/333 [1.5%]) and none developed CDI.

Conclusion. Oral CPHs appear to be as safe and effective as FQs for the empiric treatment of AUP. In concordance with the susceptibility data of our institutional antibiogram, 2GC and 3GC were observed to have a lower rate of treatment failure compared with 1GC and FQs.

Disclosures. **All authors:** No reported disclosures.

1460. The Effectiveness of Short vs. Long Antibiotic Therapy in Hospitalized Adult Patients with Urinary Tract Infections: A Systematic Review and Meta-Analysis

Tala Ballouz, MD, MPH; Nesrine Rizk, MD; American University of Beirut, Beirut, Beyrouth, Lebanon

Session: 157. Urinary Tract Infections
Friday, October 4, 2019: 12:15 PM

Background. Urinary tract infections (UTIs) are a frequent cause of morbidity and mortality in hospitalized patients, if not adequately and promptly treated. The optimal treatment duration is controversial and most recommendations are based on clinical experience. Current guidelines recommend 5–14 days of treatment depending on the type and severity of infection and the antibiotic used. With the emergence of multi-drug resistance, shorter durations are increasingly favored. This systematic review of randomized controlled trials (RCTs) aims at providing updated evidence on the effectiveness of short (≤7 days) vs. long (>7 days) antibiotic regimens in hospitalized adult patients.

Methods. MEDLINE, EMBASE, and CENTRAL were searched to identify relevant RCTs. Trial quality was evaluated using Cochrane's Risk of Bias Tool. The primary outcome was clinical success. Secondary outcomes included microbiological success, withdrawal due to adverse events (AE), relapse, and reinfection rates. A random-effect meta-analysis was performed using R.

Results. 8 RCTs conducted between 1995 and 2018 were identified. Trial quality was considered poor in 5, fair in 1 and good in 2 RCTs. Clinical and microbiological success was reported in all studies. Withdrawal due to AE was reported in 5, relapse and reinfection in 3 studies. Overall, there was no difference in clinical success between short and long courses (OR = 0.92, 95% CI 0.66–1.29; 2111 patients) (figure). Similarly, microbiological success was comparable in the two arms (OR = 1.0, 95% CI 0.70–1.43; 2111 patients). There was a higher, but nonsignificant, number of withdrawals due to AE in the long duration arm (OR = 0.78, 95% CI 0.29–2.11; 1890 patients). Patients receiving short courses had a non-significant higher rate of relapse (OR = 2.65, 95% CI 0.31–22.39, 175 patients). However, there was no difference in reinfection rates (OR = 1.12, 95% CI 0.26–4.90; 175 patients). A subgroup analysis limited to complicated UTIs showed similar results.

Conclusion. Based on the limited available evidence, short antibiotic courses appear to be equally effective as longer courses in the management of inpatient UTIs. Further research is needed to determine appropriate antibiotic treatment durations and assess treatment-related development of drug resistance.