



Single vs. Double DAIR for Acute Hip PJI: And The Winner Is?

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BACKGROUND

- Although a single debridement, antibiotics and implant retention (DAIR) procedure has long been considered the “gold-standard” option for the treatment of acute periprosthetic joint infection (PJI), the double DAIR protocol is gaining traction following promising reports in the literature.
- In one study, 86.7% of patients that received a double DAIR procedure for acute PJI were found to have experienced treatment success at latest follow-up.
- The purpose of this study is to compare outcomes between single and double DAIR in a multi-institutional cohort.

METHODS

- A retrospective, multi-institutional study was conducted including patients with acute hip PJI, defined as symptom onset or index surgery within 28 days of presentation.
- Acute PJI was defined using the 2013 MSIS criteria.
- Treatment failure was defined as reoperation for infection, PJI-related mortality, or persistent signs of infection at the latest follow-up.
- Univariate and multivariable logistic regression analyses were performed to identify independent predictors of treatment failure.

RESULTS

- A total of 109 (59 double DAIR, 50 single DAIR) patients were included in the final analyses.
- The double DAIR group had a greater comorbidity burden (CCI 3.86 versus 1.47, $P < 0.001$) and a higher rate of hematogenous infections (61.0 versus 36.0%, $P = 0.016$).
- Treatment success was achieved in 80.0% of the double DAIR group compared to 46.0% of the single DAIR group ($P < 0.001$).
- After adjusting for comorbidity burden and other baseline differences, multivariable analyses demonstrated that single DAIR (OR 4.27, 95% CI: 1.16–15.66, $P = 0.029$) and revision arthroplasty (OR 13.18, 95% CI: 4.12–42.22, $P < 0.001$) were independent predictors of treatment failure.

DISCUSSION & CONCLUSION

- To our knowledge, this is the first study comparing the outcomes of single vs. double DAIR in management of acute PJI.
- Double DAIR was associated with significantly higher treatment success rates than single DAIR in acute hip PJI, despite greater baseline comorbidity burden in the double DAIR group.
- These findings support consideration of double DAIR as a more effective infection control strategy in select patients with acute hip PJI.

TABLE 1

Variable	Single DAIR (n = 50)	Double DAIR (n = 59)	P-value
Age	67.04 (10.38)	65.01 (13.53)	0.389
Sex			0.009
Men	13 (26.0%)	31 (52.5%)	
Women	37 (74.0%)	28 (47.5%)	
BMI, mean (SD)	29.67 (7.90)	30.39 (7.94)	0.647
CCI, mean (SD)	1.47 (2.17)	3.86 (2.13)	<0.001
Index arthroplasty			0.323
Primary	24 (48.0%)	35 (59.3%)	
Revision	26 (52.0%)	24 (40.7%)	
Infection type			0.016
Acute post-op	32 (64.0%)	23 (39.0%)	
Hematogenous	18 (36.0%)	36 (61.0%)	
Follow-up duration (years), median (IQR)	3.6 (1.8–7.1)	3.9 (1.2–6.8)	0.620

TABLE 2

Variable	Single DAIR (n=50)	Double DAIR (n=59)	P-value
Treatment Outcomes			<0.001
Success	23 (46.0%)	47 (80.0%)	
Failure	27 (54.0%)	12 (20.0%)	

TABLE 3

Variable	Univariate		Multivariate	
	OR (95% CI)	P-Value	OR (95% CI)	P-Value
Age	1.01 (0.97 – 1.04)	0.727		
Sex, Women	1.59 (0.70 – 3.59)	0.265		
BMI	1.01 (0.96 – 1.06)	0.790		
Acute hematogenous PJI	0.95 (0.43 – 2.08)	0.898		
CCI	0.86 (0.71 – 1.05)	0.135	1.04 (0.79 – 1.38)	0.756
Revision arthroplasty	13.21 (4.97 – 35.11)	<0.001	13.18 (4.12 – 42.22)	<0.001
Single DAIR	4.60 (1.98 – 10.69)	<0.001	4.27 (1.16 – 15.66)	0.029
High-virulence organism	1.87 (0.82 – 4.27)	0.139	1.51 (0.45 – 5.02)	0.505

**High virulence defined as methicillin resistant organisms, enterococcus spp., gram-negative bacteria, and fungal pathogens*