Impact of Preoperative CD4 Count on Outcomes Following Total Hip Arthroplasty in HIV-Positive Patients

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INTRODUCTION:

Studies show that compliant HIV patients on HAART achieve comparable outcomes to HIV-negative individuals, though questions remain regarding lower CD4 counts. Research on complications after total hip arthroplasty (THA) in HIV-postive patients is mixed, with some studies indicating higher risks of infections and complications, while others show no significant difference. This study aims to identify key factors influencing successful THA outcomes in HIV-positive patients, such as preoperative CD4 count.

METHODS:

We performed a retrospective chart review of HIV-positive patients undergoing total hip arthroplasty (THA) at a single institution from 2016 to 2024 with minimum 1-year follow up. Analysis based on HIV stage was performed: HIV stage 1 (CD4 >500) and stage 2 (CD4 <500). Outcome variables included infection, postoperative drainage, ED visit, readmission, and revision surgery. Statistical analysis were made using Chi-square and Student's t-tests.

RESULTS:

A total of 106 patients were included: 63 (71%) in HIV stage 1 (CD4 > 500) and 26 (29%) in stage 2 (CD4 < 500). 28 patients were excluded due to lack of follow up. No significant differences were found in demographics or drug use history. Stage 1 patients had a statistically significant lower revision rate compared to stage 2 patients (2% v. 27%, OR 7.91, p<0.01). The revisions in the stage 1 cohort were for: one dislocation. The revisions in the stage 2 cohort were for: 4 disclocation/loosening of implant, 2 for I&D and 1 for pain. No difference in infection rate, rate, ED visits, readmissions were observed between the cohorts.

DISCUSSION AND CONCLUSION:

We observed increased revision rates for our HIV stage 2 cohort. Although patients were all compliant on HAART therapy, this data suggests that a lower CD4 count may increase the risk for complications after THA. Further research is needed to assess factors associated with worse outcomes in this population.

Table 1: Demographics

	HIV Stage 1(n=63)	HIV Stage 2 (n=43)	P-Value	Odds Ratio
Sex	30 male 33 Female	24 Male 19 Female	-	-
Avg Age(Std)	56(±8) years	56(±7) years	-	-
Diagnosis				
Osteoarthritis	33	18	0.56	
Avascular Necrosis	29	24		
Trauma	1	1		

Table 2: Drug use history

Category	HIV Stage 1(n=63)	HIV Stage 2 (n=26	P-Value	Odds Ratio
Drug Use History				
No History	40	18	0.08	
Marijuana	2	3		
Illicit Drugs	21	22		

Table 3: Distribution of Infection, ER Visits, and Re-admission by HIV Staging

Outcome	HIV Stage 1(n=63)	HIV Stage 2 (n=26	P-Value
Infection	2 (3.2%)	1 (2.3%)	0.79
Return to ER	9 (14.3%)	6 (14.0%)	0.96
Re-Admission	4 (6.3%)	5 (11.6%)	0.32

Table 4: Surgical Outcomes

Surgical Outcomes	HIV Stage 1(n=63)	HIV Stage 2 (n=26)	P-Value	Odds Ratio
Osteoarthritis	33	18	0.56	
Avascular Necrosis	29	24		
Trauma	1	1		
Return to OR	2	7	0.03	5.93 (1.17-30.11)
Revision	1	7	0.007	7.91 (1.42-101.97)
Infection	2	1	1.00	
Post Op Extended LOS	37	26	1.00	