218. The Influence of Obesity on the Infection Risk of Prosthetic Joint Infection in the Geriatric Orthopedic Population
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Background. Prosthetic joint infection (PJI) is a dreaded complication of arthroplasty. PJI are more common in the elderly and are associated with a substantial increase in 5-year mortality risk. PJI risk may correlate with obesity. However, the influence of BMI on PJI risk in the elderly has not been evaluated, to our knowledge. We sought to evaluate this relationship in a cohort of geriatric arthroplasty patients at an orthopedic specialty hospital.

Methods. A retrospective cohort of hip and knee arthroplasty patients (age >75) from 2009–2014 was identified through administrative hospital data using ICD-9 codes. Patients with a BMI <14 or >60 kg/m², height <142 or >200 cm, and weight <36 or >226 kg were excluded. The presence of infection was confirmed via chart review; all PJI cases were reviewed by the clinical pathologist. BMI was defined as having a BMI >30. Univariable analyses were done using χ² 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 80.2 ± 7.4 years and 30.8 ± 6.9, 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 However, as with unpublished data from earlier studies, obesity was not found to be a risk factor for infection in TKA (P = 0.50).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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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 immunomodulating 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 made at a median age of 7.4 years, and radiographic findings were present. All patients had pathology findings consistent with CRMO including lymphoplasmacytic 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 staphylococci, felt to be contaminants). None of the 28 samples 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
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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 sequelae and even mortality. Biomarkers 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. 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; however, other reasons included antimicrobial allergies and resistant organisms. Tigecycline was used as frontline therapy in 29 cases (85%); 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 glycyclline 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.