

Session: 45. Clinical: Bone and Joint Infection
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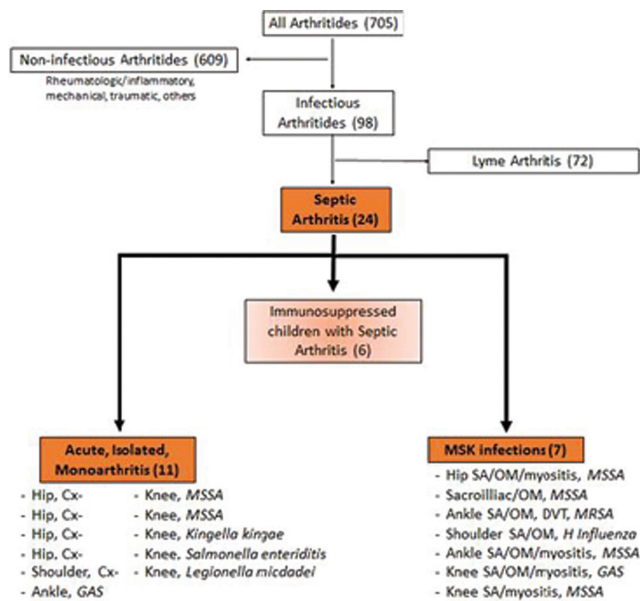
Background. Children with acute arthritis are commonly admitted to the hospital in part due to concern for septic arthritis (SA) and its complications. Many noninfectious, non-urgent conditions are more common than SA and present similarly. The epidemiology and clinical presentation of SA influences management of patients with acute arthritis.

Methods. Utilizing the electronic medical record, we reviewed the charts of children (1–18 years old) with joint complaints who presented to the hospitals and clinics of one large academic health organization in the Upper Midwest from January 2011 to July 2016. Query criteria included the presenting symptom (“arthritis”, “joint swelling”, or “joint pain”), diagnosis (“arthritis”, “septic arthritis”, or “Lyme arthritis”), and/or positive synovial fluid culture. SA was confirmed when synovial bacterial culture or PCR were positive. SA was suspected in cases with a positive blood culture or when the patient was treated empirically with 4 weeks of antibiotic with no alternate diagnosis. All other children were excluded from the study cohort.

Results. Of the 705 children whose charts were reviewed, 609 were excluded with a noninfectious diagnosis and 72 with Lyme arthritis (Figure 1). We identified 24 children with SA. Six children diagnosed with SA were immunosuppressed. Among healthy children with SA, seven were diagnosed with contiguous musculoskeletal (MSK) infection and 11 were diagnosed with acute, isolated, monoarticular arthritis. SA was more common in boys. The most common pathogen isolated was *S aureus* (13). The knee (7) and hip (6) accounted for the majority of joints involved in healthy children.

Conclusion. SA is a rare cause of acute arthritis in children. In healthy children, SA may present with contiguous MSK infection or in an isolated joint. SA is more likely in boys and in the knee or hip joint. *S. aureus* is the most common cause of SA. Clear understanding of the epidemiology and clinical history of SA should shape clinical decision making in children with acute arthritis.

Figure 1. MSK – musculoskeletal, SA – septic arthritis, OM – osteomyelitis, DVT – deep venous thrombosis, Cx – culture negative.



Disclosures. All authors: No reported disclosures.

228. The Use of Rifampin Therapy to Treat Diabetic Patients with Osteomyelitis of the Foot in the Veterans Health Administration: Patient Characteristics and Clinical Outcomes

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Background. Nearly 25% of Veterans Health Administration (VHA) patients are diagnosed with diabetes mellitus (DM). Among DM patients, the lifetime incidence of foot ulcers is 15%. Infection is a common complication of foot ulcers and 20–60% of infections result in diabetic foot osteomyelitis (DFO). Current treatment guidelines do not endorse any specific antibiotic agent for DFO, but small clinical trials suggest the addition of rifampin to antimicrobial regimens results in improved cure rates for osteomyelitis.

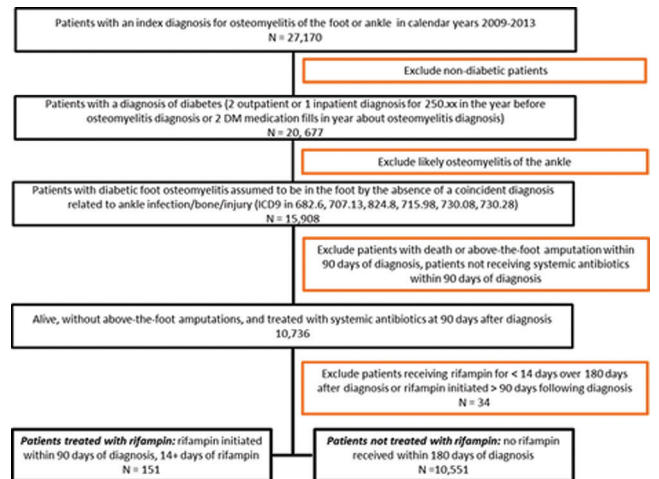
Methods. Using VHA databases, we identified index DFO cases from 2009 to 2013 and extracted patient and infection characteristics including demographics, comorbidities, chronic medications, antibiotic regimens, and microbiology data when present. We analyzed the subset of patients alive, without high-level amputation, and treated with antibiotics at 90 days after diagnosis. We summarized patient characteristics and compared a composite endpoint of amputation or death within 2 years of DFO diagnosis among those treated with rifampin to those not treated with rifampin.

Results. In total, 10,736 DFO cases met our criteria (Figure). Of these, 151 were considered treated with rifampin, based on 14 or more days of rifampin initiated within 90 days of diagnosis; 10,551 were unexposed to rifampin; and 34 were excluded for late or short treatment with rifampin. We observed significant differences between patients treated with and without rifampin (Table) and 44% of rifampin-treated patients were seen in 14 facilities.

Amputation or death at 2 years was observed in 44 (29%) of patients treated with rifampin and 4,007 (38%) of patients not treated with rifampin ($P = 0.03$).

Conclusion. Rifampin was rarely used in the treatment of DFO in the VHA and a few facilities accounted for a large proportion of rifampin-treated cases. We observed higher rates of amputation-free survival in patients treated with rifampin, but in the presence of notable confounders including age, comorbidities, and organism.

	Not treated with rifampin N = 10,551	Treated with rifampin N = 151	P-value
Age (mean)	65	62	<0.01
Charlson comorbidity (mean)	4.0	3.5	<0.01
Warfarin (prior 6 months) (%)	9.7	6.6	0.25
<i>S. aureus</i> identified (%)	33.9	45.7	<0.01
Complex VA Medical Center (%)	39.4	45.0	0.19



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229. Recent Respiratory Tract Infection and Additional Surgeries Increase Risk for Surgical Site Infection in Total Joint Arthroplasty: A Retrospective Analysis of 2255 Patients

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Background. Surgical site infections (SSI) are one of the most common health-care-associated infections contributing to high economic burden. Around 658,000 total joint arthroplasties (TJA) are performed annually in the United States, estimated 0.9–2.5% develop surgical site infection. Despite following prevention guidelines, SSI continues to occur. The aim of our study was to identify perioperative risk factors for SSI in patients undergoing TJA.

Methods. A retrospective cohort study was performed of patients at the Detroit Medical Center from 2011 to 2015. All adult patients undergoing primary or revision total knee or hip joint arthroplasty were included. Patients were divided into SSI (prosthetic joint infections) and non-SSI group. Baseline characteristics and perioperative variables influencing SSI were assessed. Statistical analysis was performed using SAS software. Continuous variables were compared using Wilcoxon–Rank-sum test and categorical variables using Fischer’s exact test.

Results. Among 2255 included patients, 1203 had knee arthroplasties (53%), 1052 had hip arthroplasties (47%) and SSI occurred in 46 patients (2%). Overall, mean age was 58.81 ± 11 years; 64% were females, 57% were African American, and 41% were smokers. Diabetes did not increase risk for SSI (37% with SSI vs. 26% without SSI; $P = 0.09$). Administration of general anesthesia, American Society of Anesthesiologists score of ≥ 2 , the presence of hypothermia and hyperglycemia did not statistically increase the risk for SSI. Patients with recent respiratory tract infection in previous 30 days prior to surgery were more likely to develop infection compared with patients without recent infection (20% vs. 6.6%, OR 3.42; 95% confidence interval 1.62–7.22, $P = 0.0034$). Any additional surgery within 90 days of arthroplasty increased risk for infection (22% vs. 11%, $P = 0.03$). Among the 46 SSIs, knee surgeries experienced more infections than hip surgeries (67% vs. 33%, $P = 0.07$).

Conclusion. In this study, recent respiratory tract infection in 30 days prior to surgery and additional surgeries within 90 days after arthroplasty increased risk for SSI. Careful preoperative assessment and sufficient time to postoperative recovery is essential to reduce SSI. Further multicenter studies are needed to validate our findings.

Disclosures. All authors: No reported disclosures.

230. Clinical Features and Treatment Outcomes of Bone-Joint Infection Between Bacteria and Mycobacterium Tuberculosis

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Background. Bone-joint infection is an emergency condition that requires immediate management. Delayed in treatment or improper management can lead to a significant morbidity and mortality.

Methods. The medical records of patients with bone-joint infection seen at Maharaj Nakorn Chiang Mai Hospital between 1 November 2010 and 30 September 2015 were reviewed. The diagnosis of bone-joint infection was confirmed by pathogen identification or pathohistological report. Only those with adequate clinical features and treatment outcomes were included for analysis.

Results. Of 125 bone-joint infected patients seen during the study period, 92 patients were caused by bacterial infection and 33 from tuberculous infection. Their mean ± standard deviation age was 55.3 ± 17.7 years, and had total disease duration of 7.1 ± 8.2 months. Sixty-four percent were men. Of 33 TB cases, 24 (72.7%) had spinal involvement. Among 92 cases with bacterial infection, 52 (56.5%) had non-spinal joint involvement, and 38 (41.3%) had non-spinal bone involvement. Regarding clinical features, TB cases had mean duration of symptom of 5.3 ± 6.1 months. Multivariate logistic regression analyses showed that neurological manifestations (adjusted OR = 314.1, 95% CI 14.4–6831, $P < 0.001$), pulmonary symptoms (AOR = 222.1, 95% CI 3.0–16,560, $P = 0.014$), symptom duration over 1 month (AOR = 67.4, 95% CI 4.2–1070, $P = 0.003$), afebrile illness (AOR = 24.1, 95% CI 1.2–493.7, $P = 0.039$), ESR < 70 mm/hour (AOR = 4.7, 95% CI 1.1–19.9, $P = 0.039$), and CRP < 30 mg/l (AOR = 7.0, 95% CI 1.6–31.2, $P = 0.010$) were risk factor of TB bone-joint infection. There were 120 (96.0%) patients with clinical improvement, and five (4.0%) died patients. There were no significant differences among the clinical improvement, recurrent infection, and mortality between the two groups.

Conclusion. Distinguish of bone-joint infection between bacteria and mycobacterium tuberculosis is difficult. However, patients with TB bone-joint infections significantly had more symptom duration over 1 month, the presence of paraplegia, the presence of pulmonary symptoms, and the presence of afebrile illness than those with bacterial infection. There were no significant differences among treatment outcomes and mortality between the two groups.

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231. Factors Associated with Not Using a Condom at Last Sex Among Sexually Active US Navy and Marine Corps Personnel Across a Shipboard Deployment

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Session: 46. Clinical: Sexually Transmitted Infections

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Background. Condom use is highly effective in preventing sexually transmitted infections (STIs); however, data on this are limited among US military personnel who may be at a higher risk for STI acquisition across a deployment cycle. This study examined factors associated with no condom use at last sex at three time points, pre- (T1), during (T2), and post-deployment (T3), across a US military shipboard deployment cycle.

Methods. Data were collected among active duty US Navy and Marine Corps personnel assigned to 11 deploying ships using an anonymous, voluntary, self-completed survey, including demographics, condom use at last sex, sexual risk behavior, STI diagnosis, alcohol misuse (Alcohol Use Disorders Identification Test–Consumption), and drug use with sex. Descriptive and generalized regression model analyses were conducted to determine the effects of main exposures after adjusting for demographic characteristics, with statistical significance defined as $P < 0.05$. When longitudinal data were included, generalized estimating equations were used. Models included their interaction with time.

Results. Among participants, $n = 1,900$ (T1), $n = 549$ (T2), and $n = 1,168$ (T3) reported age and sex, were sexually active, and included in the analysis. The proportion of individuals who used a condom at last sex was significantly higher during T2 (53%, $P < 0.0001$) than T1 (27%) and T3 (28%), with an STI prevalence of 1% (T1), 7% (T2), and 2% (T3). In adjusted models, participants not using a condom at last sex were significantly more likely to report an STI diagnosis (OR 2.26, 95% CI 1.19–4.28), screen positive for hazardous alcohol use (OR 1.44, 95% CI 1.21–1.71), and use drugs to enhance sex (OR 1.37, 95% CI 1.06–1.77), but less likely to engage in transactional sex (OR 0.69, 95% CI 0.50–0.94). Associations between condom use and main exposures did not differ significantly by time point.

Conclusion. Although condom use was significantly higher during T2, STI prevalence remained high, which suggests those who do not use a condom during deployment are at a higher risk for STI acquisition than pre- or post-deployment. These data may inform interventions targeting high STI acquisition risk individuals and time periods to increase condom use.

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232. The Detection Rates of Urogenital Chlamydia trachomatis and Neisseria gonorrhoeae in Chinese Population Applying for U.S. Immigration

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Background. Medical screening for gonorrhea is under the mandatory requirements of the Center for Disease Control and Prevention for aliens applying for U.S. immigration. Gonorrhea is frequently associated with *Chlamydia trachomatis* (CT) infection. There is limited data on the detection rates of urogenital CT and *Neisseria gonorrhoeae* (NG) in Chinese population.

Methods. Data on physical examinations of applicants in Guangdong International Travel Health Care Center, China were collected and retrospectively analyzed. The nucleic acids of urogenital CT and NG from urine specimens were detected by fluorescent probe PCR using cobas 4800 CT/NG Amplicon Detection Kit (Roche Molecular Systems, Inc.). The detection rates of CT and NG among the overall population were assessed. In addition, the detection rates of CT by age and gender were also evaluated.

Results. In total, 10,549 applicants underwent physical examinations from September 2016 to March 2017. Mean (SD) age was 41.4 (15.6) years, ranging from 15 to 90 years. The proportion of females (56.17%) was higher than that of males (43.83%). Of the 10,512 people who completed the detection of CT, 369 (3.51%) were CT-positive. The detection rate of CT was significantly higher in females (4.15%) than males (2.69%) (Table 1). The highest CT-positive rate was observed in the age group of 25–29 years (24/344, 6.98%) among males, while in a slightly younger age group of 20–24 years (34/524, 6.49%) among females (Figure 1). Of the 10,510 applicants who completed the detection of NG, 10 (0.10%) were NG positive. The detection rate of NG in males and females was 0.11 and 0.08%, respectively (Table 1).

Conclusion. Our study first reported the detection rates of urogenital CT (3.51%) and NG (0.10%) among Chinese applicants for U.S. immigration. The highest positive rate of CT was observed among young and middle-aged people, which should gain more attention.

Table 1: The positive rate of the detection of CT and NG

Item	Gender	Positive number	Positive rate (95% CI) (%)
CT	Male ($n = 4606$)	124	2.69 (2.22–3.16)
	Female ($n = 5906$)	245	4.15 (3.64–4.66)
	Total ($n = 10,512$)	369	3.51 (3.16–3.86)
NG	Male ($n = 4606$)	5	0.11 (0.01–0.20)
	Female ($n = 5904$)	5	0.08 (0.01–0.16)
	Total ($n = 10,510$)	10	0.10 (0.04–0.15)

CT: *chlamydia trachomatis*; NG: *neisseria gonorrhoeae*; CI: confidence interval.