Dual Mobility Outcomes in Primary Total Hip Arthroplasty: An American Joint Replacement Registry Analysis

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INTRODUCTION:
Dual mobility (DM) implants have been used with increased frequency in the United States because of decreased rates of dislocation. The purpose of this study is to report on outcomes of DM implants used in primary THA from the American Joint Replacement Registry (AJRR).
METHODS:
Patients ≥65 years of age who underwent a primary THA from 2012-2018 were screened for inclusion. Patients were divided into 3 groups: (1) DM articulation, (2) ≤32 mm solid bearing, and (3) ≥36 mm solid bearing cohorts. The dataset was merged with Medicare claims data available through Jun 2020 to supplement outcome cases not captured in the AJRR. Patient and hospital characteristics were analyzed using multivariate statistical modeling to minimize potential confounding and identify independent associations with revision. All-cause revision for any reason and revision for instability were assessed using Cox proportional hazards regression analyses.
RESULTS:
In total, 207,526 primary THAs were identified, of which 13,896 (6.7%) received a DM articulation, 60,358 (29.1%) a ≤32 mm femoral head, and 133,272 (64.2%) a ≥36 mm femoral head. At eight-year follow-up, the all-cause rate of revision was higher in the DM group (3.5%, 95%-CI 3.1-4.1%) compared to the ≤32 mm (2.6%, 95%-CI 2.5-2.8%) and ≥36 mm (2.7%, 95%-CI 2.5-2.9%) groups. However, at eight-year follow-up, the rate of revision for instability was similar amongst the DM (0.35%, 95%-CI 0.24-0.49%), ≤32 mm (0.48%, 95%-CI 0.42-0.54%), and ≥36 mm (0.31%, 95%-CI 0.28-0.35%) groups.
DISCUSSION AND CONCLUSION: DM utilization was associated with increased rates of all-cause revision but was not associated with marked differences in revisions for instability compared to traditional bearing surfaces. These results may be explained by surgeons selectively using DM articulation in patients at increased risk of instability.

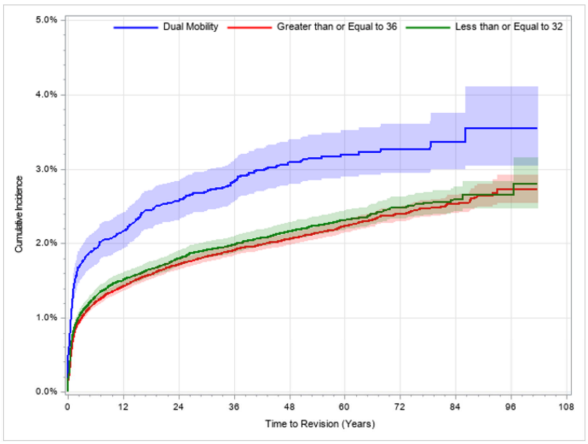

Figure 1: All-cause revision for DM articulations, ≤32 mm solid bearing, and ≥36 mm solid bearing femoral heads.

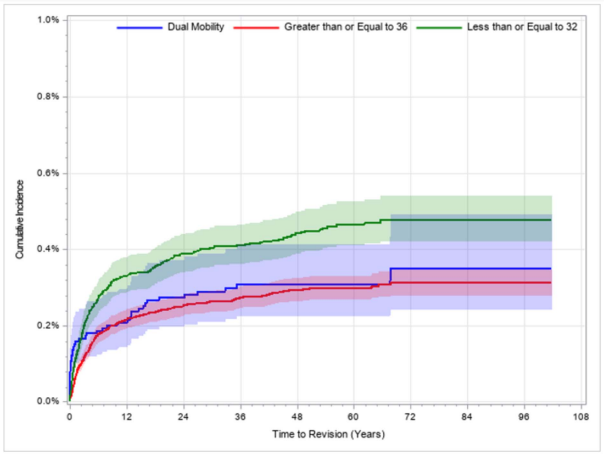

Figure 2: Revision for instability for DM articulations, ≤32 mm solid bearing, and ≥36 mm solid bearing femoral heads.