

Background

- Prosthetic joint infections (PJIs) complicate 0.5-2.5% of arthroplasties and up to 25% of revision arthroplasties.
- Debridement, antibiotics, and implant retention (DAIR) offers a joint-sparing alternative for patients with symptoms within 4 weeks of onset (Early Postoperative Infection as classified by the Tsukayama classification).
- Infection occurring around the 4-6 week window is when it is not clear if DAIR or full explant of the prosthesis should be the mainstay.
- Our institution's protocol for DAIR includes modular exchange of polyethylene insert and consult to Infectious Disease for organism specific treatment, 6 weeks of IV antibiotics, followed by 6 week antibiotic holiday, and 3 months of suppression for THA and 6 months of suppression for TKA after eradication.

Methods

- Retrospective chart review study
- 109 DAIR cases
- July 2017-May 2025
- Across 4 hospitals by 3 fellowship-trained orthopaedic surgeons.
- Reinfection and reoperation rates were evaluated up to 1 year between the ≤ 4 weeks and 4-6 weeks groups using Firth logistic regression.
- T-tests were performed on the 4-6 week group.
- Demographic variables and preoperative laboratories were compared as a secondary variable.

Time to Washout	≤ 4 Weeks (n=100)	4-6 Weeks (n=5)
Gender (%)		
Female	52%	33.3
Male	48%	66.7
Age (years, mean $\pm$ SD)	64.5 $\pm$ 15.3	66.2 $\pm$ 8.6
BMI (kg/m², %)		
< 25	22	16.7
25-29.9	31	50
30+	47	33.3
Joint (%)		
TKA	46	33.3
THA	54	66.7
Drainage (%)	66	66.7
Sinus (%)	28	60
Diabetes Mellitus (%)	34	50
CCI (%)		
0-2	33	16.7
3+	67	83.3
ASA (%)		
1-2	26.3	16.7
3+	73.7	83.3
Smoking Status (%)		
Never	59	83.3
Former/Current	41	16.7
Causal Organism Type (%)		
Gram-Positive	41	40
Gram-Negative	25	60
Fungi	3	0
Culture-Negative	18.9	0
Multiple Organism	11.1	0
ESR (mean $\pm$ SD)	52 $\pm$ 30.5	45 $\pm$ 3.6
CRP (mean $\pm$ SD)	10.1 $\pm$ 21.0	5.9 $\pm$ 4.1
HbA1c (mean $\pm$ SD)	5.7 $\pm$ 0.8	5.8 $\pm$ 0.5
Calcium Sulfate Beads (%)	23	20

Table 1: Patient Demographics and Clinical Characteristics

Outcome	≤ 4 Weeks (n=100)	4-6 Weeks (n=5)	P-Value
1-Year Outcomes			
- Reinfection	24 (30.8)	1 (33.3%)	0.926
- Reoperation	26 (33.8%)	1 (33.3%)	0.988

Table 2: Reinfection and Reoperation Rates of ≤ 4 Weeks Versus 4-6 Weeks



Figure 1: Xray s/p DAIR in TKA

Results

- 100 patients had washout ≤ 4 weeks, 5 in the 4-6 week period.
- There were 41% males and 59% females in this study.
- The average age was 66.7 ± 11.9 years, and average BMI 30.9 ± 6.98 .
- The median [IQR] CCI = 3 [2–4], and median [IQR] ASA = 3 [2–3].
- The average ESR was 53.4 ± 32.1 mm/h, CRP 15.7 ± 27.5 mg/L, and HbA1c $5.7 \pm 0.8\%$.
- Drainage from the incision site was present in 64.2% of patients, and a communicating sinus was present in 30.5%.
- Calcium sulfate beads were placed in 24.1% of patients, and 18 patients required flap coverage.
- DAIR was performed in 27.5% of THAs and 72.5% of TKAs.
- At 1-year, reinfection and reoperation rates also did not differ between the **4-6 week group compared to the <4 week group, $p = 0.926$ and $p = 0.988$, respectively.**

Conclusions

- Patient risk factors should be taken into account when determining one-year morbidity.
- Modifiable risk factors, such as smoking abstinence, can affect reoperation rates.
- At this time, undergoing DAIR vs revision arthroplasty at the **4-6 week window may be a viable option and have comparable reinfection and reoperation rates at 1 year.**
- Larger cohorts and prospective studies are needed to confirm this finding.