

Bacteremia Associated with Worsened Outcomes After Debridement with Antibiotics and Implant Retention (DAIR) for Total Knee Arthroplasty Periprosthetic Joint Infection

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Introduction:

- Periprosthetic joint infection (PJI) after total knee arthroplasty (TKA) may be managed with debridement with antibiotics and implant retention (DAIR)¹
- Concurrent bacteremia may worsen outcomes in DAIR for PJI, but existing studies are limited^{2,3}
- This study assessed whether bacteremia was associated with increased rates of subsequent procedures following DAIR

Methods:

- Adults with primary TKA who developed PJI within 1 year and underwent DAIR within 30 days of diagnosis were identified from the PearlDiver database
- Bacteremic (within 2 weeks prior to PJI) and non-bacteremic cohorts were matched 2:1 for age, sex, and Elixhauser comorbidity index
- Patients were stratified by early (≤ 6 weeks postop) vs. late (> 6 weeks–1 year) PJI
- Primary outcome: 2-year procedure-free survival after DAIR
- Multivariable logistic regression adjusted for matching variables, year of surgery, and defined comorbidities

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Results:

	No Bacteremia (N=431)	Bacteremia (N=233)	P-value	Bacteremia OR (95% CI)	P-value
Any Subsequent Procedure	103 (23.9%)	84 (36.1%)	0.001	1.96 (1.37, 2.83)	<0.001
Subsequent DAIR or Arthrotoomy	27 (6.3%)	28 (12.0%)	0.016	2.11 (1.19, 3.75)	0.011
Two-Stage Revision	64 (14.8%)	50 (21.5%)	0.041	1.70 (1.11, 2.60)	0.014
Composite Salvage Event ^s	12 (2.8%)	< 11 (<4.7%)	0.999	1.01 (0.33, 2.83)	0.982

Table 1. Univariable and multivariable analysis of subsequent procedures within 2 years of DAIR between matched cohorts. Bacteremia was associated with significantly higher odds any subsequent procedure, subsequent DAIR or arthrotoomy, and two-stage revision.

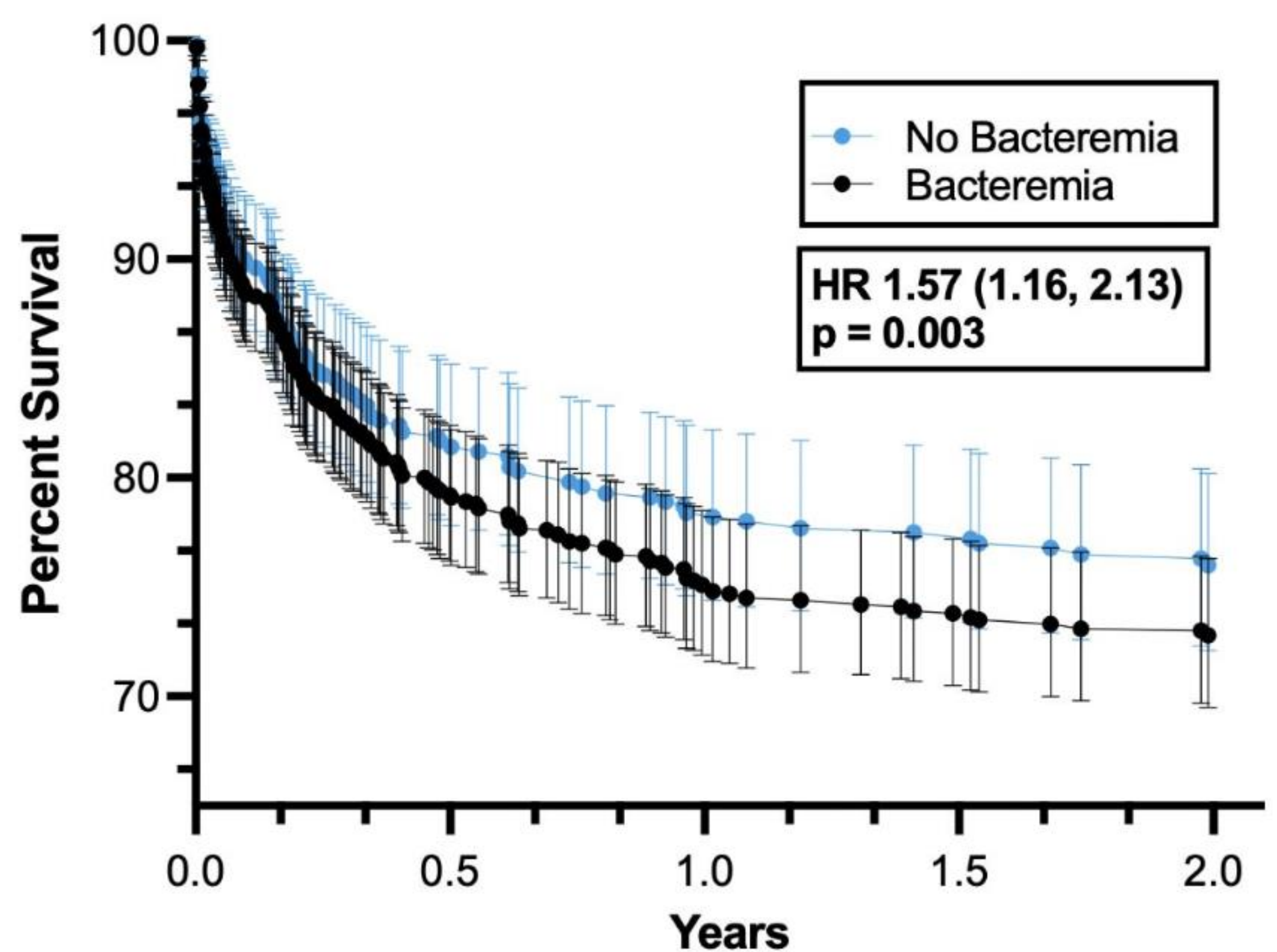


Figure 1. A Kaplan-Meier curve and Cox regression analysis showing two-year procedure free survival after DAIR.

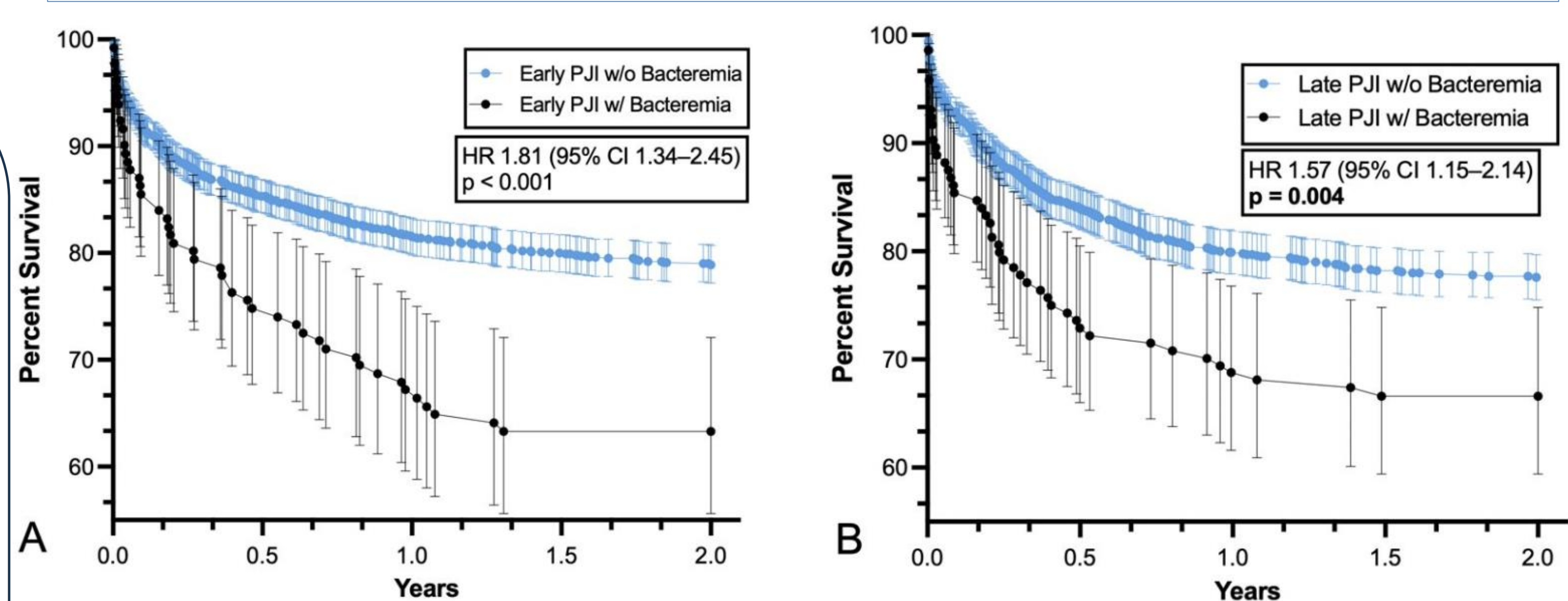


Figure 2. A Kaplan-Meier curve and Cox regression analysis showing two-year procedure free survival after DAIR between patients with versus without bacteremia for both [A] early and [B] late PJI patients.

Conclusions:

- Bacteremia was independently associated with increased odds of subsequent procedures after DAIR for PJI, strongest among patients with early PJI
- Bacteremia may identify a higher-risk subgroup, useful for preoperative counseling and risk stratification
- Further studies incorporating microbiology, symptom duration, and treatment details are needed



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