215. Multidrug-Resistant Gram-Negative bacilli Prosthetic Joint Infection: A Worrisome Scenario
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**Session:** 45. Clinical: Bone and Joint Infection
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**Background.** The spectrum of the microbial etiology of prosthetic joint infections (PJI) is changing, with a higher occurrence of Gram-negative bacilli (GNB) nowadays. In Latin America, GNB infections are usually caused by strains that produce multiple resistance mechanisms, making antimicrobial treatment increasingly difficult, especially for these biofilm-associated infections. We aimed to demonstrate the higher frequency of PJI caused by GNB.

**Methods.** We performed a retrospective observational study with adult patients with a diagnosis of knee and hip PJI. Patients included were submitted to an exchange of total hip and knee prostheses between September 2010 and December 2016, in two brazilian hospitals. It was included only patients with microbial diagnosis performed using either sonication fluid cultures of retrieved implant and conventional tissue cultures of periprosthetic tissues. The Infectious Disease Society of America (IDSA) definition was used to establish the diagnosis of PJI. Multidrug-resistant (MDR) organisms were defined as acquired resistance to at least one agent in three or more antimicrobial categories.

**Results.** Were included 130 adult patients with a median age of 65.5 years, in which 60% were female. Infected hip arthroplasty was more frequent than knee infections (69% vs. 31%) and 61% were classified as late infection according to Zimmerli’s classification. One hundred twenty-three microorganisms were isolated on the tissue and sonication fluid culture. Despite the Coagulase-negative Staphylococcus was the predominant microorganism (35%), Gram-negative bacilli had an expressive frequency of 30% of positivity on culture. Amongst them, 23% showed resistance to carbapenems and 38% were MDR-bacteria. The predominant microorganism was Pseudomonas spp., followed by Enterobacter spp., Acinetobacter spp., Escherichia coli, Stenotrophomonas maltophilia and Klebsiella pneumoniat, Proteus spp. and Serratia marcescens. There was no statistical difference on the resistance profile of the GNB isolated on tissue and sonicate fluid culture.

**Conclusion.** We have shown an alarming high frequency of MDR-Gram-negative bacilli PJI in two Brazilian centers, performing microbial diagnosis using sonication and tissue cultures.

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

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216. Clinical Outcomes of Antipseudomonal vs. Non-Antipseudomonal Therapy in Patients with Osteomyelitis
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**Background.** Osteomyelitis (OM) in diabetics is frequently a polymicrobial infection that rarely involves Pseudomonas (4–5% of cases). Bone cultures have a low-positive yield of 34–50% and, as a result, many patients receive antimicrobial regimens which include antipseudomonal (AP) therapy.

**Methods.** A retrospective cohort analysis of adult Veterans with OM treated with AP compared with non-antipseudomonal (NAP) therapy was conducted. Patients managed by the VA St. Louis outpatient parenteral antimicrobial therapy (OPAT) service from 1/1/2009 to 7/31/2015 were identified and screened for inclusion. Patients with culture negative (CN) or non-pseudomonal superficial swab cultures (SCs) were included. Figure 1 presents the study profile and exclusion criteria. The primary outcome was clinical failure, defined as a composite of: (1) extension of antibiotics beyond 1 week of the planned duration, (2) recurrence of OM at the same anatomical site within 12 months, or (3) any unplanned surgery or amputation at the anatomical site within 12 months of ABx completion.

**Results.** Overall, 104 patients with 109 OM encounters were included; there were 29 CN encounters and 80 SCs encounters. Table 1 presents baseline demographics. The overall failure rate was 55/109 (50.5%). The results of the analysis are shown in Table 2. While not included in the primary analysis, Pseudomonas was isolated from 8/88 (9.1%) swab cultures and 5/33 (15%) deep cultures.

**Conclusion.** Empirc AP therapy did not improve clinical outcomes in patients with either CN or SCs OM.

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

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217. Predictive Factors for Successful Treatment in Candidial Bone and Joint Infection
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**Background.** Candidiasis is a major cause of morbidity and mortality, causing a diverse spectrum of clinical diseases. Candidal bone and joint infection (CBJI) is a rare clinical disease, although it is one associated with significant morbidity. As most prior studies were limited to individual cases and small case series, there were insufficient data on the epidemiology and outcome of CBJI. The aim of this study is to identify the predictive factors for successful treatment in CBJI.

**Methods.** A retrospective review was performed on 33 patients with Candida confirmed on culture, among patients diagnosed with bone and joint infection between January 2006 and December 2016 at a 2400-bed tertiary hospital in South Korea. Unfavorable outcome was defined as recurrence following completion of treatment or mortality. Clinical characteristics, treatment outcome, and medical records were reviewed.

**Results.** Of the 33 patients, 15 (45.5%) had unfavorable outcomes; recurrence (n = 9) and mortality (n = 6). Median age was 64.0 years (range, 50.5–71.5 years) and there were 14 (42.4%) males. Seventeen (51.5%) patients had arthritis and 16 (48.5%) had PVD. The predominant microorganism was C. albicans constituted 48.5%, C. parapsilosis 24.2%, C. tropicalis 6.1%, and C. glabrata 1.1%. Mechanism of infection were hematogenous dissemination (57.6%) and direct inoculation (42.4%). There were no significant differences between the favorable outcome group and the unfavorable outcome group for the underlying diseases. The neutrophil percentage in complete blood count at the time of diagnosis showed a difference between the two groups (68.0% vs. 79.6%, P = 0.016). There was a significant difference in neutrophil-lymphocyte ratio (2.2 vs. 4.8, P = 0.023), erythrocyte sedimentation rate (ESR) (40.5 vs. 72.4, P = 0.024) and C-reactive protein (CRP) (15.3 vs. 86.3, P = 0.001) at the end of treatment. The duration of antifungal therapy showed a significant difference (124.9 days vs. 44.3 days, P = 0.041), but there was no
21.8 The Influence of Obesity on the Infection Risk of Prosthetic Joint Infection in the Geriatric Orthopedic Population
Allina Nocen, MPH\textsuperscript{1}; Michael Henry, MD\textsuperscript{2}; Celeste Russell, MPH\textsuperscript{3}; Geoffrey Westrich, MD\textsuperscript{4}; Barry Brause, MD\textsuperscript{5} and Andy Miller, MD\textsuperscript{6}; Complex Joint Reconstruction Center. Methods. Patients with a BMI <14 or >60 kg/m\textsuperscript{2} were banked from patients admitted to Children’s Hospital Colorado from 6/2012 to 5/2013. All patients who had a BMI >30. Univariate analyses were used using t\textsuperscript{2} tests and adjusted models were assessed using logistic regression. Results. 13,755 geriatric arthroplasty patients (6,408 total hip arthroplasties [THA] and 7,347 total hip arthroplasties [TKA]) were assessed. Mean age and BMI were 83.5±11.4 and 30.4±9.3, respectively. In an unadjusted model, obesity was associated with infection in THA (P = 0.02), but not TKA (P = 0.31). This association remained after adjusting for age, sex, and diabetes. Obesity was associated with an increased risk of infection in THA (OR=1.89 [95% CI 1.12–3.21]; P = 0.02). However, as with the unadjusted model, this relationship was not found in TKA (P = 0.50). Conclusion. Obesity increases THR PJI risk in the elderly. However, no such association was found for TKA. Future studies are needed to quantify the compounded risk of obesity in the geriatric arthroplasty patient. Disclosures. All authors: No reported disclosures.

219. Searching for Bacterial Pathogens in Pediatric Patients with Chronic Recurrent Multifocal Osteomyelitis Using 16S rRNA Quantitative Real-Time PCR
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Session: 45. Clinical: Bone and Joint Infection Thursday, October 5, 2017: 12:30 PM
Background. Chronic recurrent multifocal osteomyelitis (CRMO) is a rare auto-inflammatory disease in children that causes relapsing episodes of pain. Patients are treated with anti-inflammatory medications or immune-modulating agents. Increasing evidence suggests that CRMO is mediated by dysregulation of the interleukin-1 pathway, not a bacterial source. However, CRMO is often a diagnosis of exclusion, and patients occasionally receive antimicrobials for possible culture negative infectious osteomyelitis. Few prior studies have utilized molecular diagnostic techniques to identify bacterial pathogens in CRMO bone biopsies. Methods. Musculoskeletal specimens sent for culture during routine clinical care were banked from patients admitted to Children’s Hospital Colorado from 6/2012 to 10/2016. On retrospective chart review, 28 specimens were collected from 16 patients ultimately diagnosed with CRMO. Specimens were processed and extracted prior to molecular testing. All samples underwent quantitative real-time PCR (qPCR) testing using bacterial load assays targeting the bacterial 16S rRNA gene. Results. Mean age at time of sample collection was 9.2 years. CRMO diagnosis was provided by bone biopsy and, radiographic findings. All patients had pathology findings consistent with CRMO including lymphohistiocytic infiltrate, focal necrosis, and/or marrow fibrosis. All patients had MRI findings consistent with CRMO. No patient had bacteria identified on Gram stain; 2/28 samples (7%) had bacterial growth on culture (both were coagulase-negative staphylococcus, felt to be contaminants). None of the 28 specimens met the threshold of bacterial load on qPCR testing to necessitate bacterial sequencing. None of the 16 patients were treated with antimicrobials and there were no readmissions for clinical worsening. Conclusion. CRMO patients did not have bacteria identified on universal bacterial 16S rRNA testing. This finding further supports that CRMO patients do not require antimicrobial therapy. Future steps to exclude infectious pathogens in CRMO could include next-generation DNA sequencing. Disclosures. All authors: No reported disclosures.

220. Clinical Experience with Tigecycline in the Treatment of Prosthetic Joint Infections
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Session: 45. Clinical: Bone and Joint Infection Thursday, October 5, 2017: 12:30 PM
Background. As the population in the United States ages, the number of people who will require a joint arthroplasty is expected to rise dramatically. The most serious complication of this surgery is prosthetic joint infection (PJI) which can lead to long-term morbidity and even mortality. Bifidus play a major role in these infections, and studies have suggested that tigecycline may work better than other antimicrobials in the setting of biofilms. In this study, we examined our institution’s experience with using tigecycline to treat PJI. Methods. This was a retrospective review of all adult patients with PJI treated at West Virginia University from January 2008 to March 2016 who received tigecycline for 50% or greater of the treatment course. Demographic data, rationale for tigecycline use, type of surgery, microbiologic data, outcome and complications were assessed. Results. Failure was defined as need to return to the operating room for an infectious complication or persistent drainage from the joint. Results. In total, 34 patients met inclusion criteria. The median age was 65 years, and 62% of the patients were female. The most common reason for tigecycline use was empiric therapy, but other reasons included antimicrobial antibodies and resistant organisms. The antimicrobial was used as frontline therapy in 29 cases (85%), and the mean duration of tigecycline therapy was 38 days. The most common organisms isolated were methicillin resistant Staphylococcus aureus (n = 7), coagulase negative Staphylococcus (n = 5), and Enterococcus species (n = 4), but 12 cases (35%) were culture negative. Treatment success was documented for 21 cases (62%); though, there was limited follow-up (2 months or less) in four of the successful cases. Nausea and vomiting was the most common adverse event, occurring in three patients. Conclusion. Tigecycline is a glycycline approved for use in a variety of infections including intra-abdominal and skin soft-tissue infections, but little is known about its use in the treatment of PJI. We found that tigecycline is well tolerated even when given for 6 weeks duration. Twenty-one of the 34 patients (62%) met our definition of successful treatment outcome with tigecycline. More studies are needed to assess tigecycline use in the treatment of PJI. Disclosures. All authors: No reported disclosures.

221. Subcutaneous Suppressive Antibiotic Therapy for Bone and Joint Infections: Safety and Outcome in a Cohort of 10 Patients
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Session: 45. Clinical: Bone and Joint Infection Thursday, October 5, 2017: 12:30 PM
Background. Optimal surgical therapy could sometimes be non-feasible, especially in elderly population therefore, a medical therapy with minimal adverse events is desirable. In a large population of patients receiving suppressive antibiotic therapy (PSAT) seems to be an option to prevent recurrence and prosthetics loosening. Subcutaneous (SC) administration of injectable intravenous antibiotics as PSAT could be a convenient way when oral treatment is not available to facilitate ambulatory care, even if this practice is considered as an "off-label" practice. Methods. All patients receiving SC PSAT since 2010 were prospectively enrolled in a cohort study evaluating treatment modalities, efficacy, and safety. Success was defined by the absence of clinical signs of infection at the time of last follow-up. Results. We included 10 patients (median age of 79 years; 6 men and 4 women) with PJI of limb joints for 50% or greater of the treatment course. Demographic data, rationale for tigecycline use, type of surgery, microbiologic data, outcome and complications were assessed. Conclusion. SCPAT appears to be a safe and effective alternative therapy when optimal surgical strategy is not feasible and when oral treatment is not available.