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Dual-mobility constructs versus large femoral head bearings in primary and revision total hip arthroplasty: a systematic review and meta-analysis of comparative studies

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Abstract

Background: Both dual-mobility (DM) constructs and large femoral head bearings (⩾36 mm) reduce dislocation following total hip arthroplasty (THA). There is limited research comparing DM with large bearings.

Methods: A systematic review of published literature was performed including studies that compared DM with large femoral head bearings in primary or revision THA according to PRISMA guidelines. The primary outcome was revision surgery for dislocation. The secondary outcome was all-cause revision surgery. Other complications were recorded. 2 authors independently selected studies, performed data extraction, and risk of bias assessment. Treatment effects were assessed using odds ratios and data were pooled using a fixed-effect model, where appropriate.

Results: 9 studies, all retrospective, met the final inclusion criteria. 2722 patients received DM and 9,789 large femoral head bearings. The difference in the odds of revision surgery for dislocation (OR 0.67; 95% CI, 0.45–1.01; $p=0.06$) and aseptic loosening are unclear (OR 0.61; 95% CI, 0.36–1.05; $p=0.07$); including important benefits and no difference. There was a benefit favouring DM for the risk of all-cause revision (OR 0.70; 95% CI, 0.56–0.86; $p=0.001$), revision for fracture (OR 0.49; 95% CI, 0.29–0.81; $p=0.005$) and dislocation not requiring revision (OR 0.29; 95% CI, 0.14–0.57; $p<0.001$). The estimate in the difference in the odds of revision surgery for infection was imprecise (OR 0.78; 95% CI, 05.1–1.20; $p=0.26$).

Conclusions: This study provides evidence that there may be clinically relevant benefits of DM constructs over large femoral head bearings. Prospective randomised studies are warranted given these findings.

Keywords

Dual mobility, primary, revision, systematic review, total hip replacement

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