244. Risk Factors Associated with Complications/Sequela in Pediatric Patients with Osteomyelitis

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Methods. A retrospective review of adult patients with PJI who received CS beads from October 2019 to October 2020. Primary outcomes included the incidence of AKI (defined using RIFLE criteria) and hypercalcemia (≥ 11 mg/dL). Logistic regression with forward entry selection of independent variables based on a liberal probability significance of α ≤ 0.25 was used to model the relationships between variables. Independent variables with clinical relevance that did not meet the conditional selection were also included in the model.

Results. A total of 171 adult patients were included for the analysis. Postoperative AKI occurred in 42 patients (24.6%) who received a mean bead volume of 32 cc. Hypercalcemia occurred in 16 patients (9.4%) who had a mean bead volume of 40 cc. In a univariate analysis, the odds of having AKI and hypercalcemia increased significantly per 10 cc of bead volume with ORs of 1.39 (95%CI, 1.06-1.82) and 1.65 (95%CI, 1.20, 2.29), respectively. In a multivariate analysis, significant predictors of AKI included: increased bead volume (aOR 1.52; 95%CI, 1.10-2.10), female sex (aOR 2.77; 95%CI, 1.00-7.71), CHF (aOR 3.48; 95%CI, 1.08-11.28), and CAD (aOR 3.90; 95%CI, 1.25-12.18). In the adjusted model, tobramycin levels increased (OR 2.77; 95%CI, 1.00-7.71), CHF (aOR 3.48; 95%CI, 1.08-11.28), and CAD (aOR 3.90; 95%CI, 1.25-12.18). In a multivariate analysis, fracture tobramycin levels increased (OR 2.67; 95%CI, 1.83-3.90), calcium levels increased with a mean of 0.2 mg/dL (95%CI, 0.12, 0.28), and GFR decreased with a mean of 5.6% (95%CI, 2.8, 8.7) per 10 cc bead volume. In a subset analysis, individuals more likely to experience AKI were patients aged 65 and older (OR 1.9; P=0.039) and had CAD (OR 15.26; P=0.028).

Conclusion. Higher volume of CS beads loaded with vancomycin and tobramycin is associated with adverse outcomes. Older patients with heart disease may be at higher risk for adverse outcomes.

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246. Particularities of Non-axial Osteoarticular Tuberculosis Among Adults

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Session: P-12. Bone and Joint

Background. Osteoarticular tuberculosis (TB) represents 1% to 3% of all TB cases, among which spondylodiscitis is the most common presentation of the disease. Non-axial TB is less frequent. We aimed to study the clinical, therapeutic and evolutive features of non-axial osteoarticular TB.

Methods. We conducted a retrospective study including all patients hospitalized in the infectious diseases department for non-axial osteoarticular TB between 1999 and 2019.

Results. We encountered 51 cases, among which 26 cases were males (51%). The mean age was 41±20years. Ten patients were previously treated for TB (19.6%). The revealing symptoms were fever (70.5%), asthenia (68.6%), weight loss (60.7%) and night sweats (43.1%). Arthritis was noted in 20 cases (39.2%) represented by TB of the hip (10 cases), knee (4 cases), shoulder (9 cases) and elbow (2 cases). There were 12 cases of sacroiliac osteoarthitis (23.5%) and 6 cases of femur osteoarthitis (11.7%). Other affected sites included sternum (7.8%), toe (5.9%), tibia (5.9%), mandible (2%), clavicle (2%) and mastoid bone (2%). Multifocal TB was noted in 12 cases (23.5%). Pulmonary TB was associated to osteoarticular TB in 13.7% of cases. The mean duration of antitubercular therapy was 105±5months. Fixed dose combinations were prescribed in 17.6% of the cases. The disease evolution was favorable in 47 cases (92.1%). Relapse was noted in 3 cases (5.8%) and death in one case (2%).

Conclusion. Multisite TB may be involved which facilitate the diagnosis confirmation. Prolonged antitubercular therapy might be required.

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247. The Predictive Value of Methicillin-Resistant Staphylococcus aureus Surveillance Swabs in Septic Arthritis

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Background. Septic arthritis is a destructive form of acute arthritis secondary to infection. With an annual incidence of 2 to 5 cases per 100 000 individuals, it is associated with significant morbidity and mortality. Prompt source control and antimicrobial therapy remain the mainstays of management. Epidemiology, microbiology studies, and local resistance patterns are important in guiding therapeutic decisions. Staphylococcal and streptococcal species are the most common pathogens with Methicillin-resistant Staphylococcus aureus (MRSA) becoming an increasingly important pathogen. The increasing incidence of MRSA provides clinicians with the challenge of deciding which patients require empiric coverage for MRSA. MRSA nasal screening has been shown to have a high negative predictive value in pneumonia, bloodstream infections, and nosocomial infections in critically ill patients. However, little is known about the diagnostic utility of MRSA surveillance swabs for predicting MRSA infections in septic arthritis.

Methods. A retrospective cohort study was performed in 3 tertiary hospitals from Saskatchewan from January 1, 2017 to December 31, 2020. All adult patients with confirmed septic arthritis of the ankle, wrist, knee, or hip and an MRSA surveillance swab performed within 72 hours of admission were included in the study. These data were used to calculate the
Results. One hundred seventy-two patients met inclusion criteria. Thirty patients had positive MRSA surveillance swabs. The prevalence of MRSA in joint cultures was 11.04%. The positive predictive value of MRSA surveillance swabs was 42.3% and the negative predictive value was 93.5% in all patients. The MRSA surveillance swab had a negative predictive value of 100% in participants with no risk factors for MRSA colonization.

Conclusion. The negative predictive value of MRSA surveillance swabs were independent of the clinical suspicion to conclusively rule out MRSA as the causative pathogen in septic arthritis. When used in combination with MRSA risk factors, the absence of MRSA risk factors may help clinicians rule out MRSA as a causative pathogen.

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248. Outcomes of Patients with Prosthetic Septic Arthritis with Debridement and Implant Retention

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Session: P-12. Bone and Joint

Background. IDSA has published guidelines for the diagnosis and management of prosthetic joint infection (PJI). However, we have observed significant variability in the interpretation and application of these guidelines with respect to the management of those with PJI following debridement and implant retention (DAIR). It is not clear if variations in antimicrobial management are affecting clinical outcomes.

Methods. We performed a retrospective review at an academic hospital in rural New Hampshire. We included all adult patients from 1/1/2017 to 12/31/2018 with PJI of hip or knee who underwent DAIR. The demographic data, microbiology data, antibiotic treatment and duration were collected. The primary endpoint was overall re-infection rate within 2 years of surgery. Secondary endpoint was re-infection rate stratified by organism and antimicrobial type and duration.

Results. A total of 26 patients were included in our study. 65% involved knee joint. 50% had late-onset infection (<12 months). The top organisms were Streptococcus spp. (34%), CoNS (26%) and MSSA (18%). 15% were associated with bacteremia. Ceftriaxone was the most common antibiotic used (54%). 38% of patients received Rifampin PO alone or antibiotics for 6 months post IV treatment. Life-long suppression therapy were noted in 9 patients. Re-infection occurred in 8 patients (31%). Among those, 75% had Staphylococcal infection. All patients required hardware removal except 1 patient who required amputation. 2 patients developed recurrent PJI after completing 6 months and one year of PO suppression therapy. One patient had a recurrent infection while on life-long suppression. Staphylococcal infection was significantly associated with treatment failure.

Conclusion. Treatment of PJI with DAIR is challenging. Despite long-term IV therapy followed by oral antibiotics, there was a high rate of treatment failure (31% in our study) particularly with Staphylococcal infection. There was no association of variation of treatments and outcomes in our small cohort.

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249. Evaluation of 99 Radiologically-proven Osteomyelitis Cases

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Background. Herein we aimed to evaluate osteomyelitis cases in our setting.

Methods. We evaluated the hospital records of patients with osteomyelitis between January 2013 and December 2020 retrospectively. Osteomyelitis was confirmed by direct radiography or magnetic resonance imaging or pathology. Demographic features, risk factors, clinical/laboratory findings, treatment response and mortality rates were evaluated. Clinical response was defined as (resolution of clinical signs including fever and purulent discharge and other symptoms) and/or negative culture at the end of antimicrobial therapy.

Results. Patients were 33 female, aged 29–85 years (mean 59±12.6). Forty-nine of the patients were diabetic foot infection, 30 were spondylodiscitis, eight were primary, seven were post-traumatic, and five were post-surgical osteomyelitis. Overall 62 patients had diabetes mellitus and 16 patients had chronic renal failure. Peripheral arterial disease, neuropathy, diabetic retinopathy and venous insufficiency rate in the DM subgroup is shown in table. Fever was present in 24.2% of the cohort. Increasing level of CRP was in 95.9%, erythrocyte sedimentation rate in 83.9%, and leukocytosis in 61.9%. The top organisms were Streptococcus (54%), 38% of patients received rifampin PO alone or antibiotics for 6 months post IV treatment. Life-long suppression therapy were noted in 9 patients. Re-infection occurred in 8 patients (31%). Among those, 75% had Staphylococcal infection. All patients required hardware removal except 1 patient who required amputation. 2 patients developed recurrent PJI after completing 6 months and one year of PO suppression therapy. One patient had a recurrent infection while on life-long suppression. Staphylococcal infection was significantly associated with treatment failure.

Conclusion. Treatment of PJI with DAIR is challenging. Despite long-term IV therapy followed by oral antibiotics, there was a high rate of treatment failure (31% in our study) particularly with Staphylococcal infection. There was no association of variation of treatments and outcomes in our small cohort.

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250. An Assessment of the Penicillin Allergy Label in Patients Undergoing Orthopedic Procedures at a VA Medical Center

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Background. Approximately 10% of the population is labeled as penicillin (PCN) allergic, while only 1% of these individuals have a true IgE mediated allergy. This label influences the prescription of the most appropriate antibiotic and ultimately leads to antimicrobial resistance, hospital readmission, increased length of hospital stays, use of critical care beds, and greater healthcare costs. Post-surgical complications in patients undergoing total knee arthroplasty (TKA) or total hip arthroplasty (THA) are also increased when patients receive an alternative antibiotic due to PCN allergy.

Methods. A retrospective chart review identified patients who underwent a TKA or THA during the 2018-2020 calendar years at the Washington DC VA Medical Center. Multiple operations at different times on the same patient were regarded as separate events. The primary outcome was patients who were evaluable for penicillin allergy de-labeling and the secondary outcome was perioperative antibiotic choice.

Results. Patients in both groups were predominantly male, Black, and over the age of 60. Of a total of 317 procedures performed, we identified 28 procedures in which patients carried a PCN allergy label (PAL) and received a β-lactam alternative antibiotic for surgical prophylaxis. No patients in the PAL group received cefazolin for prophylaxis, compared to 87% of the non-PAL group who were appropriately given cefazolin. In the group carrying the PAL, 62% of patients received vancomycin and 29% of patients received clindamycin for pre-operative prophylaxis. Only one of these patients had a formal allergy consult note. The PAL group was not addressed during that visit. Fewer patients (4%) required ICU admission during their hospitalization in the non-PAL group versus 10% of patients in the PAL group.

Conclusion. Despite surgical debridement and/or developed antimicrobial treatment, approximately 1/5 of osteomyelitis cases required further treatment. Further interventions seem to be needed to reach better outcomes.

Disclosures. All Authors: No reported disclosures

Table 1. Patient Demographics and Procedures Detail

| Total number of patients | non-PAL | PAL |
|--------------------------|---------|-----|
| Age in years*            | 59 (54-72) | 67 (60-73) |
| Gender                   | 242 (63%) | 207 (71%) |
| Male                     | 321 (72%) | 236 (65%) |
| Race                     | 289 (68%) | 144 (41%) |
| Black/African American   | 23 (6%)   | 57 (17%) |
| BMI (kg/m²)              | 25.9 (24-33.8) | 21.2 (20-29.5) |
| ICU admission            | 42 (14%)  | 10 (3%) |
| MRSA nares colonization   | 10 (3%)   | 10 (3%) |
| Positive cultures within 90 days of operation | 10 (3%) | 10 (3%) |
| C. difficile rates        | 0 (0%)    | 0 (0%) |
| Total surgical procedures | 289      | 153 (51%) |
| Hip arthroplasty         | 136 (47%) | 153 (51%) |
| Knee arthroplasty        | 153 (51%) | 153 (51%) |

Note: *median (IQR)