Similar jumbo head vs. dual mobility construct survivorship in primary total hip arthroplasty: US healthcare registry

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INTRODUCTION:
Two large-articulation options exist for enhanced stability in primary total hip arthroplasty (THA): Dual Mobility (DM) and Jumbo Head (JH) (40 or 44mm). However, debate exists between DM and JH, given substantial differences in complexity, cost, and failure mechanisms. Therefore, a registry study was undertaken to evaluate complications between these two strategies, focusing on scenarios where either could have been an option.
METHODS: We conducted a cohort study from a US health care system registry to evaluate complications between DM and JH, considering only scenarios with both options would be possible. Adult patients who underwent primary THA between 2010-2024 with an acetabular shell compatible with both options were included. THA using DM were compared to JH. The primary outcome was dislocation; all-cause revision, aseptic revision, and revision for instability were secondary outcomes. Crude incidence was calculated at 6-years follow-up. Propensity score-weighted Cox proportional hazards regression was used to evaluate revision risk by treatment group, adjusted for age, sex, race/ethnicity, BMI, ASA classification, medical comorbidities, stem fixation, head material, operative time, and surgeon volume.
RESULTS:
The sample included 9,532 THA (1,716 DM, 7,816 JH), performed by 283 surgeons at 58 hospitals. Mean patient age and BMI was 67.2 years and 30.2 kg/m^2. At 6-years follow-up, unadjusted dislocation incidence was 2.4% and 2.2% for DM and JH, respectively. After weighting, DM had fewer dislocations before 4.25 years (HR 0.50, 95% CI=0.30-0.82, p=0.006), but more after 4.25 years (HR 6.53, 95% CI=1.49-28.59, p=0.13). DM also had an increased crude risk for revisions for instability (1.1% vs. 0.7%, HR 1.78, P=0.031), though this failed to remain significant after weighting (HR=1.41, 95% CI=0.67-2.96, p=0.361). In the first year, 43.8% of the DM dislocations required revision, compared to 25.5% of the JH. No differences were found for 6-year all-cause revision (3.2% vs 2.6% HR=1.11, CI=0.66-1.85, p=0.693) or aseptic revision (2.1% vs 1.7%, HR=1.31, 95% CI=0.66-2.59, p=0.442).

DISCUSSION AND CONCLUSION:
JH was associated with more early dislocations than DM, suggesting an added benefit of an even larger articulation size. However, DM may be at higher risk of instability with longer follow up. In addition, JH did not have more revisions for instability than DM, suggesting JH dislocations could more often be successfully addressed non-surgically, while the fewer DM dislocations often required surgery. Overall, revision rates are ultimately similar at mid-term follow-up.