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.

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

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Session: 37. Bacteremia, CLABSI, and Endovascular Infections
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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 BSIs 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 BSIs was more frequent in IVC BSIs 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, 1.1–9.9), pulmonary (OR = 2.03; 95% CI, 1.1–3.8), and endocarditis (aOR, 2.2; 95% CI, 1.0–4.7). Antibiotic resistant BSIs were significantly associated with IVC, pneumonia, and pleural effusion (aOR, 2.2; 95% CI, 1.0–4.5).

Conclusion. Antibiotic resistant BSIs were significantly associated with IVC, pneumonia, and pleural effusion. Differences in antibiotic resistance and outcome are likely attributed to the proportion of patients with multiple comorbidities.

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

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Background. Bloodstream infection (SAB) is a common nosocomial disease. The treatment duration of SAB is intended to be 2 weeks after fever clearance. However, few studies have assessed the treatment duration for S. aureus bacteremia.

Methods. IRB approved, retrospective cohort describing antibiotic use in S. aureus bacteremia across a health system from January to March 2019. Patients 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 and 2. Appropriate duration occurred in 9 (32.1%) of patients with SAB. Overall, 14 patients experienced antibiotic adverse effects, 11 which occurred in antibiotic use for 24 weeks. 4 occurred in patients with uncomplicated SAB treated for 24 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 guidelines for uncomplicated SAB to minimize unnecessary antibiotic harm.

Table 1: Treatment Duration and Clinical Outcomes

| Diagnosis | Shorter Duration (N=53) | Appropriate Duration (N=35) | Excess Duration (N=16) |
|-----------|------------------------|-----------------------------|-----------------------|
| Uncomplicated SAB (n=28) | 1 (3.6%) | 9 (26.5%) | 15 (53.6%) |
| Complicated SAB (n=31) | 3 (10.3%) | 28 (89.7%) | -- |

Clinical Outcomes

| Clinical success | 0 (100%) | 28 (80%) | 10 (31.3%) |
|----------------------------------------------------------|----------|----------|------------|
| Appropriate bacteremia | 7 (21.2%) | -- | -- |
| Relapse | -- | 4 (11.4%) | 1 (3.0%) |
| Death | -- | 2 (6.0%) | -- |
| Therapy change due to inadequate response | -- | 3 (8.6%) | -- |

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

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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. bantiana (2.5%), C. dubliniensis (2.1%), C. kefyr (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 co-infection 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 parental nutrition at the time of candidemia. Concomitant coagulase negative 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, trombocytopenia, total parenteral nutrition 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.

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

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186. Risk Factors for Extended Spectrum β-Lactamase Bacteremia and External Application of a Clinical Prediction Tool
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Background. Extended spectrum β-lactamase (ESBL) bacteria are resistant to many antibiotics, which increases the risk of inadequate early antibiotic therapy.

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% |

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