Results. Of 408 patient of community-onset KP BSI, 70 (17%) were ESBL-KP BSI patients. ESBL-KP isolates most frequently carried CTX-M-1 group ESBL (74%, n = 52), followed by CTX-M-9 group ESBLs (16%, n = 11). Most prevalent sequence type (ST) among ESBL-KP isolates was ST148 (14%, n = 10). Among non-ESBL-KP isolates, ST23 was most prevalent (21%, n = 70). Analyzing with multivariate analysis, recent admission to long-term care hospital were needed.

Set ESBL-KP BSI. Strict antibiotic stewardship and infection control measures in Recent usage of antibiotics were identified as risk factors for community-onset ESBL-KP BSI. Independent risk factors for community-onset ESBL-KP BSI were identified as previous use of urinary catheter (OR, 2.3; 95% CI, 1.1–4.5; P = 0.02) and previous use of urinary catheter (OR, 2.3; 95% CI, 1.1–4.5; P = 0.02) were identified as independent risk factors for community-onset ESBL-KP BSI.

Conclusion. Recent admission to long-term care hospital, use of urinary catheter, recent usage of antibiotics were identified as risk factors for community-onset ESBL-KP BSI. Strict antibiotic stewardship and infection control measures in long-term care hospital are needed.

Disclosures. All authors: No reported disclosures.

477. Characterization of Extended-Spectrum β-Lactamase (ESBL) Producing Gram-Negative (GN) Urinary Tract Infections (UTI) in Pediatric Patients Leslie Stach, PharmD; Regina Orbach, PharmD and Kanokporn Mongkolrattanothai, MD; Children Hospital Los Angeles, Los Angeles, California Session: 52. HA1: MDRO – GNR Epidemiology, ESBL Producers Thursday, October 3, 2019: 12:15 PM Background. There has been an increase in antimicrobial resistance among GN pathogens, not only in adults, but also pediatrics. UTIs are common in pediatrics; however, reports of pediatric UTI with ESBL producing GN are limited.

Methods. All urine cultures positive for ESBL producing GN from 5/1/18 to December 31/18 were retrospectively reviewed. Proven infection (PI) defined as ≥20,000 colony-forming units (CFU)/mL of bacteria plus pyuria or positive leucocyte esterase for catheterized or clean catch specimens. Relapsed infection defined as same pathogen cultured within 30 days of infection. Abnormal urinary tract systems or functions (AUTS) include neurogenic bladder, structural anomalies, or intermittent catheterization.

Results. A total of 107 urine cultures for ESBL producing GN, from 85 patients, were included. Majority of specimens (78/107 (73%)) were obtained from the ED or outpatient clinics. 43% of specimens were from patients with AUTS. E. coli was the majority (95%) of ESBL isolates. 57% of ESBL producing GNs were susceptible to amoxicillin/clavulanate (AC) or trimethoprim/sulfamethoxazole (TMP/SMX). 88% were nitrofurantoin susceptible. Only 1 isolate was meropenem resistant. Antibiotics (ABX) were prescribed for UTI in 67/107 episodes. However, only 52 episodes were PI. Of these, 38 were empirically treated with oral ABX and 29 with intravenous ABX. The most commonly prescribed empiric ABX was oral cephalexin (25/67, 37%). Ineffective empiric ABX for UTI was very common, 83% (43/52) of these, 5/43 never received effective therapy and none had relapse. Most common duration of ABX was 10 days (range 5–17 days). 43% (23/52) of PI were treated with a carbapenem.

Conclusion. Many ESBL UTI isolates remain susceptible to oral ABX. Although small numbers of patients treated with ineffective ABX did not return with relapsed infection. Non-carbenapen ABX are a reasonable option to minimize selective pressure or unnecessary use. Empiric narrow-spectrum antibiotic therapy may still be appropriate.

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478. Outcomes of Extended-Spectrum β-Lactamase Producing Escherichia coli Bloodstream Infections in Neutropenic Patients with Hematological Malignancies Sadaf Aslam, MD, MS; James Denham, MS; and John Greene, MD; 2University of South Florida, Tampa, Florida; 1 Moffitt Cancer Center, Tampa, Florida Session: 52. HA1: MDRO – GNR Epidemiology, ESBL Producers Thursday, October 3, 2019: 12:15 PM Background. Infections with extended-spectrum β-lactamase (ESBL) producing Enterobacteriaceae is an emerging problem leading to poor clinical outcomes and increased mortality. The purpose of this study was to determine the prevalence, risk factors and outcomes of ESBL-producing E. coli (EC) in bloodstream infections (BSIs) of neutropenic patients with hematological malignancies and compare the difference with Non-ESBL producing EC.

Methods. Through an IRB approved protocol, a retrospective cohort study was conducted at the H. Lee Moffitt Cancer Center from January, 2007 till October, 2017. Of the 310 records, who had iv/e blood cultures for E. Coli, a total of 63 neutropenic patients with hematological malignancies were identified based on the bloodstream infections with ESBL-EC and Non ESBL EC. Data included demographics, underlying malignancy, type of bone marrow transplant, duration of neutropenia, antibiotics use pre and post culture, length of hospital stay, severity of infection, ventilator use, and mortality data.

Results. A total of 310 cases with hematological malignancy and neutropenia were reviewed, 63 were identified as iv/e blood culture for E. Coli. Out of the 63 cases, 17 were ESBL-EC+iv/e and 46 were Non-ESBL-EC. The prevalence of ESBL-EC was highest in the year 2015 (29.4%) and decreased in the subsequent years (Figure 1). The mean ages of the two groups were 53.59 ±12.4 and 60.82 ± 11.1, respectively. The average length of stay for the ESBL-EC group was 26.59 ± 11.2 days, longer than the non-ESBL-EC group 21.96 ± 11.2. Days of neutropenia in non-ESBL vs. ESBL EC were 9 days ± 8.3, and 19 days ± 22.0, respectively, P < 0.01. No differences were observed in the 30–60 day mortality and other outcomes listed in Table 1.

Conclusion. The prevalence of ESBL-EC was observed to be higher in patients who were neutropenic for longer duration, were older and resulted in longer hospital stay. Early identification and empirical therapy in neutropenic patients suspected to have ESBL-EC infection is crucial. Also, the infection with ESBL-EC was higher in the year 2015 and decreased in the subsequent years. After higher rates, perhaps infection control, lab reporting changes, antibiotic stewardship and transmission-based precautions might have played a role.
Disclosures. All authors: No reported disclosures.

479. Associated Factors for Extended-Spectrum β-Lactamase Infection Among Patients with Solid or Hematological Malignancy

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Session: 52. HAI: MDRO – GNR Epidemiology, ESBL Producers

Thursday, October 3, 2019: 12:15 PM

Background. Cancer patients are susceptible to infections due to immunodeficiency, frequent invasive interventions-devices, chemotherapy and antibiotics exposure. Infections caused by extended-spectrum β-lactamase (ESBL)-producing Enterobacteriaceae increase morbidity and mortality. The objective was to identify clinical factors associated with ESBL in infected patients with cancer at the Instituto Nacional de Cancerología.

Methods. A case–control study was conducted from 2013 to 2015. Cases were infected patients with ESBL-producer Enterobacteriaceae. Controls (matched for date and ward) with non-ESBL-producer Enterobacteriaceae were included. Data were extracted from electronic medical records at index culture: clinical and admission data, Charlson index, immunosuppressive, radio and chemotherapy, neutropenia, invasive devices, surgical procedures and antimicrobial therapy. Microorganisms were identified by the automatized system. Conditional logistic regression and backward stepwise was used to identify predictors of ESBL isolation.

Results. A total of 265 patients with ESBL producer Enterobacteriaceae and 445 non-ESBL producers were identified, mean age 59, 61% male, 48% admitted as outpatients, 73% with solid tumors, 38% with Charlson index ≥4. E.coli and Klebsiella spp. represented 90% of microorganisms. Factor associated with ESBL-producer Enterobacteriaceae were hospitalization ≥7 days (OR: 1.59; CI 1.11–2.29), hospitalization the previous year (OR: 4.02; CI 2.68–6.02), immunosuppressive therapy (OR: 2.07; CI 1.05–4.05), B-lactam therapy the last month (OR: 1.54; CI 1.05–2.26), invasive devices (OR: 1.50; CI 1.10–2.27), active neutrophia (OR: 2.22; CI 1.05–4.68), neutropenia (OR: 2.03; CI 1.26–3.27) and absence of chemotherapy during last 3 months (OR: 1.91; CI 1.29–2.82). Discriminatory capacity was acceptable (AUC: 0.71).

Conclusion. The presence of ESBL-producer Enterobacteriaceae in oncologic patients is associated with health care, hospital admission and length of stay, invasive devices and exposure to antibiotics. The magnitude of associated factors are weak and do not completely allow the identification of cancer patients infected with ESBL-producer Enterobacteriaceae.

Table 1. Clinical characteristics of oncologic patients with Enterobacteriaceae isolation, categorized by ESBL-producer and non-ESBL producers. Enterobacteriaceae extended-spectrum β-lactamase

| Variable                                      | Cases (ESBL-producers) | Controls (non-ESBL producers) | P      |
|-----------------------------------------------|------------------------|-------------------------------|--------|
| Total No. (%)                                 | 265 (17)               | 445 (26)                      |        |
| Age: mean (SD)                                | 59 (13)                | 59 (12)                       | 0.345  |
| Male: Yes (%)                                 | 47 (4)                 | 161 (36)                      | 0.049  |
| Charlson index: ≥4                           | 185 (70)               | 262 (59)                      | 0.046  |
| E.coli (%)                                    | 47 (4)                 | 161 (36)                      | 0.049  |
| Klebsiella (%)                                | 118 (45)               | 284 (64)                      | 0.031  |
| No. of hospitalization days ≥7                | 83 (31)                | 180 (39)                      | 0.031  |
| No. of hospitalization days the previous year | 83 (31)                | 180 (39)                      | 0.031  |
| Invasive devices                              | 185 (70)               | 262 (59)                      | 0.046  |
| Invasive procedures                          | 83 (31)                | 180 (39)                      | 0.031  |

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