weeks. His endocarditis did not relapse after 6 months' treatment. (Case 2) A 71-year-old man who had a past medical history of enterococcal endocarditis was successfully treated with intravenous ampicillin and subsequent atrial valve replacement. He was admitted to our hospital because of fever and back pain. Prosthetic valve endocarditis was diagnosed because blood cultures revealed *C. striatum*, and evidence of metastatic lesions. While intravenous vancomycin and oral rifampin (600 mg/day) were initiated, several complications, such as pseudoaneurysm of ascending aorta, splenic artery aneurysm followed by a rupture, and cerebral hemorrhage occurred. The patient's refusal of a re-operation rendered prolonged medical treatment necessary for 16 weeks. He died 20 weeks after the diagnosis of *Corynebacterium* endocarditis.

Conclusion. The same antibiotic treatment regimen resulted in opposing outcomes in our two patients. To the best of our knowledge, only 22 cases were previously described in English literature. However, there was no well-established medical treatment against this pathogen. Our experience might be beneficial for similar patients worldwide.

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

180. Klebsiella pneumoniae and K. oxytoca Bacteremia: Differences in Host, Source, and Antibiotic Susceptibility

Dima Youssef, MD[1]; Babak Hooshmand, MD[2];
Kathleen M. Riederer, MT (ASCP)[1]; Leonard B. Johnson, MD[1] and Riad Khatib, MD[2];
[1]Ascension St. John Hospital, Grosse Pointe, Michigan; [2]Ascension Health, Saint John Hospital and Medical Center, Grosse Pointe Woods, Michigan

Session: 37. Bacteremia, CLABSI, and Endovascular Infections
Thursday, October 3, 2019: 12:15 PM

Background. *Klebsiella* species (KS) bloodstream infection (BSI) is often caused by *K. pneumoniae* (KP). *K. oxytoca* (KO) is emerging and implicated in antibiotic-associated right-sided colitis. We compared the clinical and microbiological characteristics of KP and KO.

Methods. We reviewed blood culture (BC) results (January 1, 2010–December 31, 2017), selected patients with KS in ≥1 BC, reviewed their medical records, abstracted patient demographics, source of bacteremia, antibiotics susceptibility, and outcome. Each patient was counted once. We compared KP and KO cases. All differences were assessed by the chi-square test and regression analysis, using SPSS.

Results. We encountered KS in 975/14,256 (6.8%) positive BC, representing 611 BSI including 537 KP-BSI (484 patients) and 55 KO-BSI cases (54 patients); each patient was counted once. Mean age and prevalence of diabetes and most comorbidities were similar but KO was less frequent in African Americans (40.7% vs. KP [61.3%]; $P = 0.005$) and in patients with neurological debility (Stroke, paraplegia, multiple sclerosis; 11.1% vs. KP [24.8%]; $P = 0.03$). KO BSI was more frequent in IVC BSI and was absent in pneumonia-associated BSI (table). Antibiotic resistance was rare among KO isolates except for cefazolin-intermediate susceptibility (42.6% vs. 1.7%; $P < 0.001$). CREs were limited to KP. Logistic regression analysis confirmed KO link to IVC (OR = 3.57; 95% CI: 1.89, 6.76; $P < 0.001$) and Caucasian race (OR = 2.46; CI: 1.37, 4.42; $P = 0.003$). Mortality rate was comparable (28.1% [KP] vs. 35.2% [KO]; $P = 0.3$).

Source and antibiotic susceptibility (%) in *K. pneumoniae* and *K. oxytoca* bacteremia

	K. pneumoniae	*K. oxytoca*	*P*
Source			
IVC	12.8	33.3	<0.001
UTI	34.9	24.1	0.1
Soft/tissue bone	8.7	11.1	0.6
Abdomen	21.3	14.8	0.4
Pneumonia	8.3	0	0.03
Antibiotics resistance			
Cefazolin	28.6	20.4	0.1
Ceftriaxone	25.2	5.6	0.001
Ciprofloxacin	25.6	1.9	<0.001
Gentamicin	18.2	1.9	0.001
TMP/SMX	25.4	1.9	<0.001
ESBL 25.6	3.7	<0.001	
CRE	4.7	0	0.1

Conclusion. KO and KP BSI differ in the type of host and source, suggesting different colonization dynamics. KO remains antibiotic-susceptible but might be cefazolin less susceptible. Prospective studies are needed to confirm differential cephalosporin susceptibility and delineate host–pathogen interactions.

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

181. Antimicrobial Susceptibility Trends and Risk Factors for Antibiotic Resistance in Pseudomonas aeruginosa Bacteremia: A 10-Year Experience at a Korean Tertiary Hospital

Jin Suk Kang, MD; Chisook Moon, MD and Seok Jun Mun, MD; Inje University Busan Paik Hospital, Inje University College of Medicine, Busan, Pusan-jikhalsi, Republic of Korea

Session: 37. Bacteremia, CLABSI, and Endovascular Infections
Thursday, October 3, 2019: 12:15 PM

Background. Bacteremia due to *Pseudomonas aeruginosa* is associated with high mortality and inappropriate initial antimicrobial therapy leads to worse outcomes. We aimed to analyze clinical characteristics of *P. aeruginosa* bacteremia and risk factors for antibiotic resistance and investigate their antimicrobial susceptibility trends.

Methods. We retrospectively reviewed the medical records of patients with *P. aeruginosa* bacteremia admitted to a tertiary hospital between January 2009 and March 2019.

Results. A total of 242 patients were identified and the median age was 70 years [interquartile range (IQR) 57.6–75.4]. Hepatobiliary tract (28.5%) was most common primary site of infection, followed by respiratory tract (20.2%) and urinary tract (15.7%). Out of 197 (81.4%) patients treated with susceptible antibiotics and the median duration of active antibiotic therapy was 10 days (IQR 4–15.5). The percentages of susceptible *P. aeruginosa* to amikacin, aztreonam, cefepime, ceftazidime, ciprofloxacin, colistin, gentamicin, imipenem, meropenem, piperacillin–tazobactam, and ticarcillin-clavulanate were 90.1%, 57.9%, 77.3%, 74.8%, 74.4%, 99.2%, 91.3%, 76.0%, 76.0%, 69.4%, and 51.2%. There were 24.8% carbapenem-resistant *P. aeruginosa* (CRPA), 36.4% multidrug-resistant *P. aeruginosa* (MDRPA), and 15.3% extensively drug-resistant *P. aeruginosa* (XDRPA). Susceptible *P. aeruginosa* to gentamycin and ticarcillin-clavulanate were significantly decreased in 2014–2019 than that in 2009–2013 (both; $P < 0.001$). Resistance rates to carbapenems and fluoroquinolones tended to increase over time. CRPA, MDRPA, and XDRPA were significantly associated with delayed active therapy (>48 h) (all; $P < 0.001$). Independent risk factors for CRPA were urinary tract infection (adjusted odds ratio [aOR], 3.4; 95% confidence interval [CI], 1.5–7.8), underlying hematologic malignancy (aOR, 3.0; 95% CI, 1.1–8.3) and cerebrovascular accident (aOR, 2.6; 95% CI, 1.1–5.9), hospital-acquired infection (aOR, 2.5; 95% CI, 1.0–6.1), and co-colonization with multidrug-resistant organisms (aOR, 2.2; 95% CI, 1.1–4.4).

Conclusion. The identification of risk factors for antibiotic resistance and analysis of antibiotics susceptibility are useful for early initiation of appropriate antibiotics in patients with *P. aeruginosa* bacteremia.

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

182. Appropriateness of Treatment Duration for S. aureus Bacteremia (SAB)

Kristin Griebe, PharmD[1]; Rachel Kenney, PharmD[1] and Susan L. Davis, PharmD[2];
[1]Henry Ford Hospital, Detroit, Michigan; [2]Wayne State University/Henry Ford Hospital, Detroit, Michigan

Session: 37. Bacteremia, CLABSI, and Endovascular Infections
Thursday, October 3, 2019: 12:15 PM

Background. An algorithm-based guide to optimal treatment duration in staphylococcus bacteremia demonstrated a non-inferior rate of clinical success compared with standard of care. The purpose of this descriptive study was to assess appropriateness of staphylococcus bacteremia duration of therapy according to the SAB treatment algorithm.

Methods. IRB approved, retrospective cohort describing antibiotic use in *S. aureus* bacteremia across a health system from January to March 2019. Patients were included if they had at least one blood culture with *S. aureus*. Exclusion criteria included transfer from outside hospital, concurrent osteomyelitis diagnosis, and death within 72 hours of positive culture. The primary outcome was the appropriate duration of antibiotics for uncomplicated SAB. Secondary outcomes included clinical failure, antibiotic adverse effects, 90-day mortality, and hospital length of stay.

Results. A total of 59 patients were included. The median age was 66 years old and 22 patients (37.3%) were female. Diagnosis: uncomplicated SAB 28 (47.5%) and complicated SAB 31 (52.5%); MRSA 32 (%) and MSSA 27 (%). Infectious Diseases Consultation 56 (94.9%). 4 patients died before treatment duration was determined. Breakdown of treatment durations and clinical failures are listed in Tables 1. Appropriate duration occurred in 9 (32.1%) of patients with SAB. Overall, 14 patients experiences antibiotic adverse effects, 11 which occurred in antibiotic use for ≥4 weeks, 4 occurred in patients with uncomplicated SAB treated for ≥4 weeks. Breakdown of adverse effects: acute kidney injury 9, myositis 1, rash 1, nausea/vomiting 1, anaphylaxis 1, hypersensitivity pneumonitis 1.

Conclusion. Excess treatment duration for uncomplicated SAB was common (16%), in this study, inconsistent with best practice recommendations. 79% of adverse effects occurred in patients who received a ≥4 week course. The results of this study suggest more efforts are needed to implement contemporary evidence-based treatment duration algorithms for uncomplicated SAB to minimize unnecessary antibiotic harm.

Table 1: Treatment Duration and Clinical Outcomes

	Shorter Duration (N=4)	Appropriate Duration (N=35)	Excess Duration (N=16)
Diagnosis			
Uncomplicated SAB (n=26)	1 (3.8%)	9 (34.6%)	16 (61.5%)
Complicated SAB (n=29)	3 (10.3%)	26 (89.7%)	--
Clinical Outcomes			
Clinical success	4 (100%)	28 (80%)	13 (81.3%)
Persistent bacteremia	--	7 (20%)	--
Relapse	--	4 (11.4%)	1 (6.3%)
Death	--	--	2 (12.5%)
Therapy change due to inadequate response	--	3 (8.6%)	--

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

183. Candidaemia in Children and Importance of Central Venous Catheter Removal

Kamile Arikan, MD[1]; Sevtap Arıkan-Akdaglı, MD[2] and Ates Kara, MD[2]; [1]Keçiören Research and Training Hospital, Ankara, Turkey; [2]Hacettepe University, Ankara, Turkey

Session: 37. Bacteremia, CLABSI, and Endovascular Infections
Thursday, October 3, 2019: 12:15 PM

Background. Candida is the most common cause of invasive fungal infection in healthcare settings and is associated with significant increases in healthcare resource utilization and attributable mortality.

Methods. This study was conducted in a pediatric tertiary care hospital from Turkey. We conducted a retrospective analysis in children ≤18 years with blood culture-proven candidaemia identified between December 2013 and November 2017. Sociodemographic variables,underlying condition, mortality, additional risk factors, origin of specimens were all recorded.

Results. A total of 236 episodes of candidaemia were identified over the study period. The median age of the patients was 600 days (4-6482). 106 specimens (44.9%) were cultured from patients under 1 year of age and 15 of 106 specimens were cultured from neonates. The most frequently isolated *Candida* spp. were *C. albicans* (42.%), followed by *C. parapsilosis* (30.5%), *C. glabrata* (7.6%), *C. tropicalis* (6.4%), *C. krusei* (2.5%), *C. lusitaine* (2.5%), *C. dubliniensis* (2.1%), *C. kefir* (0.8%), and *C. pelliculosa* (0.4%). In 11 of the 236 episodes (4.5%), two *Candida spp* were cultured at the same time.The most common coinfection was *C. albicans* and *C. parapsilosis*. 112 of the 236 episodes (47.5%) was due to central venous catheter-related blood stream infection. 47.5% of these patients were receiving total parenteral nutrition at the time of candidemia. Concomitant coagulase negatif staphylococcus bacteremia was present in 50 of 236 candidemia episodes (21.2%). Of 236 isolates, 74 (31.4%) was cultured from peripheral blood culture only, 95 (40.3%) from central venous catheter only, 67 (28.4%) from both peripheral and central catheter blood culture.Trombocytopenia was noted in 117 episodes (49.6%) and neutropenia in 45 episodes (19.1 Of the 112 central venous catheter-related candidemia, 35 (31.3%) resulted in death within 30 days from the onset of candidaemia (Figure 1). In 49 (45.%) episodes of central venous catheter-related candidemia, catheter was not removed and 40% of these episodes resulted as death.Catheter removal, thrombocytopenia, total parenteral nutrion were found to be associated with increased mortality in children under 1 year of age ($P < 0.001$).

Conclusion. Clinicians must be aware of candidemia in children due to high risk of mortality.

Figure 1. Candida spp and mortality change according to age in central venous catheter-related candidemia

Cultured Candida spp	≤1 year of age n (%)	>1 year of age n (%)
C. albicans	32 (26.9)	19 (16)
C. parapsilosis	24 (20.2)	19 (16)
C. krusei	0 (0)	3 (2.5)
C. tropicalis	0 (0)	3 (2.5)
C. dubliniensis	0 (0)	2 (1.7)
C. kefyr	0 (0)	1 (0.8)
C. pelliculosa	0 (0)	1 (0.8)
C.lusitaniae	1 (0.8)	0 (0)
C. albicans and parapsilosis	3 (2.5)	0 (0)
C. tropicalis and dubliniensis	2 (1.7)	0 (0)
C. tropicalis and guilliermondii	1 (0.8)	0 (0)
C. albicans and tropicalis	0 (0)	1 (0.8)
C. albicans and dubliniensis	0 (0)	1 (0.8)
Overall mortality	31 (73.8 %)	11 (26.2 %)

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

184. Channeling Alexander Fleming: Efficacy of Penicillin (PCN) to Treat Staphylococcus aureus (SA) Bacteremia

Samantha K. Mathews, MD; Richard A. Zuckerman, MD, MPH; Michael S. Calderwood, MD, MPH; Isabella W. Martin, MD and Jeffrey Parsonnet, MD; Dartmouth-Hitchcock Medical Center, Lebanon, New Hampshire

Session: 37. Bacteremia, CLABSI, and Endovascular Infections
Thursday, October 3, 2019: 12:15 PM

Background. Up to 20% of SA isolates in the United States are penicillin-susceptible (PSSA); however, treatment with penicillin has been discouraged because of concern that routine testing may miss strains that have the capacity to produce clinically significant ß-lactamase *in vivo*. We performed a retrospective analysis to determine whether PCN therapy for the treatment of PSSA bacteremia was of comparable efficacy and safety to standard therapies.

Methods. We identified all episodes of SA bacteremia (March 18, 2010–July 23, 2018). SA penicillin susceptibility testing in our lab was performed by broth microdilution followed by nitrocefin ß-lactamase testing per CLSI guidelines on these isolates. A retrospective chart review was performed and our primary outcome was a composite endpoint of clinical success (no change in PSSA therapy due to persistent or worsening signs and symptoms, no PSSA bacteremia recurrence or persistence, and no infection-related mortality). Microbiologic failure was defined as either failure to clear bacteremia/infection or recurrence after completion of therapy. Patients were followed until last contact with our medical system, the only tertiary center in the region. We compared our rates of success, mortality, and adverse drug reaction to historical SA bacteremia controls from the literature.

Results. PSSA accounted for 13% (130/971) of SA bloodstream episodes. Nineteen patients with PSSA (15%) were treated with PCN and 79% (15/19) achieved the primary endpoint of clinical success. Of the 4 patients who did not achieve the endpoint, 2 developed rash and were switched to a different antibiotic and 2 died from complications of sepsis. One of the patients died after clearing blood cultures but had DIC and a catastrophic intracranial hemorrhage, the other died of overwhelming sepsis after 4 days (2 days nafcillin, 2 days PCN) with continued bacteremia. Thus, our only microbiologic failure was due to early death from sepsis. Rates of success, mortality and drug reaction were similar to prior reports of alternative standard therapies (Table 1).

Conclusion. PCN is a viable treatment option for PSSA bacteremia as identified by routine laboratory testing. Further study will include characterizing the presence of ß-lactamase in these patient's isolates.

Table 1: Comparison of PCN treatment of PSSA to Historical SA Controls

Antibiotic	Success	Infection-related Mortality	Drug reaction
Penicillin – our population	**79%**	**11%**	**11%**
Historical Controls			
Cefazolin	71-93%	10-20%	8%-12%
Nafcillin	74-92%	15-25%	17-29%
Ceftriaxone	45-77%	9-23%	7-15%

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

185. Clinical Characterization of Staphylococcus aureus Bacteremia in Children at an Inner-City Community Hospital

Jomi K. Oommen, PharmD; Eris Cani, BS, PharmD, BCPS; Tae E. Park, PharmD; Savita Manwani, MD and Murli Purswani, MD; BronxCare Health System, New Hyde Park, New York

Session: 37. Bacteremia, CLABSI, and Endovascular Infections
Thursday, October 3, 2019: 12:15 PM

Background. *Staphylococcus aureus* bacteremia (SAB) is associated with high morbidity and mortality rates. Data on epidemiology and outcomes of SAB in children is not as well described as in adults. The primary objective of this study was to describe clinical and microbiological cure rates of SAB in hospitalized children. Secondary objectives included time to clinical and microbiological cure, mortality, proportions of methicillin-sensitive and resistant SA (MSSA, MRSA) bacteremia, and antibiotic usage pattern.

Methods. This was an electronic chart abstraction conducted at a community hospital in the South Bronx, NY, of all pediatric cases of SAB (<21 years of age) from January 1, 2010 to March 30, 2017. Demographic, clinical and microbiological data along with risk factors for bacteremia were collected. Clinical cure was defined as resolution of acute symptoms and signs of SAB and microbiological cure was defined as documentation of first negative blood culture after initiation of treatment. Standard definitions were used for hospital-acquired (HA) and community-acquired (CA) isolates of SA.

Results. Of 41 patients, neonates comprised 12%, 1- to 23-month-old infants 56% and 2- to 17-year-olds 31%. Overall, 76% of patients had bacteremia due to MSSA, and 24% MRSA. MRSA was isolated in 37% of HA SAB compared with 14% of CA SAB ($P = 0.15$). The two highest risk factors identified for SAB were peripherally inserted central catheters lines (PICC, 29%) and skin and soft-tissue infections (22%). SAB in the neonatal period was associated with PICC lines when compared with children outside the neonatal period (80% vs. 22%, $P = 0.02$). Using available data, clinical and microbiological cure rates were similar at 73%. The median time to clinical cure was 5 days (interquartile range [IQR] 2–10) and to microbiological cure, 2 days (IQR 1–4). A 2-month-old infant died (mortality 2.4%). Initial antibiotic selection was vancomycin (39%), clindamycin (39%), and nafcillin (7%). The proportion of SA resistant to clindamycin was 22%.

Conclusion. Pediatric SAB was uncommon in this community hospital experience over 7 years and is associated with PICC lines in neonates. MSSA was more prevalent than MRSA. Initial antibiotic selection had anti-staphylococcal coverage in 85% of cases, while clindamycin resistance occurred in 22% of SA isolates.

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

186. Risk Factors for Extended Spectrum β-Lactamase Bacteremia and External Application of a Clinical Prediction Tool

Jacqueline Burnell, MD[1]; Rebecca Fallis, MD[1]; Peter Axelrod, MD[2] and Daniel Mueller, MD[1]; [1]Temple University Hospital, Glenside, Pennsylvania; [2]Temple University Hospital, Fox Chase Cancer Center, Philadelphia, Pennsylvania

Session: 37. Bacteremia, CLABSI, and Endovascular Infections
Thursday, October 3, 2019: 12:15 PM

Background. Extended spectrum β-lactamase (ESBL) bacteria are resistant to many antibiotics, which increases the risk of inadequate early antibiotic therapy.