

1187. Retrospective and Prospective Analysis of *Acinetobacter* Modern-Day Clinical Isolates in a Large Mid-West Hospital System

Juan Calix, Jr., MD PhD¹, Carey-Ann D. Burnham, PhD² and Mario Feldman, PhD³; ¹Internal Medicine, Washington University School of Medicine, St. Louis, Missouri, ²Pathology and Immunology, Washington University School of Medicine, St. Louis, Missouri and ³Molecular Microbiology, Washington University School of Medicine, St. Louis, Missouri

Session: 136. Healthcare Epidemiology: MDR-Gram Negative Infections
Friday, October 5, 2018: 12:30 PM

Background. The epidemiology of contemporary *Acinetobacter calcoaceticus-baumannii* complex (AcbC) strains in the United States is understudied. In addition to increasing multidrug resistance, there is concern that the rates of AcbC infections acquired outside of hospitals and the anatomic distribution of these infections may differ from what is previously reported. Furthermore, the epidemiology of non-AcbC clinical isolates is poorly characterized.

Methods. We retrospectively identified all cases associated with *Acinetobacter* clinical isolates in the Barnes-Jewish/Children's Hospital system (St. Louis, MO) from 2007 to 2017. First isolates were classified as AcbC or non-AcbC. Tissue of origin, hospital-day of isolation, and antibiotic resistance profiles were determined. Results were compared with an ongoing prospective analysis of *Acinetobacter* isolates in the same system, started in July 2017.

Results. We identified 2,959 and 1,243 cases associated with AcbC and non-AcbC isolates, respectively. In both groups, isolates were most commonly obtained from respiratory (34% and 30% of total isolates) and connective tissue (34% and 27% of total isolates) sites. Urinary tract specimens were more likely to occur among AcbC isolates compared with non-AcbC isolates (664/2,959 [22%] vs. 147/1,243 [12%], $P < 0.001$). The percentage of isolates obtained prior to hospital-day-2 are 62% and 78% for AcbC and non-AcbC isolates, respectively. AcbC isolates were markedly more resistant to all classes of antibiotics. Analysis of 77 AcbC and 58 non-AcbC prospectively collected isolates revealed similar clinical findings.

Conclusion. Our study confirms the protean nature of *Acinetobacter* clinical isolates, and begins to describe relevant differences between AcbC and non-AcbC strains. These distinctions support the practice of identifying clinical isolates using AcbC and non-AcbC labels. Ongoing studies will further describe the patient characteristics and clinical outcomes associated with *Acinetobacter* disease in our system.

Disclosures. All authors: No reported disclosures.

1188. Could Chlorhexidine (CHX) Bathing Decrease the Incidence of Carbapenem-Resistant Enterobacteria (CRE) Bacteremia in Previously Colonized CRE Hematopoietic Stem Cell Transplant Recipients (HSCT)?

Juan Diego Velez, MD¹; Fernando Rosso, MD¹; Jorge Cedano, MD¹; Barbara Lucia Mora, MD¹; Marly Orrego, RN, MSC²; Mayra Estacio, MD³ and Ivan Andres Beltran, RN²; ¹Infectious Diseases, Fundación Valle del Lili, Cali, Colombia, ²Infection Control Committee, Fundación Valle del Lili, Cali, Colombia, ³Clinical Research Center, Fundación Valle del Lili, Cali, Colombia

Session: 136. Healthcare Epidemiology: MDR-Gram Negative Infections
Friday, October 5, 2018: 12:30 PM

Background. CRE colonized patients that undergo HSCT have a higher incidence of CRE bacteremia, especially during the initial neutropenic period, with a high mortality rate. This situation is critical in countries highly endemic for CRE such as Colombia. It is necessary to find measures that decrease the occurrence of this infection, permitting a safer transplant. Daily CHX bathing could be effective reducing this risk.

Methods. Since March 2014 in our hospital in Cali, Colombia, all adult patients admitted to the HSCT unit were peri-rectal screened for CRE colonization, and then CHX daily bathing (CHX 4% soap or CHX 2% pads) was used regardless of the screening results. Prospectively all type of microorganism bacteremia were recorded from 2014 to 2017. We compare bacteremia, and CRE bacteremia rates between CRE colonized vs. non-colonized patients. We compared the annual proportion of CRE bacteremia in this two groups. Nonparametrical statistic χ^2 for trend was used to compare the difference.

Results. We analyzed data collected from 155 patients from July 2014 to June 2017. There were 39.5% females, and the average age was 42 years, 60% were autologous, and 40% were allogeneic. The total of CRE colonized patients was 25/155 (16%), and the overall of bacteremia was 54/155 (34%). All type of microorganism bacteremia and CRE bacteremia were more frequent in CRE Colonized patients. (52% vs. 31% and 24% vs. 3.8%, RR: 6.24, 95% CI 2.06–18.8, $P = 0.002$). With the increase in compliance with CHX bathing, there was a decreasing trend in CRE bacteremia in the colonized patient, dropping from 50% during 2014, to 14% in 2017 (OR 0.167; $P = 0.21$).

Conclusion. Daily CHX bathing in the CRE colonized patient reduce the incidence of CRE bacteremia in HSCT patients. We propose this intervention as a significant protective measure in CRE colonized hospitalized patients.

Disclosures. All authors: No reported disclosures.

1189. A Comprehensive Characterization of the Emerging Carbapenem-Resistant *Klebsiella pneumoniae* Clinical Isolates From a Public Hospital in Lima, Peru

Fiorella Krapp, MD, MS¹; Catherine Amaro, MD²; Karen Ocampo, Biol¹; Lizeth Astocondor, MT¹; Noemi Hinojosa, Biol¹; Maribel Riveros, Biol¹ and Coralith Garcia, PhD^{1,2}; ¹Instituto de Medicina Tropical Alexander von Humboldt, Universidad Peruana Cayetano Heredia, Lima, Peru, ²Hospital Cayetano Heredia, Lima, Peru

Session: 136. Healthcare Epidemiology: MDR-Gram Negative Infections
Friday, October 5, 2018: 12:30 PM

Background. In contrast with other countries in Latin America, Peru had been notoriously spared by the global dissemination of carbapenem-resistant *Klebsiella pneumoniae* (CR-Kp), until recently. Even though, isolated cases of KPC-producing *K. pneumoniae* had been reported since 2013, it was not until 2016 that the first outbreak of NDM-producing *K. pneumoniae* was described in Peru. By 2017, rapid emergence of CR-Kp took place in Hospital Cayetano Heredia (HCH), a tertiary care hospital in Lima. Here, we provide a description of clinical, microbiological and molecular characteristics of CR-Kp isolates recovered at HCH.

Methods. Retrospective review of all CR-Kp clinical isolates recovered at HCH until December 2017. Antibiotic susceptibility data were obtained during routine care (Vitek or disc diffusion) and was assessed using CLSI breakpoints. DNA extraction was performed by heat shock, and PCR was performed to assess carriage of *bla*NDM gene. String test was performed to detect hypermucoviscosity.

Results. The first case of CR-Kp in HCH dated from July 2015. Since then, a total of 69 CR-Kp clinical isolates, from 60 patients have been recovered until December 2017. A significant increase in the number of cases was observed during 2017 (Figure 1). The average age of patients was 55. Urinary, and respiratory sources of infection or colonization were the most common ones (35% and 30%, respectively), followed by blood stream (17%) and intraabdominal (10%) infections. Isolate recovery and DNA extraction was achieved in 40 cases. Of these, 15 (38%) had a positive PCR for *bla*NDM carbapenemase gene (Figure 2). Antibiotic susceptibility testing revealed that amikacin was the most effective antimicrobial with the rest of antimicrobials having extremely high rates of resistance (Figure 3). String test was positive in two of these isolates, suggesting that hypervirulent CR-KP might be emerging in this region.

Conclusion. An epidemic of CR-Kp has established in our hospital, representing the first one reported in Peru. The different mechanisms of carbapenem resistance found suggest a polyclonal expansion. Amikacin remains the only active antimicrobial within the routinely tested antibiotics, highlighting the need to add other antimicrobials to the routine panel.

Figure 1. Number of carbapenem-resistant *Klebsiella pneumoniae* cases reported in Hospital Cayetano Heredia

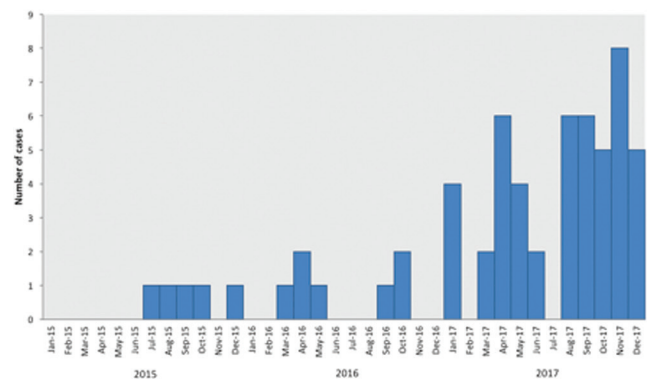


Figure 2. Number of NDM-producing *K. pneumoniae* cases isolated in HCH across time

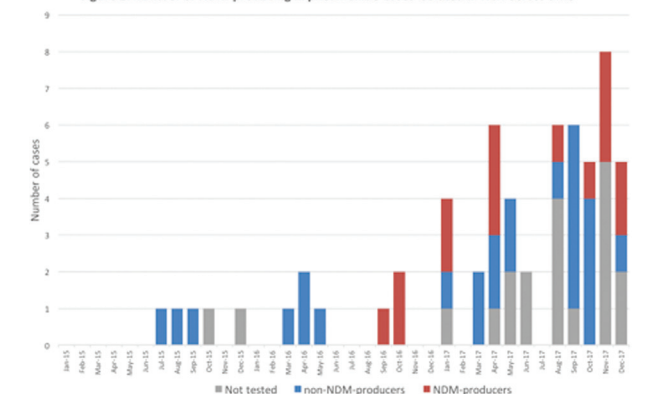
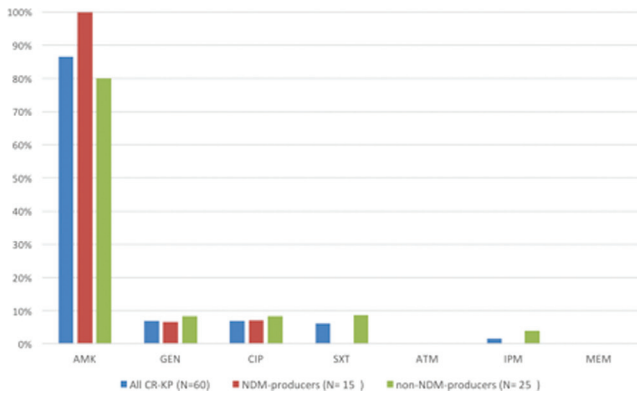


Figure 3. Rates of susceptibility to routinely tested antimicrobials among CR-Kp, according to their NDM carbapenemase production



Disclosures. All authors: No reported disclosures.

1190. Reduction of Carbapenem-Resistant Enterobacteria (CRE) Infections and Total Polymyxin B Use Due to a Comprehensive Infection Control Strategy in Colombia

Juan Diego Velez, MD¹; Fernando Rosso, MD¹; Barbara Lucia Mora, MD¹; Jorge Cedano, MD¹; Marly Orrego, RN, MSc²; Ivan Andres Beltran, RN² and Jhon Jairo Echeverry, PharmD³; ¹Infectious Diseases, Fundación Valle del Lili, Cali, Colombia, ²Infection Control Committee, Fundación Valle del Lili, Cali, Colombia, ³Pharmacy, Fundación Valle del Lili, Cali, Colombia

Session: 136. Healthcare Epidemiology: MDR-Gram Negative Infections
Friday, October 5, 2018: 12:30 PM

Background. Colombia is an endemic country for CRE infections, with an increased rate of hospital-acquired infection due to this microorganism. Therefore, we have a high empirical use of carbapenem, colistin, and polymyxin B in nosocomial suspected septic patients. Infection control strategies could reduce CRE infection rates and lower antibiotic consumption.

Methods. Since 2014, a Comprehensive Infection control strategy was implemented in our hospital. This strategy included: (1) Hospital daily CHX bathing (4% soap or 2% pads) was applied to all patients in our institution (intensive care units and medical/surgical wards). Additionally, recommendations for patient care were provided to patients and family. (2) Active surveillance of perirectal CRE screening was implemented toward high suspected patients. (3) Isolation of all CRE colonized or-infected patient, and gloves use, and alcohol for hand sanitation was reinforced. To evaluate the effectiveness of this strategy, annually nosocomial infection rates due to CRE were compared. Defined daily dose (DDD) of polymyxin B use was obtained annually.

Results. After introducing this protocol, we found a progressive decrease in CRE bacteremia from 2.24 infections per 10,000 patients-day in 2014, to 1, 26 during 2015, 0.92 in 2016 and 0.78 infections per 10,000 patients day during 2017. This was also correlated to a decrease in the use of polymyxin in the adult population, DDD drop from 2.36 to 1.06.

Conclusion. Universal hospital daily CHX bathing, CRE screening, and Isolation as a comprehensive strategy was effective decreasing CRE nosocomial infections and polymyxin use.

Disclosures. All authors: No reported disclosures.

1191. Prevalence and Microbiology of Carbapenem Resistance Among Six Gram-Negative Pathogens in Bloodstream Infections in US Hospitals, 2010–2015

Thomas P. Lodise, Jr. PharmD, PhD², Roger Echols, MD, FIDSA³, Weiyang Wang, MPH⁴, Frank Corvino, PhD⁵ and Bin Cai, MD, PhD⁶; ¹Washington Hospital Center, Washington, DC, ²Albany College of Pharmacy and Health Sciences, Albany, New York, ³ID3C, Easton, Connecticut, ⁴Genesis Research, Hoboken, New Jersey, ⁵Genesis Research LLC, Hoboken, New Jersey, ⁶Shionogi Inc., Florham Park, New Jersey and ⁷Evimed Research Group, LLC, Goshen, Massachusetts

Session: 136. Healthcare Epidemiology: MDR-Gram Negative Infections
Friday, October 5, 2018: 12:30 PM

Background. Carbapenem resistance (CR) is a growing threat in hospitals in the United States and worldwide. We evaluated the prevalence and geographic distribution of CR among six most common Gram-negative (GN) bloodstream infection (BSI) pathogens in US hospitals.

Methods. We analyzed microbiology data in a cohort of adults (≥18 years) hospitalized in 181 US hospitals contributing microbiology data to the Premier Healthcare Database (October 2010–September 2015) with blood cultures positive for six most common GN pathogens (*S. maltophilia* assumed 100% CR). We report CR prevalence by pathogen, hospital ward (ICU vs. floor), and census region.

Results. Of the 43,095 GN BSIs included, 1,513 (3.5%) were caused by the six most common CR pathogens (Figure 1). CR was more frequently isolated from

patients with an ICU stay (4.7%) vs. those without (2.7%). Nearly 75% (*n* = 1,100) of CR occurred in nonfermenters (*S. maltophilia*, *P. aeruginosa*, and *A. baumannii*). Among individual organisms, the prevalence of CR—outside of *S. maltophilia*—was highest among *A. baumannii*, 35.1%, and lowest among *E. coli*, 0.2% (Figure 2). Geographically, CR prevalence ranged from highest in the Mountain region (7.1%) to lowest in the West North Central (2.3%) (Figure 3). The maximum CR prevalence occurred in *A. baumannii* from the East North Central (55.7%), and the minimum in *E. coli* from the West North Central (0.05%) regions.

Conclusion. Among six most frequently isolated pathogens in BSI, the overall CR prevalence is 3.5%. The wide variations in prevalence based on organism, location in the hospital, and geography emphasize the clinical importance of knowing local pathogen and resistance patterns in order to optimize empiric treatment.

Figure 1. Distribution of Carbapenem-resistant Gram-negative Pathogens in Bloodstream Infections

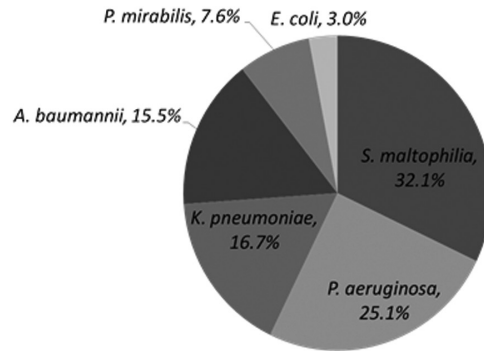


Figure 2. Overall Prevalence of Carbapenem Resistance by Pathogen (%)

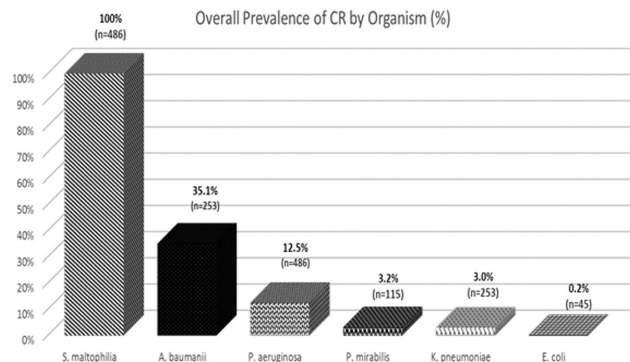
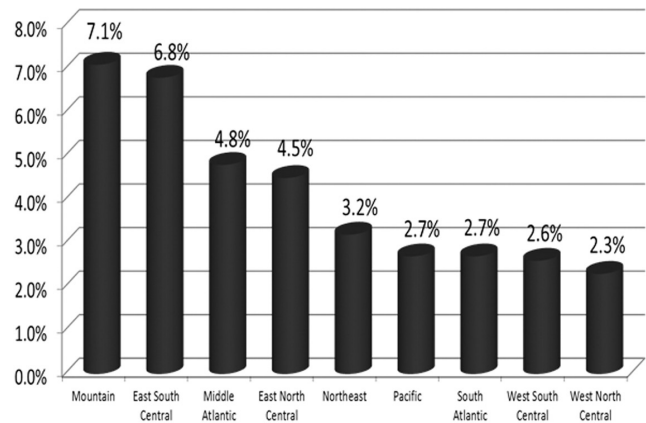


Figure 3. Overall Carbapenem Resistance by US Census



Disclosures. A. F. Shorr, Astellas: Consultant and Speaker's Bureau, Consulting fee, Research support and Speaker honorarium. Cidara: Consultant, Consulting fee. Merck & Co.: Consultant and Speaker's Bureau, Consulting fee, Research support and Speaker honorarium. T. P. Lodise Jr., Motif BioSciences: Board Member, Consulting fee.