Outcomes of Total Hip Arthroplasty in Patients with Parkinsonian Movement Disorders

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INTRODUCTION:

Patients with Parkinsonian movement disorders (PMDs) such as Parkinson Disease and Dementia with Lewy Bodies are at increased risk for complications following hip arthroplasty. The purpose of this study was to compare outcomes following direct anterior (DA), anterolateral (AL), and posterior (PA) approach primary elective total hip arthroplasty (THA) among PMD patients.

METHODS:

A retrospective analysis was performed of all primary THAs performed at our institution between 2010-2023 in patients with diagnosed PMDs. Revision THA and THA for fracture were excluded. The study population consisted of 248 patients, 53 (21%) of which were DA, 67 (27%) AL, and 128 (52%) PA THAs. Mean patient age was 72 years and mean follow-up was 7 years. There was no difference between groups in baseline demographics. One-hundred seven (43%) patients were deceased during follow-up at a mean time of 6 years. An effective head size of 36 or greater was utilized in 208 (84%) of patients, with 35 (14%) being a dual mobility (DM) construct.

RESULTS:

Overall, the complication rate was 19% with no difference between surgical approach (p=0.988). Sixteen (6.5%) patients sustained a periprosthetic fracture and 9 (3.6%) patients sustained a dislocation, with no statistical difference noted between groups. One hundred forty-four (58%) sustained 2 or more falls during follow-up. Those with an effective head size of 36-mm or greater were less likely to experience a dislocation compared to a 32-mm or less (2.4% vs. 10%, p=0.04). Zero DM constructs experienced a dislocation.

DISCUSSION AND CONCLUSION:

In patients with PMDs undergoing elective primary THA, the overall complication rate remains higher than the general population. This study demonstrated no difference in complications between DA, AL, and PA approaches. This may be due to increasing utilization of a larger head size or DM construct for stability.

Table 1. Patient Characteristics of Entire Cohort

Variables	Overall (N=248)
Age at Surgery (years), Mean (SD)	72.6 (7.6)
BMI (kg/m^2), Mean (SD)	30.2 (6.1)
Female, n (%)	100 (40)
Diabetic (n, %)	52 (21)
Smoking (n, %)	
Never	130 (52)
Quit > 6 weeks ago	109 (44)
Current	9 (4)
Length of follow-up*, Mean (SD)	7.2 (3.7)
Surgical Approach used (n, %)	
Direct Anterior	53 (21)
Anterolateral	67 (27)
Posterior	128 (52)
Dual Mobility Used (n, %)	35 (14)

BMI = body mass index
*Last recorded electronic health record visit or death

Table 2. Clinical Outcomes

Variables	Direct Anterior N=53	Anterolateral N=67	Posterior N=128	P-value
Length of stay (years), Mean (SD)	2.1 (1.1)	3.3 (1.8)	2.6 (1.2)	<0.001
Any complication (n, %)	10 (19)	13 (19)	25 (20)	0.995
Dislocation (n, %)	2 (4)	1 (2)	6 (5)	0.601
Deep infection (n, %)	0 (0)	1 (2)	3 (2)	0.812
Periprosthetic fracture (n, %)	3 (6)	3 (5)	10 (8)	0.745
Revision (n, %)	2 (4)	2 (3)	8 (6)	0.679

Continuous variables were analyzed with student t-tests/ANOVA. Categorical variables were analyzed using Chi-squared analyses and Fischer's exact tests for smaller groups.

Table 3. Head Size Versus Dislocation

	No dislocation events (N=40)	1 or more dislocations N=208)	P-value
32 mm or less (n, %)	36 (90)	203 (98)	0.040
36 mm or greater (n, %)	4 (10)	5 (2)	

Continuous variables were analyzed with student t-tests/ANOVA. Categorical variables were analyzed using Chi-squared analyses and Fischer's exact tests for smaller groups.