313. Outpatient Treatment and Recurrence of Prosthetic Joint Infection (PJI) in Infectious Disease (ID) Physician Office Infusion Centers (POICs): A 2-Year Retrospective Multicenter Analysis

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Background. A significant complication of prosthetic joint replacement is the development of a PJI. Therapy includes prolonged IV antibiotics (IVAB), usually delivered in the outpatient setting. Follow-up (FU) in this population can be difficult, particularly for the treating ID physician. We report our experience treating PJI in an ID POIC.

Methods. Retrospective chart review was conducted of patients (patients) with initial knee or hip PJI, who received ≥3 days of IVAB in 14 ID POICs from July 2015 to July 2017. Initial clinical success (ICS) was defined as no evidence of infection at the completion of outpatient parenteral antimicrobial therapy (OPAT), although continued oral antibiotics were allowed. Available FU patients were assessed at 6 months for recurrence and associated factors analyzed using χ^2 and Fisher's exact test.

Results. We evaluated 171 patients (122 knees, 49 hips) with a median age of 65 years (range 31–91) and 64% male. Infection occurred within 90 days of the implant in 40% (25% within 30 days). Prostheses were retained in 109 patients (64%). 91% were hospitalized prior to OPAT for 4.7 median days, with the remainder treated from the community. The median length of OPAT was 37 days (range: 8–77). Cultures were positive in 154 patients with 122 *Staphylococcus* spp. pathogens (43% MSSA, 43% CoNS, 13% MRSA) in 112 patients. Most commonly prescribed IVABs were vancomycin (41%) and cefazolin (37%). ICS was achieved in 163 patients (95%), independent of prosthesis removal, with 119 (73%) continuing oral antibiotics post OPAT. Eight patients did not complete OPAT. Six-month FU to the ID physician was available for 97/163 patients completing therapy (60%). Of these, recurrence occurred in 22 patients (23%) at a median of 2.1 months (range 0.2–6). Risk factors for recurrence are noted below. Oral rifampin use with IVAB was associated with a significantly lower rate of recurrence in patients with staphylococcal PJI ($P = 0.004$).

Conclusion. This real-world evaluation underscores the challenges of successful treatment of PJI. ICS was readily achieved (95%). High recurrence (23%) may be exaggerated by lower likelihood of FU in asymptomatic patients. Lack of improvement in 6-month cure with prosthesis removal merits additional inquiry. Although the group was small, adjunctive rifampin suggests improved outcomes in staphylococcal PJI.

Assessment of risk factors for PJI recurrence

Variable	Study n/N	PJI Recurrence (n=22)	No PJI Recurrence (n=75)	P-value
Age ≥65 years	52/97	11 (50%)	41 (55%)	0.700
BMI ≥30 kg/m²	52/97	12 (55%)	40 (53%)	0.920
Hospitalization during OPAT	9/97	2 (9%)	8 (11%)	0.831
Prosthesis retained prior to OPAT	71/97	16 (72%)	55 (73%)	0.955
Initial PJI ≤30 days of joint replacement	26/97	4 (18%)	22 (29%)	0.299
Staphylococcal PJI	73/97	19 (86%)	54 (72%)	0.170
Rifampin use in staphylococcal PJI	18/73	0%	18 (33%)	0.004

Disclosures. **B. S. Metzger**, Allergan: Speaker's Bureau, Speaker honorarium. **L. J. Van Anglen**, Merck & Co.: Investigator, Research grant.

314. Discordant Microbiology Cultures From Paired Osteomyelitis Bone Specimens Should Question the Current Approach to Evaluation

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Background. Published foot osteomyelitis series typically report treatment failure rates of 20% or more. The role of persistent vs. new infections in this treatment failure is unclear.

Methods. We identified treatment failure among all cases of probable or definite osteomyelitis at a single Houston hospital between 2011 and 2016. Treatment typically consisted of surgical resection of grossly affected bone and 2–12 weeks of antibiotic therapy selected based on bone culture results. Treatment failure was defined as either: (1) unplanned resection of additional bone contiguous the previous area of treatment; or (2) leg (above-ankle) amputation. Cases were included if paired bone cultures (initial operation + reoperation for treatment failure) were obtained. Cohen's kappa was calculated to estimate concordance between isolates seen at the initial

Results. 208 cases of definite or probable osteomyelitis were reviewed. Treatment failure occurred in 55 cases (26%), 35 of which had microbiology results from paired bone specimens. Initial cultures identified 70 bacterial and 1 fungal isolates, repeat cultures identified 77 bacterial and 3 fungal isolates. Overall concordance was poor (kappa = 0.180). Species and group-specific concordance ranged from poor to moderate (see table). *Staphylococcus aureus*, nonpseudomonal Gram-negative aerobes, and anaerobes were the most common discordant bacteria to be seen at reoperation for treatment failure. Enterococcus appeared to be the most persistent organism, i.e., most commonly seen in both specimens.

Conclusion. Microbial isolates identified by conventional cultures at the time of reoperations for treatment failure differ significantly from those seen at the initial operation. Better diagnostic methods may help in understanding the degree the role of persistent unidentified microbes vs. new microbes in treatment failure.

Disclosures. **B. W. Trautner**, Paratek: Consultant, Consulting fee
Zambon: Consultant, Consulting fee and Research grant

315. Oral Vs. Intravenous Antibiotic Treatment for Gram-Positive Prosthetic Joint Infections: A Retrospective Study

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Background. Intravenous antibiotic infusion is the current standard for prosthetic joint infections (PJIs) management. antibiotic used for PJIs have a good oral bioavailability, especially rifampicin, suggesting that oral and IV route could be as efficient. Our aim was to compare the outcome of PJIs treated by oral antibiotics to those treated intravenously.

Methods. a retrospective survey was done in two reference centers between 2014 and 2016 and included all patients presenting Gram-positive PJIs. In these centers, patients suffering from Gram-positive PJIs could receive IV or early oral antibiotics regimen (started the day final antibiogram were received). First, we compared these two groups in terms of demographic and infection characteristics. Then, the outcome, judged by the percentage of patient with a relapse or a new infection on the same site during the follow-up, was compared.

Results. Within this period, 87 patients were treated for Gram-positive BJIs, 51 (59%) received early oral therapy and 36 were treated intravenously. Median age was 65 [IQR = 56–75], 50 (57%) were female. Overall, 18 cases suffered from polymicrobial BJIs containing at least one staphylococci. S. aureus was found in 30 (34%) cases and 7 (8%) strains were resistant to ampicillin. The median time of follow-up was 467 days [IQR=218–729]. The median time of treatment was 60 days [IQR=44–84]. When comparing the oral therapy group and IV group, we did not find any difference in terms of comorbidities, infection characteristics, type of surgery and infection severity. In the oral therapy group, the oral antibiotic regimen was started before day 7 following surgery for 33 (76%) individuals and before day 10 for 44 (86%). Treatment failures were observed in 9/36 (25%) and 12/51(23.5%) ($P = 1$) in IV and oral therapy group, respectively.

Conclusion. Oral antibiotic treatment seems to be as efficient as an intravenous regimen to treat prosthetic Gram-positive prosthetic joint infections.

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

	Staphyloccocus aureus	Other *Staphylococcus* sp.	*Streptococci*	*Enterococcus*	*Corynebacterium*	*Pseudomonas*	*E. coli*	Other Gram-negatives	Anaerobes
Present in both specimens	3	2	2	5	3	1	1	1	0
Present only at initial operation	4	4	7	4	3	1	4	7	6
Present only at reoperation	7	3	0	3	4	3	4	6	5
Absent in both specimens	21	26	26	23	25	30	26	21	24
Cohen's kappa	0.154	0.246	0.298	0.457	0.340	0.278	0.067	–0.102	–0.185
agreement	poor	fair	fair	moderate	fair	fair	poor	poor	poor