Methods. Electronic medical records of patients receiving OPAT for ORHO between July 1, 2009 and March 1, 2015 at Ekenazi Hospital were retrospectively reviewed. Data were collected using a standardized data collection form for 24 months after OPAT completion. Cure was defined as lack of clinical signs/symptoms of infection, CRP < 5 mg/L, absence of radiologic signs infection with hardware removal as planned (negative intraoperative cultures). Failure was defined as persistent clinical/laboratory signs of infection during/at the end of OPAT, unanticipated repeat surgery, isolation of new organism from removed hardware, or extension of OPAT due to continued infection. Safety of OPAT was evaluated through adverse event and line complication monitoring.

Results. Overall, 53 patients (57% male) with ORHO were included (mean age of 50.5 ± 13.2 years). Two patients were excluded due to refusal of OPAT and death after a decision for comfort care. Of 30 evaluable patients who received OPAT with retained hardware, 14/30 (47%) achieved clinical cure. Five patients had failure requiring surgery during OPAT from worsening infection. 23/30 (93%) remaining patients with retained hardware received PO suppressive antibiotics until hardware removal; three failures were observed in patients noncompliant with PO suppression. Of 21 patients who received OPAT after hardware removal, 16 (76%) achieved clinical cure; five patients had failure due to extension of OPAT for 2–3 weeks due to continued features of infection. Three patients (6%) had an adverse event during OPAT (one each thrombocytopenia, vertigo, acute kidney injury) while three patients (6%) had line-related complications (2 bacteremias, one deep vein thrombosis).

Disclosures. All authors: No reported disclosures.

296. Outcomes From a Novel Transition-of-Care OPAT Service Targeting Orthopedic Device-Related Infections
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Background. In 2015, a transition-of-care outpatient parenteral antibiotic therapy service (TOC-OPAT) was established at the Montefiore Medical Center in the Bronx, NY for patients requiring long-term antibiotics. Utilizing an OPAT bundle with direct communication between specialists, significant reductions in 30-day readmissions were observed. Montefiore is a regional referral center for orthopedic device-related infections (ODRIs). Here, we evaluate outcomes in TOC-OPAT patients with ODRIs. We hypothesize that a majority achieve infection cure within 6-months.

Methods. We assessed infectious diseases (ID) outcomes in a cohort of TOC-OPAT patients with ODRIs between July 2015 and October 2017. The primary outcome was cure at 6 months defined as (1) infection eradication after initial management, (2) no further surgical or antimicrobial intervention for index infection, and (3) no infection-related mortality. Microbiologic cure for prosthetic joint infection (PJI) was defined as negative joint aspiration cultures prior to revision arthroplasty.

Results. We reviewed data from 110 infection episodes with 107 unique patients; 2 patients were excluded (deceased from unrelated causes). The average age of patients was 61.5 (demographics shown in Figure 1). There were 80 distinct episodes of PJI (knee, hip, shoulder, and 28 other ODRIs [spine and trauma-related]). Of 108 episodes, 91 (84%) were cured by combined surgical and ID management. Patients lost to follow-up (n = 4) were considered non-cured. Microbiologic spectrum of infections is shown in Figure 2. Of 27/80 fluid aspirations prior to revision arthroplasty, four (13%) were positive. Only two patients developed C. difficile infection during the study period (1.8%). Most patients achieved a 50% decline in both erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) at the end of treatment course (Figure 3). Chronic antibiotic suppression was utilized in 14 (13%) patients, five for chronic active infection and nine for history of multiple prior infections.

Conclusion. We observed a high rate of cure in patients managed by a direct orthopedic-ID TOC OPAT service at 6 months. We plan to compare outcomes to a similar cohort of patients predating this multidisciplinary service in future studies.

Figure 1: Patient Demographics and Comorbidities
Disclosures. All authors: No reported disclosures.

297. Risk Factors for Infections in Open Fractures
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Background. Open fractures are more prone to get infected. Known risk factors are high grade Gustilo and patients’ co-morbidities, while early antibiotic administration and surgical debridement decrease the risk of infection. There is little data regarding the preferred antimicrobial therapy, timing, and duration of treatment, especially in the era of antimicrobial resistance. The aim of our study was to compare patients with and without infections after open fractures, and identify risk factors for infections, including timing of antimicrobial first dose and its duration.

Methods. A historical cohort study was conducted in a secondary hospital. All adult patients admitted to the hospital with an open fracture of the limbs, between January 1, 2012 and December 31, 2016 were included in the study. Epidemiological, clinical, and microbiological data were collected and analyzed. Microbiological infection was defined by positive wound cultures during first 30 days, and clinical infection as defined by the treating physician.

Results. One hundred sixty-seven patients were included in the study. One hundred sixty-nine patients (95%) were treated with a first generation cephalosporine, and 55 (33%) were also treated with aminoglycosides. Microbiological infection was identified in 12 (7%) patients, and clinical infection in 27 (16%) patients. All patients received the first dose of antimicrobial therapy within 15 hours of admission (median 1.29 hours). Early administration of the first dose of antimicrobial therapy did not reduce the risk of infection (median of 1.06 hours for patients who developed infection vs. 1.31 hours for patients that did not develop infection, P = 0.58). Duration of treatment was not correlated to the risk of infection (1–3 days vs. 4–7 days, P = 0.61). In multivariate logistic regression, only location of fracture in the lower limbs was associated with an increased risk of infection (OR 4.654, CI 1.407–15.398), and Gustilo grade 1 or 2 were associated with decreased risk of infection (OR 0.301, CI 0.104–0.872).

Conclusion. In our cohort, neither early administration of antimicrobial therapy, nor prolonged duration of treatment, reduced the risk of infection in open fractures.

Disclosures. All authors: No reported disclosures.

298. Vertebral Osteomyelitis due to Candida: Increasing Incidence in Appalachia
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Session: 54. Bone and Joint Infections
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Background. Invasive infections due to Candida were once thought to be rare, but have been increasing in incidence over the past two decades. The reason for the increase in fungal infections is likely multifactorial. Patients are living longer with chronic illnesses and often have frank or relative immunosuppression. The increased use of central venous catheters and antimicrobials are also felt to play a role. In addition, injection drug use has led to a concomitant increase in a variety of invasive infections including fungemia and osteomyelitis. This is particularly a problem in West Virginia as we have seen a sharp increase in injection drug use over the past decade. However,
vertebral osteomyelitis due to C. albicans is still rare and can be difficult to diagnosis and treat. We evaluated the incidence of vertebral osteomyelitis due to C. albicans species at our facility to try to identify risk factors and determine outcomes.

Methods. We used our electronic record databases to search for patients with a diagnosis of osteomyelitis, and a positive fungal culture. From 2006 to 2018 we have had six cases of culture proven C. albicans vertebral osteomyelitis.

Results. C. albicans was the most frequently isolated organism, being cultured in 10/14 (71.4%) patients, followed by C. tropicalis (2/14), C. krusei (1/14), and C. parapsilosis (1/14). The two most common risk factors for infection were injection drug use (50%) and recent antibiotic use (35.7%). Almost all patients were treated (98%) with caspofungin followed by fluconazole. Ten patients (71.4%) required surgery. Short-term outcomes were favorable with no deaths.

Conclusion. The incidence of vertebral osteomyelitis due to C. albicans may be increasing. In our state, injection drug use seems to be a factor in the increase of infection. We have seen a rise in injection drug use as prescription narcotics are becoming more difficult to obtain. Physicians must have a high index of suspicion for fungal disease when treating osteomyelitis in patients with these risk factors. Short-term outcomes seem favorable, but further studies are needed to evaluate long-term outcomes and to determine optimal management.

Disclosures. All authors: No reported disclosures.

301. The Use of Multiplex Touchdown PCR to Genotype Catibacterium (Propionibacterium) acnes Isolated from Periarticular Tissue Infections

Monday, July 22, 2019: 12:30 PM

Background. C. acnes is a component of the normal skin microflora, and the organism is frequently isolated from synovial tissue and joint aspirates obtained from patients with suspected periarticular tissue infections. We hypothesized that multiplex sequencing typing (MLST) applying a prior validated rapid high-throughput multiplex PCR protocol would allow differentiation of C. acnes associated with periarticular infections compared with commensal strains.

Methods. C. acnes collected between 2015 and 2017 were correlated with the presence or absence of infection in a detailed retrospective chart review. To determine the C. acnes genotype, 16S rDNA was isolated from a single patient isolate, using a template in a six locus multiplex touchdown PCR assay using organisms-specific primers targeting six genes (16S rRNA, ATPase, sodA, Fic toxin, adaD and recA). Isolates were classified as a contaminant in the absence of multiple positive cultures from an anatomic site and without corresponding clinical, laboratory and histopathologic correlates of infection. The assignment of a diagnosis of prosthetic joint infection (PJI) conformed to the definition recommended by the IDSA Clinical Practice Guidelines of PJI.

Results. Of the C. acnes recovered from 94 patients, 14 (14.4%) were from patients with PJI. Of these, 12 (85.7%) PJI patients were present with C. acnes (10.6% of the total). The remaining 84 (89.4%) isolates were retrieved from a variety of tissues and fluid samples of which the majority (65.5%) were deemed as contaminants. Overall, phylotypes IA1, IB, and II predominated (79.8%). Although a similar genetic profile was present in all of the isolates, no phylotype association was detected with PJI (P > 0.2). No genetic difference was present in the lineage of strains not causing PJI compared with those responsible for PJI (P < 0.25).

Conclusion. Our results mirror those from a previous investigation using a less robust four gene MLST PCR based scheme that showed a lack of phylotype association with shoulder PJI. Our results suggest phylotype composition of the circulating C. acnes sequence types in our community.

Disclosures. All authors: No reported disclosures.

302. Role of Inflammatory Markers in Diagnosing Diabetic Foot Infection: A Meta-Analysis

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Methods. We searched PubMed, Embase, and Cochrane databases from their inception to December 2017. This meta-analysis was performed according to PRISMA guidelines. We included studies based on following inclusion criteria: (1) at least one of the following markers was evaluated: C-reactive protein (CRP), procalcitonin (PCT), white blood cell count, erythrocyte sedimentation rate (ESR). (2) study was a randomized controlled trial (RCT). ISRCTN numbers included in the analysis were as follows: 11 for ESR, seven for CRP, and five for PCT. Pooled sensitivity and specificity for ESR were calculated to be 0.84 (95% CI 0.76-0.89) and 0.82 (95% CI 0.73-0.89) with area under receiver operating characteristic curve (AUROC) of 0.99 (95% CI 0.87–0.92). Pooled

HACEK and anaerobes. SINFBSA was less likely to be caused by S. aureus than FBBSA. FBBSA was more commonly managed operatively than SINFBSA and all NFBSA (93% vs. 79% and 81%) and received shorter antibiotic courses (median 2 weeks vs. 4 and 5 weeks), more commonly orally (84% oral vs. 6% and 32%). Hospital lengths of stay for FBBSA was shorter (median 4.5 days vs. 6 and 9 days). Compared with all NFBSA, treatment failure was less common (7% vs. 19%, P = 0.0242) and there was a trend toward lower mortality (0% vs. 5%, P = 0.0604).

Conclusion. FBBSA represents a distinct subset of septic arthritis with differing morbidity and better outcomes than NFBSA. FBBSA may be able to be safely managed with shorter oral regimens if adequate operative management is undertaken. Further studies are required to validate these findings.

Disclosures. All authors: No reported disclosures.